BIBLIOGRAPHIES ON AEROSPACE SCIENCE

A CONTINUING BIBLIOGRAPHY WITH INDEXES

JUNE 1966
BIBLIOGRAPHIES ON AEROSPACE SCIENCE
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A selection of annotated references to unclassified bibliographies introduced into the NASA information system during the period February, 1965—April, 1966.
INTRODUCTION

With the publication of this second supplement, NASA SP-7006 (02), to the original issue of the Continuing Bibliography on "Bibliographies on Aerospace Science" (SP-7006), the National Aeronautics and Space Administration continues its program of periodic distribution of selected references to subjects of interest to the aerospace community. The references are assembled in this form to provide a convenient source of information for use by scientists and engineers who need this type of specialized compilation. Continuing Bibliographies are updated periodically by supplements which can be appended to the original issue.

All references in SP-7006(02) are bibliographies that have been announced in Scientific and Technical Aerospace Reports (STAR), International Aerospace Abstracts (IAA), and the NASA Continuing Bibliography Aerospace Medicine and Biology (NASA SP-7011 and its supplements). They were introduced into the NASA information system during the period February, 1965-April, 1966. Produced by a variety of private institutions and governmental organizations, each one provides a listing of references to some aspect of aerospace science.

Each entry in the bibliography consists of a citation and, when available, an abstract. The listing of entries is arranged in two major groups. Report literature references are contained in the first group and are subdivided according to their date of announcement in STAR. The second group includes journal and book references subdivided according to date of announcement in IAA, or in Aerospace Medicine and Biology.

A subject index and a personal author index are also included.
AVAILABILITY OF DOCUMENTS

STAR Entries (N65, N66)

NASA documents listed are available without charge to:
1. NASA Offices, Centers, contractors, subcontractors, grantees, and consultants.
2. Other U.S. Government agencies and their contractors.
4. Other organizations in the United States having a need for NASA documents in work related to the aerospace program.
5. Foreign government or academic (university) organizations that have established reciprocal arrangements for the exchange of publications with NASA, that have current agreements for scientific and technical cooperative activities with NASA, or that have agreements with NASA to maintain collections of NASA documents for public use.

Non-NASA documents listed are provided by NASA without charge only to NASA Offices, Centers, contractors, subcontractors, grantees, and consultants.

Organizations and individuals not falling into one of these categories may purchase the documents listed from either of two sales agencies, as specifically identified in the abstract section:

Clearinghouse for Federal Scientific and Technical Information (CFSTI), Springfield, Virginia 22151
Superintendent of Documents (GPO)
U.S. Government Printing Office
Washington, D.C. 20402

Information of the availability of this publication and other reports covering NASA scientific and technical information may be obtained by writing to:

Scientific and Technical Information Division
National Aeronautics and Space Administration
Code USS-AD
Washington, D.C. 20546

Collections of NASA documents are currently on file in the organizations listed on the inside of the back cover.

(continued)
IAA Series (A65, A66)

All articles listed are available from Technical Information Service, American Institute of Aeronautics and Astronautics, Inc. Individual and Corporate AIAA Members in the United States and Canada may borrow publications without charge. Interlibrary loan privileges are extended to the libraries of government agencies and of academic non-profit institutions in the United States and Canada. Loan requests may be made by mail, telephone, telegram, or in person. Additional information about lending, photocopying, and reference service will be furnished on request. Address all inquiries to:

Technical Information Service
American Institute of Aeronautics and Astronautics, Inc.
750 Third Avenue, New York, New York 10017

For further details please consult the Introductions to STAR and IAA, respectively.
A summary is presented of current methods based in attacking the error problems present in analog computers. The survey indicates that the best approaches to error analysis of hybrid computers are probably the use of sensitivity coefficients based on a modification of the method of Miller and Murray and the use of root shifting techniques in linear problems or problems which can be linearized. In both approaches approximations for transfer functions of different components and the use of a variety of mathematical tools such as Z transforms will be helpful. An extensive bibliography is also included.
electricity during thunderstorms are reviewed. An abstract of a report on argon ionization in the upper atmosphere is also included.

D.S.G.

N65-15537# Rocketdyne, Canoga Park, Calif.
SOURCES OF INFORMATION IN HUMAN FACTORS ENGINEERING, INCLUDING ASSOCIATED AREAS IN SYSTEM SAFETY, MAINTAINABILITY, PERSONNEL SUBSYSTEM, LIFE SCIENCES, QUALITY ASSURANCE, AND RELIABILITY ENGINEERING
George A. Peters and Frank S. Hall 1 Jan. 1965 168 p refs
(RH-3398-H)

The 380 reference sources listed include bibliographies, directories, abstract services, journals and textbooks of technical information in the field of human factors engineering. There are 371 regulatory and guidance documents referred to, including various regulations, specifications, standards, manuals, instructions, and program requirements that attempt to define the character of the contractor's human factors functions. Ninety descriptive publications are a sampling of government agency reports that attempt to describe how various functions might be accomplished, review the state-of-the-art in a given area, present new methods, or list basic data which might be useful in human factors analyses. Sixty-five illustrative reports are a cross section of contractually required or data submittal reports that are representative of what was actually accomplished, how it was done, and the type of organization or approach that was utilized. R.L.K.

N65-15819# High Altitude Observatory, Boulder, Colo.
A BIBLIOGRAPHY ON THE EFFECTS OF SHORT-WAVE AND PARTICLE RADIATION ON GLASSES Astrogroophysical Memorandum No. 164
Lorne Avery 30 Jul. 1964 9 p refs
(Grant NsG-404)
(NASA-CR-60407) OTS: HC $1.00/MF $0.50

An annotated bibliography is presented of literature available in the High Altitude Observatory. It covers material pertinent to studies on the extent to which the presence of ultraviolet radiation, X-rays, and cosmic rays induces fluorescence, thermoluminescence, scintillation, and solarization of the optical elements of an orbital coronagraph. R.L.K.

N65-15838# Hughes Aircraft Co., Culver City, Calif.
LIQUID ROCKET PROPELLANTS IN ZERO GRAVITY Selected Bibliography, Jan. 1962-Sep 1964
(LS-BIB-64-2)

N65-15839# Brookhaven National Lab., Upton, N.Y.
HIGH-TEMPERATURE LIQUID-METAL TECHNOLOGY REVIEW, VOLUME 2, NUMBER 5, OCTOBER 1964 Bi-monthly Technical Progress Review
O. E. Dwyer, ed. Dec. 1964 45 p
(BNL-896(PR-11)) OTS: $3.00

CONTENTS:
1. ALKALI METALS EVALUATION PROGRAM. QUARTERLY PROGRESS REPORT J. C. Chen p 1-2
2. APDA SODIUM TECHNOLOGY LOOP J. C. Chen p 2-3
3. SODIUM-HEATED STEAM GENERATOR DEVELOPMENT K. Hoffman p 3-4
4. PRESSURE MEASURING SYSTEMS FOR CLOSED CYCLE LIQUID METAL FACILITIES. SECOND QUARTERLY REPORT S. Kalish p 4-6
5. LOS ALAMOS SCIENTIFIC LABORATORY QUARTERLY STATUS REPORT ON PLUTONIUM REACTOR FUEL DEVELOPMENT O. E. Dwyer p 6
6. EFFECT OF HIGH TEMPERATURE SODIUM ON AUSTENITIC AND FERRITIC STEELS. PROGRESS REPORT A. J. Romano p 6-7
7. EFFECT OF HIGH TEMPERATURE SODIUM ON AUSTENITIC AND FERRITIC STEELS. PROGRESS REPORT C. J. Klamut p 8-9
8. MULTICOMPONENT ALKALI METAL ALLOYS C. J. Hsu p 9-10
as measurement of low impedance bonds, physical and chemical factors affecting the bond, changes of bond impedance with time, and lesser known methods of determining bond characteristics.


(SSTD-TDR-63-389; AD-427564)

This annotated bibliography results from an extensive literature survey of the theory and physical phenomenon associated with the reentry of space vehicles, and related information such as the interaction of electromagnetic waves with the hypersonically generated ionized sheath, techniques of reentry trajectory analysis and optimization, structural and material considerations, and many others. Only a limited number of references pertaining to specific reentry projects, such as the Mercury and Dyna-Soar Programs, are included. Literature surveyed covers the time period from January 1956 through March 1963, comprising 1150 references which are listed alphabetically by author or by originating agency if the author is unknown. The Armed Services Technical Information Agency (ASTIA) document numbers are also included. Among these are the origin of life on earth, the suitability of other planets for the development of indigenous life, the possibility of intelligent extraterrestrial life forms, techniques and instrumentation for the detection of extraterrestrial life, the chemical basis of life including the synthesis of organic compounds from simple precursors, and terrestrial contamination of spacecraft. Several references, which describe

**N65-1663#** International Union of Pure and Applied Chemistry, Basle (Switzerland).

**BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS**


(Rept.-13)

**N65-17124**# Virginia Univ., Charlottesville. Dept. of Aerospace Engineering

**BIBLIOGRAPHY OF SQUID PUBLICATIONS, OCTOBER 1963–SEPTEMBER 1964**

Nov. 1964 41 p

(Contract Nonr-3623(00); Proj. SQUID)

(UVA-6-R; AD-609240)

**CONTENTS:**

1. PROPERTIES OF MATERIALS (TRANSPORT, STRUCTURAL) J. Kestin et al p 3–8
2. PHYSICAL PROCESSES George Rudinger et al p 9–18
3. CHEMICAL PROCESSES William J. Miller et al p 19–28
4. COMBUSTION PHENOMENA H. G. Wolfhard et al p 29–32
5. ENGINES AND PROPULSIVE SYSTEMS R. L. Leonard et al p 33–34
6. INSTRUMENTATION R. B. Dimick et al p 35


**THERMAL CONDUCTIVITY OF TEN CRYOGENIC LIQUIDS—A BIBLIOGRAPHY**

L. A. Hall 15 Apr. 1963 21 p

(NASA Order R-45; NBS Proj. 8140-40-81450; NBS Proj. 8140-40-81141)

(NASA-CR-50292: NBS-7684) OTS: HC $1.00/MF $0.50
This bibliography contains 73 citations concerning the thermal conductivity of the following liquids: helium-3, helium-4, hydrogen, parahydrogen, deuterium, neon, air, fluorine, oxygen, nitrogen, argon, carbon monoxide, and methane. The information given in each citation includes author, title, reference, and subject and descriptor terms. In addition, the article is coded as to language, temperature range, form of data (numeric, graphic), type of article (experimental, review or compilation, theoretical, etc.) and general availability of the document. An index by fluid and an index by author are included to facilitate reference to pertinent documents which are listed serially by accession number.

**N65-17297#** International Union of Pure and Applied Chemistry, Basle (Switzerland). Commission on High Temperatures and Refractories

**BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, VOLUME 1964, NO. 4, OCTOBER–DECEMBER 1964**


**N65-17316** National Bureau of Standards, Boulder, Colo.

**A BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES FOR FLUORINE FROM 0° TO 300°K**

L. A. Hall and R. D. McCarty 1 Apr. 1963 24 p refs (NASA Order R-45)

(NASA-CR-50285; NBS-7676) OTS: HC $1.00/MF $0.50

This bibliography of thermophysical properties for fluorine from 0° to 300°K presents 51 citations which include author, title, reference, properties studied, temperature and pressure ranges, state of substance, type of data presented (i.e., whether the data are derived from experimental measurements, theoretical considerations or as a compilation from other sources), the form and amount of data. An index according to property, subindexed for state of substance, is included.

**Author**

**N65-17417#** Texas A&M Univ., College Station

**THERMOLUMINESCENCE BIBLIOGRAPHY**

Ernest E. Angino, N. Groger (Bern Univ.), and Richard McCall (Controls for Radiation, Inc.) Feb. 1965 101 p refs (TID-3911; Rev. 2) OTS: $4.00

**N65-17610#** Aerojet-General Corp., Azusa, Calif. Special Products Dept.

**SPACE ENVIRONMENT CRITERIA: SPACE ENVIRONMENT BIBLIOGRAPHY** Semiannual Report No. 2979


(NASA-CR-61037) OTS: HC $6.00/MF $1.50

The literature survey was completed and analysis of the data was initiated. The completed bibliography is included. The listed documents were separated into major environment groups and alphabetized under each environmental parameter. The information contained emphasizes radiation, space debris, and magnetic fields of interplanetary space, with cosmic rays and solar phenomena being treated secondarily. The lunar environment section is concerned with the geological aspects of the lunar surface, the atmosphere, and meteoroid environment. The planetary environment section deals largely with the definition of the various atmospheric structures. The sources of information for this bibliography are books, periodicals, meeting papers and conference proceedings, translations of foreign articles, and scientific and technical aerospace reports.

**Author**

**N65-17879#** National Aeronautics and Space Administration, Washington, D. C.

**AEROSPACE MEDICINE AND BIOLOGY — A CONTINUING BIBLIOGRAPHY**

Jan. 1965 182 p refs (NASA-SP-7011(06)) OTS: HC $1.00/MF $1.25

Subjects covered are the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. In addition, similar effects on biological organisms of lower order are included. Related topics such as sanitary problems, pharmacology, toxicology, safety, and survival, life support systems, exobiology, and personnel factors receive appropriate attention. Three organizations contribute to the publications—NASA, the American Institute of Aeronautics and Astronautics, and the Library of Congress.

R.W.H.


**N65-18347#** Advisory Group for Aeronautical Research and Development, Paris (France)

**STRUCTURAL STABILITY OF CONICAL AND SPHERICAL THIN SHELLS** Bibliography 4

W. Thielemann, comp. (Deut. Forschungsanstalt fur Luftfahrt) Sep. 1961 37 p refs

This bibliography is chronologically arranged by time intervals from 1900 through 1961. Listings are arranged alphabetically by author within intervals. Abstracts are presented if available, and an author index is included.

E.P.V.

**N65-18986#** Aerospace Research Labs., Wright-Patterson AFB. Ohio. Metallurgy and Ceramics Research Lab.

**AN ANNOTATED BIBLIOGRAPHY OF RESEARCH ON THE STRUCTURAL AND PHYSICAL PROPERTIES OF ZIRCONIA**

Berthold C. Weber Nov. 1964 94 p refs (ARL-64-205; AD-610758)

This bibliography covers the literature of the past 35 years although some older references are included because they are often quoted. Three hundred and seven references have been individually evaluated. The discussion of the subject is arranged in 12 sections dealing with topics of particular interest to the researcher. It is emphasized that inadequately defined test materials and insufficient control of experimental conditions are the main reasons for conflicting literature data concerning the structural and physical properties of zirconia.

Author

**N65-19028#** National Aeronautics and Space Administration, Washington, D. C.

**AEROSPACE MEDICINE AND BIOLOGY A CONTINUING BIBLIOGRAPHY**

Feb. 1965 112 p refs (NASA-SP-7011(08)) CFSTI: HC $1.00/MF $0.75

An annotated bibliography is given of unclassified reports and journal articles that were introduced into the NASA information system during this period. The subject matter covers biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the atmosphere or in space. These
references were announced previously in separate publications by the Library of Congress, the American Institute of Aeronautics and Astronautics, and NASA. The references are indexed by subject, corporate source, and personal author.

R.L.K.

N65-19271* # National Aeronautics and Space Administration, Washington, D. C.
A CUMULATIVE INDEX TO THE 1964 ISSUES OF A CONTINUOUS BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY
Feb. 1965 562 p Supersedes indexes to SP-7011 and SP-7011(01)-SP-7011(06)
(NASA-SP-7011(07)) CFSTI: HC $5.00/MF $2.75

N65-19336# California Univ., Livermore. Lawrence Radiation Lab
MARAGING STEEL, A BIBLIOGRAPHY
Penelope Bloom Dec. 1964 52 p refs
(Contract W-7405-ENG-48)
(UCLR-12223) CFSTI: $3.00

N65-19483# Picatinny Arsenal, Dover, N. J. Feitman Research Labs.
A BIBLIOGRAPHY ON SELECTED PROPERTIES OF THE SODIUM, POTASSIUM, AND RUBIDIUM NITRATES, CHLORATES, AND BROMATES
Saul Krasner and Peter D. Townsend Oct. 1964 30 p refs
(PA-TR-3161; AD-452319)
This bibliography contains references on the nitrates, chlorates, and bromates of sodium, potassium, and rubidium with particular emphasis on the following subjects: crystal growth, thermal decomposition, electron spin resonance, magnetic and optical properties, and radiation damage. Author

N65-19525# Atomic Energy Information Service, Frankfurt Am Main (West Germany)
AED INFORMATION SERVICE. SERIES C: BIBLIOGRAPHIES. SECTION 22: NUCLEAR SHIP PROPULSION
(AEC-C-22-03)
The task of supplying scientific and technical information to scientists and engineers in the nuclear energy field, who are assigned to the Atomic Energy Documentation Center in the Federal Republic of Germany is explained. A bibliography with author index is presented for nuclear ship propulsion. E.E.B.

N65-19595# Atomic Energy Commission, Oak Ridge, Tenn. Div. of Technical Information
CONTROLLED FUSION AND PLASMA RESEARCH—A LITERATURE SEARCH
(TID-3557, Suppl. 2) CFSTI: $6.00
A total of 3657 annotated references to research reports and journal articles are cited, covering work on fusion reactions, plasma physics, magnetohydrodynamics, magnetic fields, and other topics related to research in controlled fusion. Report number, availability, and author indexes are provided. Author

N65-19620# Uppsala Univ., (Sweden). Quantum Chemistry Group

N65-19703* # National Aeronautics and Space Administration, Washington, D. C.
HIGH ENERGY PROPELLANTS—A CONTINUING BIBLIOGRAPHY
Mar. 1965 104 p
(NASA-SP-7002(01)) CFSTI: HC $1.75/MF $0.75
A selection of annotated references to unclassified reports and journal articles is presented. Prime emphasis is given to references on solid, liquid, and hybrid propellants and oxidizers. Also, extensive coverage of related topics, such as propellant handling and storage, combustion characteristics, toxicity, hazards, and safety measures, is provided. R.W.H.

HUMAN SCIENCES IN INDUSTRY. PART I: ERGONOMICS Annotated Bibliography
Dec. 1964 141 p refs
Ergonomics, methods, facilities, equipment, and general references; systems of men and machines; visual inputs and processes; auditory inputs and processes; including speech production and intelligibility; other sensory inputs and processes; choice and interaction; body measurements, basic physiological capacities, basic and complex motor performance; design of controls and integration with displays; layout of panels and consoles; design of work space, equipment, and furniture; clothing and personal equipment; special environmental factors affecting performance; individual factors, work conditions, and task characteristics that affect behavioral efficiency; training aids and devices; and other areas of psychological research pertinent to ergonomics are the 15 areas covered by this annotated bibliography. E.E.B.

N65-19831# Lockheed Missiles and Space Co., Sunnyvale, Calif.
LONG-RANGE PLANNING AND TECHNOLOGICAL FORECASTING: AN ANNOTATED BIBLIOGRAPHY, SUPPLEMENT I
Peter R. Stromer, comp. Feb. 1965 40 p refs
(LMSC-5-10-65-3; SRB-65-1)
Emphasis is on planning within the aerospace and defense industry. During the past year both industry and government conducted introspective studies on such topics as potential convertibility of admitted industry overcapacity to peaceful pursuits and the economic impact of reductions in defense spending. Desirable diversification strategies and goals were rigorously assessed. While general conclusions may be lacking, sufficient data are available to aid in the decision-making process. Author

N65-19834# Space Technology Labs., Inc., Redondo Beach, Calif. STL Technical Library
EXOBIOLOGY: A BIBLIOGRAPHY Research Bibliography
No. 52, 1955–Jun. 1964
L. R. Magnolia, S. A. Gogin, and J. A. Turley Oct. 1964 170 p refs
(STL-9990-6737-KU-000; AD-449959)
This bibliography consists of 400 annotated references on the existence and detection of life outside the earth's biosphere, the origin of life, studies of meteoritic "life," and contamination problems. The majority of the items are those published during the period 1955 to June 1964. The abstracts are primarily those written by the individual authors.

Author laboratory for high-altitude experiments and hypersonic component testing demonstrates its usefulness in areas inaccessible to rockets and satellites. The aircraft's research and development, configuration, powerplant, supersonic-hypersonic flight aerodynamic characteristics, hypersonic flight, dynamics, and man-machine integration are presented.

N65-19900*
National Aeronautics and Space Administration, Washington, D. C.
LUNAR SURFACE STUDIES A Continuing Bibliography, Apr. 1964-Jan. 1965
Mar. 1964 61 p refs (NASA-SP-7003(01)) CFSTI: HC $1.00/MF $0.75

This short bibliography contains a variety of publications in the following fields: physics of low temperatures, plasma physics, thermonuclear reactions, general observations of heat and mass exchange, mathematical analytical methods, thermodynamics, experimental methods, phase conversion, chemical conversion, super high speed and drying processes, thermophysical and thermodynamic characteristics of various materials, heat conductors and determination methods, physics of high temperature processes and magnetic hydrodynamics, processes in nuclear reactors, and design processes and apparatus.

R.W.H.

N65-20016*
BIBLIOGRAPHY OF PUBLICATIONS ON THE SUBJECT OF HEAT AND MASS EXCHANGE
R.A. Dolinskaya 27 Nov 1964 21 p refs Transl into ENGLISH from Izv.-Fiz. Zh (USSR), v. 6, no. 12, 1963 p 127-134 (FTD-TT-64-395/1; AD-609136)

This short bibliography contains a variety of publications in the following fields: physics of low temperatures, plasma physics, thermonuclear reactions, general observations of heat and mass exchange, mathematical analytical methods, thermodynamics, experimental methods, phase conversion, chemical conversion, super high speed and drying processes, thermophysical and thermodynamic characteristics of various materials, heat conductors and determination methods, physics of high temperature processes and magnetic hydrodynamics, processes in nuclear reactors, and design processes and apparatus.

G.G.

N65-20070*
Bell Telephone Labs., Inc., Whippany, N. J.
PROPERTIES OF FERRIMAGNETIC MATERIALS FOR MICROWAVE APPLICATIONS
(Contract AF 33(657)-8439)
(ML-TDR-64-224; AD-612274)

CONTENTS:
1. THE PHYSICS OF FERRIMAGNETIC MATERIALS
p 1-52 refs
2. GARNETS p 53-256 refs
3. SPINEL FERRITES p 257-446 refs
4. HEXAGONAL FERRITES p 447-518 refs

N65-20162*
National Aeronautics and Space Administration, Washington, D. C.
X-15 RESEARCH RESULTS WITH A SELECTED BIBLIOGRAPHY
Wendell H. Stillwell 1965 135 p refs
(NASA-SP-60) GPO: $0.55; CFSTI: MF $1.00

New objectives and past accomplishments are summarized for the X-15 flight research program. Its role as a research

N65-20308*
RESEARCH ON COMPUTER NEURISTOR DEVICES
Final Summary Report, 1 Jun. 1960-1 Sep. 1964
Milton W. Green 8 Jan. 1965 13 p refs (Contract Nonr-3212(00))
(AD-610095)

The historical development of neuristor research activities, including the areas in which substantial progress was made, and the difficulties encountered in practical device realization are summarized. Logic studies were the subject of a very thorough treatment. As a result there now exists a comprehensive logical design basis for general neuristor systems. Basic problems involved in neuristor development, and the conflicting requirements for semiconductor materials are discussed. Also, solid-state lines that avoid the use of junctions were also studied. It was noted that although experimental semiconductor neuristors were nondistributed and relatively impractical, they did furnish the only demonstration of an all-electric neuristor device with logical capability. It was concluded that it will be an extremely difficult technical feat to achieve neuristor systems that are in any sense competitive with present logic devices.

E.E.B.

N65-20372*
AVIATION MEDICAL PAPERS AND REPORTS—A BIBLIOGRAPHY
Oct. 1964 94 p
(AM-64-20)

N65-20726*
Rocketdyne, Canoga Park, Calif.
SOURCES OF INFORMATION ON THE EFFECTS OF HUMAN PERFORMANCE ON PRODUCT AND SYSTEMS EFFECTIVENESS
George A. Peters and Frank S. Hall 15 Feb. 1965 186 p refs Revised
(RH-3398-J)

This is a comprehensive compilation of books, symposia, bibliographies, data, specifications, standards, handbooks, organizations, and other sources of information on ergonomics, system safety, bioastronautics, life sciences, aerospace medicine, reliability engineering, quality assurance, engineering psychology, personnel subsystem, and maintainability, with emphasis on human factors engineering. More than 1000 separate sources of information are listed or described. These are basic or primary references which provide access to the supporting literature, specify what should be done, describe how various functions might be accomplished, illustrate what was accomplished, or serve as design standards.

Author

N65-20760*
Federal Aviation Agency, Oklahoma City, Okla.
Aeronautical Center
FUEL CELLS Selected References, 1953 through Mar. 1964
Lois J. Stout, comp. Nov. 1964 105 p refs /s Bibliographic List No. 2
(AD-608880)

This bibliography contains 495 articles on fuel cells arranged by subject, and includes a personal name index.

E.E.B.
ESTIMATING METEOROLOGICAL EFFECTS ON RADAR PROPAGATION, VOLUME I

N65-20872

Air Weather Service, Scott AFB, III

BIBLIOGRAPHY OF NUCLEAR INTERACTIONS OF He3 WITH d, n, OR p AND OF d WITH n, p, OR T AT 3-30 MEV

Betty S. Jackson 5 Mar. 1965 16 p refs
(Contract W-7405-ENG-36) LA-3205-MS CFSTI: $1.00

N65-20927


MIXING OF CONCENTRIC HIGH-VELOCITY AIRSTREAMS, COMPILATION OF ABSTRACTS

Surveys of Soviet-Bloc Scientific and Technical Literature

22 Mar. 1965 37 p

(ATD-P-65-15, AD-459618) CFSTI: HC $3.00/MF $0.50

A compilation of abstracts of articles from the Soviet-Bloc scientific and technical literature on the subject of the mixing of concentric high-velocity airstreams is presented. E.E.B.

N65-21163

National Aeronautics and Space Administration, Washington, D. C.

COMMUNICATIONS SATELLITES—A CONTINUING BIBLIOGRAPHY

Apr. 1965 62 p

(NASA-SP-7004(01)) CFSTI: HC $1.00/MF $0.75

N65-21184

Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands)

A REVIEW OF LITERATURE ON FLIGHT TECHNOLOGY [LITERATUROVERZICHT, LUCHTTAARTTECHNIEK]

12 Jan. 1965 19 p refs In DUTCH /Its 1 3th Yearly Issue, No. L-270

Brief reviews of papers on flight technology are described. Properties and achievements of flight, steering, airfields, navigation and regulation of air traffic, safety, aerodynamics, strength and underwater vibrations, and technical news are reported.

L.S.

N65-21185

Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands)

A REVIEW OF LITERATURE ON ARMY CONSTRUCTION [LITERATUROVERZICHT, KRIJGSBOUWKUNDE]


Abstracts on civil and mechanical engineering are presented. Among the subjects covered are: (1) instability of stiffened cylindrical shells subjected to hydrostatic pressure; (2) vibrational pile driving; (3) self-contained diesel pile driving hammers; (4) cable-type crossings; (5) sediment scour around structures due to wave action, stream flow, and waves superimposed upon stream flow; (6) pneumatic breakwaters; (7) air compressibility in deep water; (8) designs for naval shore facilities; (9) air-supported tentage; (10) acoustical treatment for engine test stands; (11) design requirements for infrared snow melting systems; (12) diffraction of a plane shock wave by an arbitrary rigid cylindrical obstacle; (13) damage assessment; (14) VTOL aircraft hardening; (15) blast closure devices; (16) Stephenson valves; (17) full-scale submarine test facility; and (18) dismountable pontoons.

Author

N65-21198

Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands)

A REVIEW OF LITERATURE ON ATOMICS AND REACTOR TECHNOLOGY [LITERATUROVERZICHT, ATOMKERNTECHNIEK EN REACTORKUNDE]


Brief reviews of papers on atomics and reactor technology are described. Contents include reactors, reactor technology, instrumentation of reactors, reactor physics, waste disposal, safety, rays and their measurement, isotopes and their applications, laboratories, and technical news.

L.S.

N65-21200

Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands)

A REVIEW OF LITERATURE ON DOMESTIC TRANSPORTATION [LITERATUROVERZICHT, INTERNTRANSPORT]

Jan. 1965 13 p refs In DUTCH /Its No. 44

Abstracts on handling, storage, and transportation problems of industry are presented. Among the subjects covered are: automated warehouses, high-speed bottling, mechanization, computers; man-hours reduction, tools, distribution costs, remote control; gravity material handling, tractors, loaders, crawlers, trucks, cranes; ball-bearing slewing rings; 2 1/2-mile potash conveyor; sorting systems, fruit conveyance on 32- X 48-inch pallets; palletization, sorting and counting in food production, counting scales, containers for powdery goods, reclaim rubber process handling, accident prevention, ferry service, rust and corrosion, aluminum alloy cladding, unit loading; warehouse control, mechanized fertilizer plant, packaging, and strapping as an aid to production.

E.E.B.

N65-21201

Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands)

A REVIEW OF LITERATURE ON METEOROLOGY AND CLIMATOLOGY [LITERATUROVERZICHT, METEOROLOGIE EN KLIMATOLOGIE]


Ifs
Abstracts on meteorology and climatology are presented. Among the subjects covered are: (1) synoptic and upper air observations in the Netherlands; (2) meteorological parameters in the Netherlands during 1962; (3) bivane and sonic techniques for measuring the vertical wind component; (4) Tiros 8 picture transmission; (5) computer system selection for meteorological operations; (6) static stability variation in two-layer quasi-geostrophic models; (7) vertical structure of the atmosphere; (8) tropospheric diabatic heating and the generation of available potential energy; (9) energetics of the mean and eddy circulations in the lower stratosphere; (10) seasonal persistence and recurrence of European blocking during 1958–1960; (11) model of the 26-month oscillation in tropical latitudes; (12) winds; (13) cloud structure and distributions, and (14) atmospheric turbulence. E. E. B.

Abstracts on aerospace medicine, military medicine and hygiene, psychology and psychiatry, and radiation medical physics are presented. Among the subjects covered are (1) systemic absorption of radioactive sodium in fresh and healing traumatic wounds; (2) absorption of radioactive fallout products through normal skin, burns, and open wounds; (3) acute radiation syndrome in domestic animals; (4) electroencephalography in aviation medicine; (5) ozone in high-altitude aircraft cabins; (6) airplane noises; (7) aircraft accidents; (8) combat fatigue; (9) factors associated with psychiatric discharge from the naval service; (10) infection of the urinary tract in young men; (11) influence of army service on the incidence of carriers of Staphylococcus aureus and Streptococcus pyogenes; (12) aging in the Royal Navy; (13) thermal materials handling, and facility operations are presented. Indexed appropriately appendix. Author

N65-21226# Bunker-Ramo Corp., Canoga Park, Calif.
A BIBLIOGRAPHY OF WORKS IN RUSSIAN ON AEROSPACE SCIENTIFIC AND TECHNOLOGICAL LITERATURE IN MANUAL CONTROL AND ASSOCIATED AREAS
C. M. Bertone Washington, NASA, Apr. 1965 137 p (Contract NASw-869) (NASA-CR-199) CFSTI: HC $4.00/MF $1.00
This report is a survey of 917 Soviet documents in the areas of manual control systems, human engineering, man in space, and associated areas. The information is reported in bibliographic form with an analysis of the findings and appropriate appendixes. Author

N65-21369# Oak Ridge National Lab., Tenn. Nuclear Safety Information Center
INDEXED BIBLIOGRAPHY OF CURRENT NUCLEAR SAFETY LITERATURE—1
Reports on safety in nuclear powerplants, reactors, materials handling, and facility operations are presented. Indexed by subject and personal author. The abstracts are listed under 18 category headings with an added category for nonannotated bibliographies. E. P. V.

AEROSPACE MEDICINE AND BIOLOGY, AN ANNOTATED BIBLIOGRAPHY. VOLUME XI: 1962–1963 LITERATURE
Roman Kenk, ed. 1965 501 p. refs Sponsored by NASA (NASA-CR-62127) CFSTI: HC $5.00/MF $2.50
A selection of 2335 journal articles and other pertinent references are compiled in abstracted form. The bibliography is divided into the following sections: General Aspects; Biology; General Physiology; Neuro and Sensory Physiology; Psychology and Psychiatry; Biological, Physiological, and Psychological Effects of Environmental Factors and Stresses; Personnel; Medical Problems and Pharmacology; Toxicology; Safety, Survival, and Rescue; and Man-Machine Integration and Life Support Systems. Included are author, corporate, and subject indexes. G. G.

A short annotated literature review on electrotechnology is presented pertaining to the following topics: Telecommunications; Electromagnetic Beaming; Treatment of Information; Computers and Logical Switches; Measurement and Regulating Techniques; Miniaturization; Interference and Reliability; Oscillators and Strengtheners; Components, Materials, and Networks; Modulation; Energy Techniques, Feeding, Equalizing, and Machines; and Miscellaneous. G. G.

N65-21621# Atomic Energy Commission, Washington, D. C. Div. of Research
SUMMARIES OF THE USAEC RESEARCH PROGRAM ON CONTROLLED THERMONUCLEAR REACTIONS Mar. 1965 68 p. refs (TID-4005(Pt. 5)) CFSTI: $3.00
Summaries are given showing project objectives and status of the research, for the following classes: experimental hot plasma studies, experimental cold plasma studies, theoretical plasma studies, cross sections, vacuum and wall studies, diagnostic techniques, and cryogenics. G. G.

N65-21659# National Aeronautics and Space Administration Goddard Space Flight Center, Greenbelt, Md.

N65-21697# Hughes Aircraft Co., Culver City, Calif.

N65-21736# National Aeronautics and Space Administration, Washington, D. C.
A bibliography of approximately seventeen hundred Russian publications on aviation medicine is given. Titles are listed in alphabetical order of senior author's last name, and sources are given. J. M. D.

N65-21737# National Aeronautics and Space Administration, Washington, D. C.
BIBLIOGRAPHIES ON AEROSPACE SCIENCE—A CONTINUING BIBLIOGRAPHY. JUN. 1964–FEB. 1965
An annotated bibliography with references to provide a convenient source of information for aerospace scientists and engineers is assembled. Each entry consists of a citation and, when available, abstract. Report literature and journal and book references are included. R.W.H.

Royal Aircraft Establishment, Farnborough (England).

This list gives, in numerical order, all R.A.E. library translations published during 1964.

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of gamma radiography. Where available, each item in this journal consists of the following information: (1) item, report, or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of fluoroscopy and remote viewing techniques. Where available, each item in this journal consists of the following information: (1) item, report or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of thermal testing. Where available, each item in this journal consists of the following information: (1) item, report, or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of liquid penetrants. Where available, each item in this journal consists of the following information: (1) item, report, or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of plate theory. Where available, each item in this journal consists of the following information: (1) item, report, or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.

This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subject of Cetacea research. Where available, each item in this journal consists of the following information: (1) item, report, or article title; (2) author or authors; (3) source or facility; (4) report number or identification; (5) date; and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an author index or, if no author is available, then the issuing organization is listed.
to include pertinent literature published between the years 1949 and 1962. It has been assembled in categories designed to assist investigators pursuing specialized aspects of Cetacean research.

A REPORT GUIDE TO AUTORADIOGRAPHIC AND MICRONRADIOPHIC LITERATURE
Ernest H. Rodgers Aug. 1964 32 p refs
(AMRA-MS-64-10; AD-612047)
This guide consists of a bibliography of items currently in the AMRA nondestructive testing information retrieval system covering the subjects of autoradiography and microradiography. Where available, each item in this journal consists of the following information: (1) item report, or article title, (2) author or authors, (3) source or facility, (4) report number or identification, (5) date, and (6) abstract. Word descriptors pertinent to each item are listed in alphabetical order and are cross-referenced by the AMRA identification number. Also provided is an index or if no author is available, then the issuing organization is listed.

SURFACE CHARACTERISTICS OF THE MARS, VENUS, AND MARS. ANNOTATED BIBLIOGRAPHY
1 Mar. 1965 81 p refs
(ATD-P-65-12- AD-458260) CFSTI: HC $3.00/MF $0.75
An annotated bibliography of the surface characteristics of Mars, Venus, and the Moon is presented with emphasis on light polarization and albedo measurement techniques as well as radio-astronomical studies. Information on tektites is also presented. The report covers 125 research studies from the years 1960 to mid-1963. More recent findings from about mid-1963 through mid-1964 are included in appendixes A to C.

N65-22614# National Aeronautics and Space Administration, Washington, D.C.
AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY
Mar. 1965 145 p refs
(NASA-SP-7011(09)) CFSTI: HC $1.00/MF $1.00
An annotated bibliography covering aerospace medicine and biology entries introduced into the NASA Information System during February 1965 is presented. Included are references from Scientific and Technical Aerospace Reports, American Institute of Aeronautics and Astronautics Technical Information Service, and the Library of Congress.

N65-22615# National Aeronautics and Space Administration, Washington, D.C.
AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY
Apr. 1965 124 p refs
(NASA-SP-7011(110)) CFSTI: HC $1.00/MF $1.00
An annotated bibliography covering aerospace medicine and biology entries introduced into the NASA Information Service during March 1965 is presented. Included are references from Scientific and Technical Aerospace Reports, American Institute of Aeronautics and Astronautics Technical Information Service, and the Library of Congress.

SOVIET MICROMETEOREOLOGY, COMPILATION OF ABSTRACTS
Surveys of Soviet Bloc Scientific and Technical Literature
14 Apr. 1965 69 p Its Rept. - 3
(ATD-P-65-18- AD-461108) CFSTI: HC $3.00/MF $0.75
An annotated bibliography of reports on various aspects of Soviet micrometeorology, based on selected representative Soviet open source literature published in 1962 is given. The data are grouped under the subject headings of general, aerosols, stagnant weather conditions, air pollution, and boundary layer turbulence.

N65-22844# Max-Planck-Institut für Biophysik, Frankfurt am Main (West Germany)
RADIATION EFFECTS ON LIVING TISSUES AND ORGANISMS. SERIES C: BIBLIOGRAPHIES
W. Stahlhofen, comp. AED Information Service, 1965 176 p refs
(AED-C-04-16)
A bibliography of various studies pertaining to the radiation effects on living tissues and organisms for the years 1962 and 1963 is presented. The 540 publications are recorded on IBM punch cards and numbered for easy retrieval so that the research information is readily available to interested research and industrial centers in Germany.

N65-22948# David Taylor Model Basin, Washington, D. C. Acoustics and Vibration Lab
SHIPBOARD VIBRATION RESEARCH IN THE U.S.A.
(DTM-B-1891; AD-611004)
A brief review of the hull vibration program is given. A bibliography of selected reports and papers on ship and machinery vibration is included. A code for shipboard hull vibration measurements is presented. This code is used in the evaluation of commercial type ships.

N65-22968# National Aeronautics and Space Administration, Washington, D.C.
BIBLIOGRAPHIC INDEX TO LITERATURE ON AEROSPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN THE USSR (1962-1964) [BIBLIOGRAFICHESKIY UKAZATEL' LITERATURY PO AVIAKOSMICHESKOY MEDITISNE I BIOASTRONAVTIKE, IZDANNYY V SSSR (1962-1964)].
(NASA-TT-F-270) CFSTI: HC $3.00/MF $0.75
This bibliographic index includes the basic scientific publications in the areas of space medicine and bioastronautics published in the U.S.S.R. from 1962 to 1964. It encompasses studies in General Problems of Space Biology and Aerospace Medicine, Experimental Investigations on Spacecraft Satellites, High-Altitude Geophysical Rockets and Aircraft; Results of Laboratory Investigations with Simulation of the Effects of Space Flight Factors; Methodology; Experimental Investigations on Spacecraft Satellites, High-Altitude Geophysical Rockets, Aircraft and in Parachute Jumps; and Question of Evaluation, Selection and Preparation of Flight Crews.
CONTENTS

1. EXPERIENCE GAINED IN OPERATIONAL NUMERICAL FORECASTS OF CONTINUOUS PRECIPITATION
   B. D. Uspensky p. 1-12 refs (See N65-23440 13-20)


3. USE OF METEOROLOGICAL INFORMATION AND FORECASTS IN PROVIDING RECOMMENDED COURSES TO SHIPS K. P. Vasil'ev p. 20-23 (See N65-23442 13-20)


5. WORLD CLIMATIC ATLAS (GERMAN DEMOCRATIC REPUBLIC) F. F. Davitaya p. 27-29 refs

6. NEW BOOKS A. M. Kekukh p. 30-32

7. LITERATURE ON METEOROLOGY AND HYDROLOGY FOR 1964 p. 33-40

8. IN THE MAIN ADMINISTRATION OF THE HYDROMETEOROLOGICAL SERVICE p. 41-43

9. CONFERENCES, MEETINGS AND SEMINARS p. 44-45

10. ABROAD V. N. Adamenko et al p. 46-47

N65-23490# Deutsche Versuchsanstalt für Luft- und Raumfahrt, Porz (West Germany) Dokumentation und Zentralbibliothek

GENERAL BIBLIOGRAPHY, PART I, 1912-1945
Klaus Lasiepen, comp. [1962] 89 p refs. In GERMAN

N65-23596# Atomic Energy Commission, Washington, D. C. Div. of Biology and Medicine

TERRESTRIAL AND FRESHWATER RADIOECOLOGY
A Selected Bibliography (Supplement 3)
Alfred W. Klement, Jr. and Vincent Schultz Feb. 1965 119 p (TID-3910(Suppl. 3)) CFSTI: $2.50
This supplemental bibliography contains 1192 references related to field or laboratory studies of wild species of plants and animals with respect to radiation effects on metabolic studies involving radionuclides. Studies of laboratory strains or domestic strains are generally not included.

G. G.

N65-23724# International Union of Crystallography. Commission on Crystallographic Apparatus

LOW-TEMPERATURE X-RAY DIFFRACTION Bibliography 2
Ben Post (Polytechnic Inst. of Brooklyn) 1964 89 p
An annotated bibliography containing earlier and current literature on low-temperature X-ray diffraction techniques is presented. Emphasis has been placed on recent literature and the study of low melting crystalline solids. Among the apparatus included are an X-ray camera for powder diagrams at any temperature, a liquid helium cryostat for X-ray diffraction studies, a low-temperature apparatus for single crystal X-ray goniometers, and a method of stabilizing the specimen temperature for single crystal X-ray crystallography. Among the crystal structure investigations cited are an X-ray investigation of potassium phosphate at low temperature, X-ray studies on cetyl alcohols, the low temperature modification of N-propylammonium, and the thermal expansion of solid bromine.

S.C.W.
BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS

L. Brewer, comp. (Calif. Univ.) 31 Mar. 1965 24 p refs

CONTENTS:
1. REACTION BETWEEN GASES AND CONDENSED PHASES p.1-18 refs
2. SPECTROSCOPY OF INTEREST TO HIGH TEMPERATURE CHEMISTRY p.19-22 refs

PHASE REACTIONS

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY OF GASES AND GAS-CONDENSED PHASES


SPEECH TRANSMISSION LABORATORY PROGRESS AND STATUS REPORT, OCTOBER-DECEMBER 1964


AIR POLLUTION PUBLICATIONS: A SELECTED BIBLIOGRAPHY, 1955-1963


TRANSMISSION LABORATORY PROGRESS AND STATUS REPORT, OCTOBER-DECEMBER 1964


SULFUR OXIDES AND OTHER SULFUR COMPOUNDS

A Bibliography with Abstracts

Anna Grossmann-Cook, comp. 1965 394 p refs /ts Publ. No. 1093; Biblog. No 56 GPO. $2.25

An annotated bibliography of publications from 1936 to 1964 on sulfur oxides and other sulfur compounds was compiled to assist those engaged in studies of sulfur compounds in their relation to air pollution. The bibliography is arranged under 13 subjects. Among the subjects included are studies on sources of oxides of sulfur, emissions composition, atmospheric reactions involving oxides of sulfur, nature of atmospheres, human epidemiology, experimental human exposure to sulfur dioxide, industrial exposures, animal epidemiology, experimental animal exposure to sulfur dioxide, plant epidemiology, and experimental exposure of plants, materials damage, visibility reduction, control devices or methods, and instrumentation development, and selected publications. The following supplementary indexes are included: title index, author index, and a geographic location index of U.S. and foreign studies.

S. C. W.

N65-24012# Kernforschungsanlage Juelich (West Germany). Zentralbibliothek

CHRONOLOGICAL BIBLIOGRAPHY OF MHD EXPERIMENTS WITH LIQUID METALS AND ELECTROLITES [CHRONOLOGISCHE BIBLIOGRAPHIE DER MHD-KONTAKTE MIT FLUSSIGEN METallen UND ELEKTROLYTEN]


N65-24632# Phillips Petroleum Co., Idaho Falls, Idaho

ANNUAL REPORT OF DIVISION ANALYTICAL BRANCH FOR 1964


PROBLEMS OF ENGINEERING PSYCHOLOGY


An annotated bibliography of 120 papers on problems in engineering psychology is presented. Information abstracts cover research on self- organizing systems, functions of humans in control systems, characteristics of operator activities, simulation of psychic activity, reliability and accuracy of operator activities, design of operator working posts, training and selection of operators, group activity, methods of investigating human activity, reception of information by human subjects, sensorimotor processes, reactions, operative thinking, and memory.

J. M. D.


BIBLIOGRAPHY ON THERMAL METALLIC CONTACT CONDUCTANCE


In the area of heat transfer in structures, problems of heat transfer between connected members is complicated by many parameters. An attempt was made to collect all known references on this subject. This report contains references in the area of contact heat transfer measurements and theories and contact surface parameter studies.

N65-24664# National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Ala.

BIBLIOGRAPHY ON THERMAL METALLIC CONTACT CONDUCTANCE


In the area of heat transfer in structures, problems of heat transfer between connected members is complicated by many parameters. An attempt was made to collect all known references on this subject. This report contains references in the area of contact heat transfer measurements and theories and contact surface parameter studies.

Author


PROBLEMS OF ENGINEERING PSYCHOLOGY


An annotated bibliography of 120 papers on problems in engineering psychology is presented. Information abstracts cover research on self- organizing systems, functions of humans in control systems, characteristics of operator activities, simulation of psychic activity, reliability and accuracy of operator activities, design of operator working posts, training and selection of operators, group activity, methods of investigating human activity, reception of information by human subjects, sensorimotor processes, reactions, operative thinking, and memory.

J. M. D.
N65-24650 Polish Academy of Sciences, Warsaw. Comm. on International Cooperation in Geophysics

BULLETIN OF POLISH OBSERVATIONS OF THE ARTIFICIAL SATELLITES [BIULETYN POLSKICH OBSERWACJI SZTUCZNYCH SATELITOW]

Ludomir Cichowicz et al Sep 1964 61 p refs In POLISH.

ENGLISH summary / Its Bull. No. 11

CONTENTS:

1. THE PROBLEMS OF ASTROMETRY, GEODESY AND SATELLITE GEOPHYSICS AT THE 5TH COSPAR SYMPOSIUM, FLORENCE, MAY 8-20, 1964 Ludomir Cichowicz p 1-9

2. ALPHABETIC LIST OF POLISH REPORTS ON SPACE RESEARCH Ludomir Cichowicz and W. Zonn p 10-28


4. DETERMINATION OF POSITION OF THE OPTICAL CENTER OF PLATE BY MEANS OF STELLAR OBSERVATIONS IN THE LOCAL MERIDIAN Jan Bieniewski p 40-44 refs

5. SATELLITE 1960 EPSILON 2—EVALUATION OF THE ACCURACY OF OBSERVATIONS CARRIED OUT WITH THE TELESCOPE AT-1 Michal Hajduczenia p 45-53 refs

6. LIST OF SATELLITE OBSERVATIONS PERFORMED BY THE POLISH OBSERVATION STATIONS p 54-59


CURRENT RESEARCH. REPRINT LIST AND ABSTRACTS OF RECENT PAPERS

F. P. Bowdene et al 1964 19 p

Current research and abstracts of recent papers in surface physics, strength properties of solids, solid state physics, and decomposition in the solid state are reported.

S.C.W.

N65-24714# Royal Inst. of Tech., Stockholm (Sweden)

LOW CYCLE STRAIN FATIGUE—A LITERATURE REVIEW COVERING NATURAL PHENOMENA AND THEORY OF RESULTS ON MATERIAL FOR SUPERHEAT FUEL CLADDING [TOJNINGSUTMATTNING, EN LITTERATURGRANSKNING AVSEENDE FENOMENETS NATUR OCH TEORI SAMT TILLAMPNING PA MATERIAL FÖR OVERHETTARRIKSPNING]

Torsten Ericsson 1964 109 p refs In SWEDISH. ENGLISH summary (Publ-147)

A literature study on results from isothermal low cycle strain fatigue experiments using austenitic stainless steel and nickel alloys, as well as other materials, was conducted. Low cycle fatigue after less than 10⁴ cycles is expressed in the equation:

\[ \Delta \varepsilon_p N_f^{1/3} = C \]

where \( \Delta \varepsilon_p \) is the fracture value and the plastic strain range is \( \Delta \varepsilon_p \). The constant \( C \) is mostly a little higher than half the fracture ductility \( \varepsilon_f \) of a simple tensile test. Tests performed with constant stress and constant strain amplitude contribute differently to the cycles to fracture. Grain size and the orientation of a specimen in relation to the rolling direction had little influence on the fracture value. Neutron irradiation on stainless steel simultaneously with cycling diminishes the fracture value. A compilation and comparison of low cycle strain fatigue tests of various materials are presented in tables.

G.G.

N65-24842# Cornell Aeronautical Lab., Inc., Buffalo, N. Y.

BIBLIOGRAPHY OF PLASMA PHYSICS

George P. Bein Jul. 1964 98 p refs (CAL-ER/RIS-3)

N65-24967# Royal Aircraft Establishment, Farnborough (England)

SONIC BANGS: A BIBLIOGRAPHY

T. I. Bell, Margaret D. Miller, and Anne E. G. Strain London, Min. of Aviation, Feb. 1965 65 p refs Supersedes RAE-LIB-BIBL-188 (RAE-LIB-BIBL-255; RAE-LIB-BIBL-188)

This annotated bibliography covers sonic boom theory and its effects on structures and humans, pressure measurements from aircraft and in wind tunnels, aircraft design and operational problems, and estimation and analysis of their physical characteristics.

R.N.A.


CRYOGENICS DIV.

A BIBLIOGRAPHY OF EXPERIMENTAL SATURATION PROPERTIES OF THE CRYOGENIC FLUIDS

N. A. Olien and L. A. Hall 9 Apr. 1965 121 p refs (NASA Order R-45) (NASA-CR-62880; NBS-TN-309) GPO: $0.60; CFSTI: MF $1.00

A bibliography of 876 annotated studies on the physics of hypervelocity impact and the meteoroid hazard is presented. Discussed are: Surveys of Experimental Data, Vehicle Protection Analysis, Theoretical Studies on Hypervelocity Impact, Experimental Investigations, Experiments and Instrumentation, and Theoretical Studies on Meteoritics. The entries were obtained from a variety of sources, and the author, title, agency, periodical, and ASTIA numbers are included.

G.G.

N65-25011# National Aeronautics and Space Administration, Marshall Space Flight Center, Huntsville, Ala.

A BIBLIOGRAPHY CONCERNING ASPECTS OF THE METEOROID HAZARD


A bibliography of 876 annotated studies on the physics of hypervelocity impact and the meteoroid hazard is presented. Discussed are: Surveys of Experimental Data, Vehicle Protection Analysis, Theoretical Studies on Hypervelocity Impact, Experimental Investigations, Experiments and Instrumentation, and Theoretical Studies on Meteoritics. The entries were obtained from a variety of sources, and the author, title, agency, periodical, and ASTIA numbers are included.

G.G.

N65-25023# Atomic Energy Commission, Oak Ridge, Tenn.

Div. of Technical Information Extension

ISOTOPE TECHNIQUES IN THE BIOLOGICAL SCIENCES A Literature Search

Helen L. Ward, comp. May 1965 54 p refs (TID-3512 (Suppl. 1)) CFSTI: $2.00

A total of 463 selected references on new techniques and instruments for using radioisotopes are included in this bibliography. The major reference sources were Nuclear Science Abstracts, The Bibliography of Agriculture, Biological Abstracts, Chemical Abstracts and Index Medicus. The period covered was 1958 through 1963.

Author

N65-25183# United Kingdom Atomic Energy Authority, Harwell (England). Chemistry Div

BIBLIOGRAPHY OF UNCLASSIFIED REPORT AND PUBLISHED LITERATURE ON THE TRANSPLUTONIUM ELEMENTS (1957–1964)

concerned with studies of aviation medicine, periodicity, optokinetic nystagmus, vision, vestibular function, and physical science. Procedures for obtaining copies of the translations are included. Author

N65-26989# Army Missile Command, Huntsville, Ala. Redstone Scientific Information Center
SILICON CARBIDE FOR SEMICONDUCTORS
Gus J. Caras Feb. 1965 201 p refs
(RSIC-381: AD-464777)
This state-of-the-art survey on silicon carbide for semiconductors includes a bibliography of the most important references published as of the end of 1964. The various methods used for growing silicon carbide single crystals are reviewed, as well as their properties and devices fabricated from them. The fact that the state-of-the-art of silicon carbide semiconductors is not further advanced may be attributed to the difficulties of growing single crystals of sufficient size and purity for semiconductor applications. Of the various methods of growing silicon carbide, growth by sublimation appears to be the most successful method. There is considerable variation in the properties of silicon carbide as reported in the literature, mainly because most measurements were conducted on crystals with varying amounts and types of impurities. In the area of devices, rectifiers capable of 500°C operation and unipolar transistors exhibiting power gain at temperatures greater than 500°C have been fabricated. Other devices which have received attention include diodes, photoelectric and electroluminescent devices, and electron emission components.

N65-26999# Oak Ridge National Lab., Tenn. Radiation Shielding Information Center.
BIBLIOGRAPHY, SUBJECT INDEX, AND AUTHOR INDEX OF LITERATURE EXAMINED BY THE RADIATION SHIELDING INFORMATION CENTER
(ORNL-RSIC-5: ORNL-RSIC-2)

N65-27022# Argonne National Lab., Ill.
REPORTS TO THE AEC NUCLEAR CROSS SECTIONS ADVISORY GROUP
(WASH-1056) CFSTI: $4.00
Recent developments, changes of emphasis, and preliminary data on nuclear cross sections are presented in brief abstracts covering the work of the laboratories relating to nuclear cross section measurements.

A COMpendium OF PAPERS IN THE FIELDS OF WAVE PROPAGATION AND GEOTECHNICS PREPARED AT AFCLR DURING 1963
(AFCLR-64-998: AD-611268)
CONTENTS:
WAVE PROPAGATION (SEISMOLOGY)
1. THE LAYER-MATRIX METHOD IN SEISMIC WAVE PROPAGATION PROBLEMS Norman A. Haskell p 3-14
2. MECHANICAL PROPERTIES OF THE EARTH’S UPPER MANTEL Robert E. Riecker p 15-33
3. FULL FIELD SEISMIC MODELING Ker C. Thomson p 35-63 refs
4. SOME ELEMENTARY CONSIDERATIONS ON THE USE OF MULTIPLE DISCRIMINATION CRITERIA IN THE SEISMIC IDENTIFICATION OF UNDERGROUND EXPLOSIONS Norman A. Haskell p 65-75 refs

APPENDIXES
5. TECHNICAL PAPERS PUBLISHED BY PERSONNEL OF THE WAVE PROPAGATION BRANCH DURING 1963 p 77
6. TECHNICAL REPORTS PUBLISHED UNDER CONTRACT TO THE WAVE PROPAGATION BRANCH DURING 1963 p 79-81

GEOTECHNICS (GEOLOGY)
7. INTERPRETATION OF GEOLOGIC PROPERTIES OF DESERT PLAYAS FROM AERIAL PHOTOGRAPHY James T. Neal p 85-100 refs
8. PICTORIAL SECTION p 101-109

APPENDIXES
9. TECHNICAL PAPERS PUBLISHED BY PERSONNEL OF THE GEOTECHNICS BRANCH DURING 1963 p 111
10. TECHNICAL REPORTS PUBLISHED UNDER CONTRACT TO THE GEOTECHNICS BRANCH DURING 1963 p 113-114

N65-27418# Atomic Energy Information Service, Frankfurt am Main (West Germany).
ACCELERATORS. SERIES C: BIBLIOGRAPHIES
(AED-C-18-04)

CALCULATIONS OF COLLISIONAL-RADIATIVE DECAY
A brief bibliography is given on calculations of steady state equations for collisional-radiative decay, in the case where electron collisions dominate, and in the case where atomic collisions dominate. An unsuccessful attempt to obtain an iterative solution of the line transfer problem for a ten-level atom is described.

DIRECT ENERGY CONVERSION LITERATURE ABSTRACTS
Bibliography Jun. 1965 120 p refs
CFSTI: $2.50
Abstracts of unclassified literature relating to the direct conversion of energy are covered under the subjects of general information, thermoelectricity, thermionic emission, photoelectric processes, magnetohydrodynamics, electrochemical processes, energy storage and sources, and regulation and control. An author index is included.

BIBLIOGRAPHY OF SOVIET PUBLICATIONS ON ROCKET AND SATELLITE INVESTIGATIONS OF THE UPPER ATMOSPHERE AND OUTER SPACE IN 1964
(JPRS-30925: TT-65-31424)

SOVIET LITERATURE ON LIFE SUPPORT SYSTEMS. PART A: BIOSCIENCES Surveys of Soviet-Bloc Scientific and Technical Literature
30 Dec. 1964 18 p refs Compilation of abstracts
(ATD-P-64-66; AD-609827)

Selected articles from the Soviet open literature are reviewed under three general headings: space medicine and biology, space physiology, and space vehicle ecology. In the first section are included overviews of achievements in space medicine and in the natural and social sciences. Space physiology articles are concerned with: 1) effect of high temperature and insulation on mineral salt content of body fluids; 2) distribution of body water in animals under various temperatures; 3) use of synthetic compounds to increase heat resistance of the body; and 4) changes in carbohydrate metabolism under conditions of total body vibration. An article dealing with the photosynthesis of Chlorella vulgaris Beyer in open-tank mass culture is reviewed in the ecology section. M.W.R.

N65-27821# National Aeronautics and Space Administration, Washington, D.C.

SPACE COMMUNICATIONS: THEORY AND APPLICATIONS. VOLUME I: MODULATION AND CHANNELS A Bibliography

An annotated bibliography on modulation and channels with regard to theory and applications to space communications is presented. References are from various reports, journal articles, and books published during the period 1958-1963. Subject contents include: fundamentals and communications theory, analog, digital, sampling, pulse code, wideband, and multiplex modulation methods; distortion characteristics of communications channels; noise and disturbances in transmission channels; and comparisons of modulation methods. L.S.

N65-27866# Pennsylvania State Univ., University Park. Mineral Industries Experiment Station

BIBLIOGRAPHY OF FUEL CELL CONTRACTS


RADIOCHEMISTRY OF RHODIUM
James C. Armstrong, Jr. (Florida State Univ.) and Gregory R. Choppin (Hazeltin Nuclear Science Corp.) Washington, AEC. May 1965 82 p refs (NAS-NS-3009(Rev.)) CFSTI: $1.00

This monograph is a revised and expanded version of an earlier publication. Reviews of nuclear and chemical properties of rhodium; discussions of methods of sample dissolution and of separation reactions, descriptions of counting techniques, and a compilation of radiochemical separation procedures are included. A bibliography on the separation of rhodium and general references on the inorganic and analytical chemistry of this element are also presented. The main subdivisions of the monograph are: Isoptes of Rhodium; Review of the Chemistry of Rhodium; Separation Chemistry; Biological Aspects of Rhodium; Activation Analysis; Counting Techniques; and Collection of Detailed Radio-Chemical Procedures. E.E.B.


LITERATURE ON METEOROLOGY AND HYDROLOGY FOR 1964
In its Transl. from Meteorol. i Gidrol., No. 6, 1965 2 Jul. 1965 p 44-55 refs (See N65-28175 17-20) CFSTI: $3.00

This article presents 110 bibliographies from a Russian publication, Meteorology and Hydrology. The bibliographies are listed under the following sections: (1) meteorology; (2) agrometeorology; and (3) hydrology. N.E.A.


A REPORT GUIDE TO LITERATURE IN THE FIELD OF ELECTROMAGNETIC TESTING
Robert C. Grubinskas and Charles P. Merhib. Apr. 1965 94 p refs (AMRA-MS-65-03; AD-615346)

Abstracts are presented on nondestructive electromagnetic test methods for engineering materials, including magnetic materials, which use electromagnetic energy having frequencies less than those of visible light to yield information regarding the quality of material tested. R.N.A.


R. V. Winsor. 28 Jun. 1965 57 p refs (Contract W-7405-ENG-36) (LA-3281-MS. UC-34) CFSTI: $3.00


STUDIES ON VERTEBRAL INJURIES SUSTAINED DURING AIRCRAFT EJECTION Final Report

Available world literature on ejection-related vertebral injuries in aviators was thoroughly surveyed and is presented as an annotated bibliography. Basic findings of some of the principal investigators into vertebral injury are summarized. Parameters associated with the pilot, aircraft, and ejection-seat system are evaluated in the light of their trends and relative significance in contributing to ejection-caused vertebral injury. These studies led to the development of a proposed research design to determine the dynamic strength of isolated vertebrae. Preliminary research objectives are outlined. The experimental procedure and analysis techniques are set forth. A plan for sequencing and integrating the research operations is diagrammed. Author

N65-28545# Lockheed Aircraft Corp., Burbank, Calif.

LASER BIBLIOGRAPHY

This report consists of a bibliography of the open literature on lasers, an author index and a few notes relating to lasers. The bibliography is in four parts. A distinguishing feature of this bibliography is the classification scheme introduced in part two. The field on the study is subdivided into many topics and categories which are assigned identification numbers. These numbers are printed after each entry. In the list of categories the serial numbers of every pertinent entry appears. N.E.A.
A bibliography on Soviet laser research and associated fields, covering the period from January 1961 to September 1964, is presented. Twenty-seven participant facilities were involved in the reports covered, with the majority of the material distributed among eight key institutions. These are discussed in the descending order of contributions. Interfacility correlation among these eight key institutions is described, and a brief discussion of the leading scientists associated with the aforementioned institutions is included. A bibliography of the retrieved articles is divided into such subsections as gaseous lasers, lasers based on paramagnetic materials and on semiconductor materials, exotic lasers, spectroscopy of paramagnetic laser materials, and laser theory, applications, and effects.

M.R.W.

NUCLEAR MAGNETIC RESONANCE Final Scientific Report A. A. Bothner-By 15 Mar. 1965 6 p refs (Contract AF 49(638)-980; Grant AF-AFOSR-199-63) (AFOSR-65-0579; AD-615438)

A chronological bibliography is given of publications on nuclear magnetic resonance having appeared or anticipated. Research is summarized on the use of nuclear magnetic resonance spectra in chemical analysis. Work on spin-spin coupling constants, conformal studies, and magnetic anisotropy is summarized.

Author

N65-28849# National Aeronautics and Space Administration, Washington, D. C.
PLANETARY ATMOSPHERES A Continuing Bibliography, Jan. 1962-Feb. 1965
Jun. 1965 114 p refs (NASA-SP-7017) CFSTI: MF $1.50 CSCL 03B

A selection of annotated references to unclassified reports and journal articles on planetary atmospheres announced in Technical Publications Announcements (TPA), Scientific and Technical Aerospace Reports (STAR), and in International Aerospace Abstracts (IAA) is presented. Each entry in the bibliography consists of a citation and abstract. The majority of the references pertain to studies, measurements and discussions concerning the atmospheres of Mars, Venus and Jupiter, but a limited number of references to the atmospheres of Mercury and Saturn are also included. The scope of coverage was designed to permit inclusion of references to such specific topics as the theory of planetary origins, extraterrestrial environment, planetary exploration and spacecraft reentry, and the physical properties of the planets. All reports and articles cited were introduced into the NASA Information System during the period January, 1962 to February, 1965.

J.L.D.

N65-28914# Atomic Energy Information Service, Frankfurt am Main (West Germany).

ATMOSPHERIC OZONE TO 40 Km: ITS CONCENTRATION, DISTRIBUTION, METHODS OF DETECTION, AND RELATIONSHIP WITH OTHER METEOROLOGICAL PHENOMENA Bibliography
Betty S. Jackson 15 Jul. 1965 36 p (Contract W-7405-ENG-36) (LA-3328-MS) CFSTI: $2.00

BIBLIOGRAPHY OF PUBLICATIONS: SUPPLEMENT 1 Apr. 1965 11 p


BIBLIOGRAPHY ON TROPOSPHERIC PROPAGATION OF RADIO WAVES Wilhelm Nupen 1 Apr. 1965 346 p refs (NBS-TN-304) GPO: $2.00

Over a thousand abstracts or titles taken from the literature published between 1945 and 1964 are presented. The subject matter is confined to the effects of the earth's atmosphere on radiofrequency from 10 cps to 100,000 Mc. The material is given under the following headings: General Works; Theories, Formulas, and Models; Atmospheric Structure and Characteristics; Physico-Chemical Factors and Processes; Wave Characteristics; Radio Communication; Instruments, Equipment, and Design Considerations; and Techniques and Methods, Theoretical and Applied.

E.B.


An annotated bibliography is presented on cybernetics, automation, and telemechanics. Included are literature on automatic regulation and control, the theory of relay mechanisms and finite automatic machines, computer technology, automatic checking, automated electric drive, automatic and telemechanical mechanisms, industrial electronics, instrument making, system and component reliability, economic effectiveness of automation, power engineering, mechanical engineering, machine building industry, metallurgy, mining, petroleum and gas industry, chemical industry, food industry, light manufacturing, building, agriculture, transportation, communications, commerce, public economy, scientific investigations, medicine, and machine computing stations.

R.N.A.

COMPUTER TECHNOLOGY Surveys of Soviet-Bloc Scientific and Technical Literature 13 Jul. 1965 48 p refs Compilation of Abstracts (ATD-P-65-50; AD-466287)

A compilation of abstracts on Soviet computer technology is presented. Areas considered are components, design, applications, and associated systems: a bibliography is also included.

C.T.C.
DIRECT CONVERSION OF NUCLEAR ENERGY INTO ELECTRIC ENERGY

Jan. 1965 43 p refs In ENGLISH and GERMAN Its Ser. C: Bibliographies; Section 15, No. 6

(AED-C-15-06) E.E.6

A bibliography is presented of subjects closely associated with the direct conversion of nuclear energy into electric energy. Magnetic triodes, thermoelectric converters, solar conversion, thermophotovoltaic converters, and associated technology are included.

E.E.B.


UNITED STATES SPACE SCIENCE PROGRAM 1965 316 p refs Submitted to the 8th Meeting of COSPAR, Buenos Aires, May 1965

CONTENTS:
1. ASTRONOMY p 1-9
2. SOLAR PHYSICS p 10-23
3. ENERGETIC PARTICLES AND FIELDS p 24-31
4. ADVANCES IN PARTICLES AND FIELD RESEARCH IN THE SATELLITE ERA W. Hess, G. Mead, and M. P. Nakada 60 p refs (See N65-29510 18-29)
5. IONOSPHERIC PHYSICS p 32-48
6. PLANETARY ATMOSPHERES AND METEOROLOGY p 49-85
7. PLANETOLOGY p 86-115
8. LIFE SCIENCES p 116-123
9. CELESTIAL MECHANICS, TRACKING, TRIANGULATION STUDIES, GEODESY, AND GRAVITY p 124-139
10. LABORATORY ASTROPHYSICS AND OTHER SUPPORTING STUDIES p 140-148
11. INTERNATIONAL ACTIVITIES p 149-166

APPENDICES
12. SUMMARY OF LAUNCHINGS FOR 1964: SATELLITES, ROCKETS, AND BALLOONS p 168-181
13. COMMUNICATIONS SATELLITES p 182-183
14. SELECT LISTS OF RESEARCH PROJECTS AND ASSOCIATED SUPPORTING AGENCIES p 184-197
15. IGY ROCKET AND SATELLITE REPORT SERIES p 198
16. JOURNALS IN WHICH U. S. SPACE SCIENCE RESEARCH REPORTS ARE NORMALLY PUBLISHED p 199
17. BIBLIOGRAPHY ON SPACE SCIENCES 152 p (See N65-29511 18-30)


BIBLIOGRAPHY ON SPACE SCIENCES, 1964 In its U. S. Space Sci. Program, 1965 152 p (See N65-29509 18-30)

A bibliography of space science literature published in the United States during 1964 is listed under 12 headings and a general category. Subject categories include celestial mechanics, trajectory studies, gravity, and geodesy; tracking, telemetry, and space communications; instrumentation and techniques; interaction between space vehicle and medium: atmospheric composition and structure; ionospheric physics; energetic particles and magnetic fields; meteorites, cosmic dust, and tektites; the sun; the moon and planets; astronomy; and the life sciences.

M.W.R.

N65-29548# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography

May 1965 163 p refs (NASA-SP-70111(11)) CFSTI: HC $1.00/MF $1.00 CSCL 06S

Annotated references are presented, which concentrate on the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. References to articles describing similar effects on biological organisms of lower order are also included. Related topics such as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors receive appropriate attention. Emphasis is placed on applied research, but references to fundamental studies and theoretical principles related to experimental development are also listed.

C.T.C.

N65-29689# Los Alamos Scientific Lab, N. Mex.

BIBLIOGRAPHY OF CROSS SECTION AND SCATTERING DATA FOR THE REACTIONS D + D AND T + D R. V. Winsor 7 Jul 1965 15 p refs (Contract W-7405-ENG-36) (LA-3322-MS) CFSTI: $1.00

This report is the first in a series reviewing Soviet developments in aerospace instrumentation. Abstracts contained in the report were selected from Soviet open literature published in 1964. The 78 abstracts are arranged alphabetically by author within each of the following categories: magnetometers, gravity gradient meters, gas composition analysis, micrometeorite detection, cosmic and corpuscular radiation detection, electromagnetic radiation detection, and pressure sensors. A bibliography is presented at the end of the report.

N. E. A.


BIBLIOGRAPHY ON THE MEASUREMENT OF BULK RESISTIVITY OF SEMICONDUCTOR MATERIALS FOR ELECTRON DEVICES

Judson C. French 21 Oct 1964 123 p refs (ARPA Order 373-62)

(NBS-TN-232) GPO: $0.60

An annotated bibliography is presented on accurate measurements of the bulk resistivity of semiconductor materials such as germanium and silicon which are used in electron devices. Articles are included on ac and dc methods requiring probes or other contacts, ac contactless methods, microwave methods, epitaxial and diffusion layer resistivity measurement, resistivity measurements at resistivities of 100 ohm cm or greater, material properties, sample inhomogeneities and anisotropies, sample preparation and associated techniques, miscellaneous equipment and techniques, correction factors, mathematical principles, and error analysis.

R. N. A.


TRANSLATED TABLES OF CONTENTS OF CH'I-HSIANG HSUEH-PAO (ACTA METEOROLOGICA SINICA)

(Contract AF 19(628)-3689)

E. T. CH-64-25: AD-615956

Abstracts are presented on meteorology and associated subjects to include atmospherics, dynamics, instabilities, spectral analysis, heat balances, ice formation, radiation, ionization, winds, and circulation in the upper troposphere.

E. E. B.

N65-29845# National Aeronautics and Space Administration.
Washington, D. C.


[1965] 167 p. refs

(NASA-SP-7020) CFSTI: HC $1.75/MF $1.00 CSCL 11H

An annotated bibliography is presented on lubrication, corrosion, and wear. Included are topics such as lubricating systems, design and performance of bearings, special applications of lubricants, stress corrosion and fatigue cracking in metals and alloys, friction and wear characteristics of materials, and types of corrosion and techniques for corrosion prevention.

A few references describing the instrumentation and methods of testing lubricants are also included. R. N. A.

N65-29846# National Aeronautics and Space Administration.
Washington, D. C.

SPACE COMMUNICATIONS: THEORY AND APPLICATIONS. VOL. 2: CODING AND DETECTION THEORY Bibliography. 1958-1963


(NASA-SP-7022[02]) GPO: MF $2.25: CFSTI: MF $2.25 CSCL 17B

An annotated bibliography is presented on coding and detection theory for space communications. Literature is included on the fundamentals of coding, fundamentals of information compression and discrete data compaction, audio and video compression, multiplexing of channels and facilities, protective coding, detection theory, and controlled communications systems.

R. N. A.

N65-29865# Defense Documentation Center, Alexandria, Va

PARACHUTE TECHNOLOGY: A Report Bibliography


(AD-427014)

An annotated bibliography is presented on parachute technology and includes subject material pertaining to aerial delivery, canopies, materials, parachute types, recovery systems, physical effects, and testing.

R. N. A.

N65-30007# Thorntwaite (C. W.) Associates, Centerton, N. J. Lab. of Climatology

RECENT DEVELOPMENTS IN METEOROLOGICAL SENSORS AND MEASURING TECHNIQUES TO 150,000 FEET. PART II: BIBLIOGRAPHY Final Report

John R. Mather, ed. 30 Apr. 1965 197 p. refs

(Contract DA-28-043-AMC-00001(E))

(AD-616395)

A survey was made of recent developments in meteorological sensors and measuring techniques from the surface up to an altitude of 150,000 feet. The results are presented in an annotated bibliography of 698 items, plus an analysis of the current status and of promising developments. Modes of atmospheric parameters covered are: temperature, pressure, humidity, wind, density, radiation flux (solar and terrestrial), and ozone concentration.

Author

N65-30172# Commissariat a l'Etnergie Atomique. Saclay (France)

ACTIVATION ANALYSIS WITH PARTICLE ACCELERATORS

[L'ANALYSE PAR ACTIVATION AUPRES DES ACCELERATEURS DE PARTICULES] Bibliography

Micheline Berton Dec. 1964 61 p. refs In FRENCH and ENGLISH

(CEA-BI-50)

N65-30444# Army Nuclear Defense Lab., Edgewood Arsenal, Md.

A LISTING OF CINDA, AN INDEX TO THE LITERATURE ON MICROSCOPIC NEUTRON DATA

Herbert Goldstein (Columbia Univ.) and Malvin H. Kalos (New York Univ. and United Nucl. Corp.) 1 Jul 1964 792 p

(UNC-5090; ND-SP-10; DASA-1535; AD-607668)

A bibliographical index of information is presented concerning microscopic neutron cross sections and allied data for specific elements and isotopes referred to as CINDA (Computer Index Neutron Data). Both published and unpublished literature since the beginning of 1956 is covered. The references are mostly concerned with neutron cross section measurements but also included are theoretical calculations, cross section evaluations, and compilation insofar as they refer to specific target nuclei.

R. N. A.


MIXING OF CONCENTRIC HIGH-VELOCITY AIRSTREAMS


12 Jul. 1965 52 p. refs Compilation of Abstracts

(ATD-P-65-41: AD-466193)

A compilation of abstracts is presented on the mixing of concentric high-velocity airstreams. Among the topics included are reports on: (1) effect of the initial mass flow rate on the development of a submerged, nonisothermal, annular jet in an incompressible fluid; (2) calculation of the main section of an axisymmetric turbulent jet of a real gas; (3) flame stabilization with countercurrent jets; (4) stagnation temperature of a two-phase turbulent jet in a high-velocity gas stream; (5) numerical calculation of turbulent mixing of two homogeneous gas streams; and (6) calculation of trajectories and penetration ranges of fan and twin plane jets in a confined transverse flow. Graphical results are given for each study.

C. T. C.

N65-30599# Johann-Wolfgang-Goethe-Universitat. Frankfurt am Main (West Germany). Institut fur Kernphysik

INSTRUMENTS AND MEASURING TECHNIQUES IN NUCLEAR PHYSICS Bibliographies


(AED-C-D6-10)

N65-30652# Oak Ridge National Lab., Tenn. Atomic and Molecular Processes Information Center

BIBLIOGRAPHY OF ATOMIC AND MOLECULAR PROCESSES FOR 1963


(Contract W-7405-ENG-26)

(ORNL-AMPIC-1)

An annotated bibliography is presented on atomic and molecular processes. References are included on heavy particle-heavy particle interactions, interactions of electric and magnetic fields, particle penetration in matter, surface interactions
and phenomena, electron-heavy particle interactions, properties of atomic and molecular systems transport phenomena in gases, photon-heavy particle interactions, general theory, experimental techniques and considerations, data compilations, positronium and muonium, reviews and books in the field of atomic and molecular collisions, and bibliographies on atomic collisions. R. N. A.

N65-30943# Lockheed Missiles and Space Co, Sunnyvale, Calif.
DEEP SUBMERGENCE STUDIES: AN ANNOTATED BIBLIOGRAPHY
George R. Evans and Charlie M. Pierce, ed Jul 1965 245 p refs
An annotated bibliography containing 440 entries pertaining to deep submergence studies is presented. Considered are the following topics: Structures — vehicle design, analytical studies, and experimental studies; Materials — structural, and nonstructural; Propulsion — conventional, nuclear, and advanced and exotic concepts; Stability and Control; and Environment — internal and external. A source and agency index is attached. G. G.

N65-30951# National Aeronautics and Space Administration, Washington, D. C.
AEROSPACE MEDICINE AND BIOLOGY A Continuing Bibliography
Jul 1965 135 p
(NASA-SP-7011(13)) CSSL 06E

N65-31048# Jet Propulsion Lab, Calif Inst of Tech, Pasadena
15 Jul 1965 79 p
(Contract NAS7-100)
(NASA-CR-63654) CFSTI: HC $3.00/MF $0.75 CSSL 058

N65-31096# Witwatersrand Univ, Johannesburg (South Africa) Dept of Mechanical Engineering
FLAME PROPAGATION VELOCITY AND SOME RELATED TOPICS — A BIBLIOGRAPHY
Rhona Smith, comp. Mar 1965 124 p refs
Rept. 28
A bibliography on flame propagation velocity is presented. Literature on related topics necessary in the understanding and determination of this parameter is included. The primary source used in compiling the bibliography was the Engineering Index. E. E. B.

TRACKING OF MISSILES AND SPACE VEHICLES Surveys of Soviet-Bloc Scientific and Technical Literature
22 Jul 1965 77 p refs Its Rept. No. 23 Compilation of abstracts
ATD-P-65-40
Abstracts are presented on ion clouds and ionosphere perturbations, reflections of electromagnetic waves from the Moon, Sun, planets, and artificial satellites, and radio astronomy (radio emission, antennas, and quantum molecular oscillators). The abstracts cover materials contained in Soviet open literature published during the first ten months of 1964. E. E. B.

N65-31135# National Aeronautics and Space Administration, Washington, D. C.
INDEX TO NASA TECH BRIEFS, ISSUE NUMBER 2 Aug. 1965 45 p refs
(NASA-SP-5021(01)) CFSTI: HC $1.00/MF $0.50 CSSL 058
Presented is a publication which was prepared as a guide to technological innovations derived from the NASA space program. Included is a listing of the citations and abstracts of all NASA Tech Briefs published since January 1, 1965, covering subjects under the headings of electronics, energy sources, materials, life sciences, and mechanics. S. C. W.

SPACE COMMUNICATIONS: THEORY AND APPLICATIONS VOLUME 3 INFORMATION PROCESSING AND ADVANCED TECHNIQUES A Bibliography, 1958–1963
(Contract NASw-981)
(NASA-SP-7022(03)) GPO: HC $2.50 CFSTI: MF $2.25 CSSL 17B
An annotated bibliography is presented on information processing and advanced communications techniques as part of a four volume bibliography on the theory and applications of space communications. References are included on data processing systems in general, the theory, organization, and operation of computer systems; the engineering of data processing equipment; peripheral devices for data processing in space systems; digital processing methods, analog and hybrid processing methods; simulation by information processing equipment; information processors in aerospace vehicles; ultra-microwave techniques; optical devices; optical communications systems; potential future communications techniques; and bionics. R. N. A.

N65-31149# Mound Lab, Miamisburg, Ohio
PENTAERYTHRITOL TETRANITRATE Bibliography
M. R. Kantz, 30 Jul 1965 22 p
(Contract AT(33-11)-GEN-53)
(MLM-1252) Available from AEC, Oak Ridge, Tenn: $0.50

N65-31374 Chicago Univ, III. Dept. of the Geophysical Sciences.
THE LAND AND SEA BREEZE: AN ANNOTATED BIBLIOGRAPHY
Gisela L. Baralt and Rodger A. Brown In its Mesometeorological Field Studies Feb 1965 62 p refs (See N65-31369 20-20)
An annotated bibliography is presented on the land and sea breeze. The earlier papers deal with observation or qualitative theory while the more recent deal with the quantitative aspects of land and sea breeze theory. Theoretical studies in the past ten years have employed computers to handle the detailed observations. In addition to pure breeze studies, many papers emphasize factors related to the land and sea breeze. Others stress the therapeutic values of land and sea circulations and their role in forest fire control around coastal regions. Also included are studies on gravity waves, refractive index anomalies, electrical potential gradient and ionization of the air, and ground radiation balance associated with sea breezes. R. N. A.

INVESTIGATION OF BASIC FACTORS INVOLVED IN THE FORMULATION AND CHARACTERIZATION OF ALUMINUM COMPLEX IMIDO ACIDS AS HIGH TEMPERATURE GREASE THICKENERS
Ernest L. Plummer Oct 1964 28 p refs
( AFML-TR-64-324; AD-610248)

This report covers recent studies of aluminum salts of
substituted benzoic acids for use as high temperature grease
thickeners. It has been shown that although aluminum tri-
benzoate can be prepared by the reaction of aluminum isoprop-
oxide with benzoic acid, it is hydrolytically unstable and on
exposure to moisture, hydrolyzes to aluminum dibenzoate
monohydroxide A literature survey on aluminum salts is included
in addition to infrared and thermal gravimetric analysis data on
the aluminum salts which have been prepared. Author

Sciences Lab.
FUNDAMENTALS OF MHD FLOW Final Report
Arthur Sherman Jun. 1964 14 p refs
(Contract AF 49(638)-914)
(AFOSR-64-1425, AD-617562)

Various studies on magnetohydrodynamic phenomena
associated with crossed field devices are reviewed. These in-
cluded investigations of the properties of low temperature
plasmas; analyses of channel flow problems; discussions of re-
lated boundary layer phenomena; and the application of channel
flow solutions to accelerators and generators. The develop-
ment of some new concepts for the macroscopic description
of the nonequilibrium ionization idea was also reported
C T C

N65-31929# Battelle Memorial Inst., Columbus, Ohio. Trans-
ducer Information Center.
COMPILATION OF TRANSDUCER RESEARCH, DEVELOP-
MENT AND TESTING CONTRACTS
15 Apr. 1965 22 p
(Contract AF 33(615)-1819)

This addendum to a previous contract compilation lists 47
current and recently completed contracts and projects. The
compilation was prepared to provide users and manufacturers
of transducers and those managing or planning transducer
research programs with a comprehensive source of informa-
tion about other organizations and individuals engaged in sim-
ilar activities. E E B

N65-32187*# International Business Machines Corp., Rock-
SPACE COMMUNICATIONS THEORY AND APPLICATIONS.
VOLUME 4: SATELLITE AND DEEP SPACE APPLICATIONS
A Bibliography
NASA, Jul. 1965 303 p refs
(Contract NASw-981)
[NASA SP-7022 (04), Vol. 4] GPO: HC $1.75; CFSTI: MF $1.75
CSCL 17B

An annotated bibliography is presented covering com-
munications satellites, instrumented satellites, deep space flight,
and manned space flight with emphasis on the communications
equipment and technology. The references relate to publications
of a predominantly systems character. Hardware oriented publi-
cations have been, to a large degree, excluded to keep the
bibliography within specified limits. E E B

N65-32205# Library of Congress, Washington, D. C. Aero-
space Technology Div.
SOVIET AIRCRAFT CIRCUIT BREAKERS, ANNOTATED
BIBLIOGRAPHY Surveys of Soviet-Bloc Scientific and Tech-
nical Literature
22 Jul. 1965 25 p refs
(ADT-B-65-54; AD-618471)

An annotated bibliography is presented on Soviet aircraft
circuit breakers. Articles dealing with relays and contactors,
which are used alone or in combination to perform circuit
breaker operations, and devices such as generator control
boxes and storage battery switching boxes, which are used as
components with circuit breakers, are included. Available tech-
nical characteristics of the contractors, thermal circuit breakers,
relays, and control boxes cited in the bibliography are tabulated
in the appendix. R N A

N65-32210# Aeronautical Research Labs., Wright-Patterson
AFB, Ohio.
A BIBLIOGRAPHY ON MOVING STRIATIONS
R. S. Palmer and A. Garscadden Jun. 1965 35 p refs
(ARL-65-120; AD-619027)

N65-32226# Library of Congress, Washington, D. C. Aero-
space Technology Div.
METHODS OF HIGH-TEMPERATURE MEASUREMENT OF
GASES Surveys of Soviet-Bloc Scientific and Technical Lit-
erature, Report No. 3
22 Jul. 1965 17 p refs Compilation of Abstracts
(ADT-P-65-53; AD-618532)

Presented is an annotated bibliography on methods used
in the high temperature measurement of gases which appeared
in Soviet-bloc open literature between 1958 and 1965, and a
list of articles available in full translation. S C W

N65-32339# California Univ., Berkeley. Lawrence Radiation
Lab.
RADIATION EFFECTS ON NOBLE METALS Bibliography
Brigitta M. Dobratz 14 Apr. 1964 18 p
(Contract W-7405-ENG-48)
(UCRL-7810)

N65-32378# International Union of Pure and Applied Chem-
istry, Basle (Switzerland). Sub-Commission on Condensed
States.
BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY
AND PHYSICS OF MATERIALS IN THE CONDENSED
STATE. APRIL, MAY, JUNE 1965, VOLUME 1965, NUM-
BER 2
J. J. Diamond, ed. (Natl. Bur of Std., Washington) [1965]
66 p refs

N65-32393# Gt. Brit. Dept. of Scientific and Industrial Re-
search.
WORLD DATA CENTRE C: ROCKETS AND SATELLITES.
LIST OF REPORTS AND REPRINTS RECEIVED DURING
THE PERIOD 1 JANUARY–30 JUNE 1965
[1965] 20 p refs

A bibliography containing approximately 250 titles con-
cerning recent space research is presented. The reports per-
tain to satellite probes, orbits and flight paths, tracking, data
recovery, instrumentaion, interplanetary probes, gravitational
fields, magnetic fields, terrestrial and space radiation, atmos-
pheric properties, radiowave propagation, meteors and meteor-
ites, interplanetary dust and tektites, biological and medical
problems, astronomy, and plasma physics. J M D

A REPORT GUIDE TO MAGNETIC PARTICLE TESTING
LITERATURE

21
the research presented are nondestructive testing studies of
N65-32709
space Technology Div.
categories of aerosols, biological pathogens, and chemical

A bibliography of Soviet open source literature in the
categories of aerosols, biological pathogens, and chemical
substances is presented. Abstracts are included for most of the
articles, all of which were published prior to 31 December
1962.

N65-33238
Aerospace Corp., El Segundo, Calif. Administration

N65-33349
Lockheed Missiles and Space Co., Sunnyvale,
Calif.

N65-33395
Naval Ordnance Lab., White Oak, Md.

N65-33107
Committee on Space Research (COSPAR), The
Hague (Netherlands).

A selected annotated bibliography is presented on the fall-
ning sphere technique for measuring upper atmosphere density,
temperature, and wind. The documents were selected to em-
phasize technique rather than results and thus constitute a
manual of how to perform aeronomical measurements with
spheres.

R.N.A.

Ernest H. Rodgers and Charles P. Merhib
Jun. 1965
80 p refs

(AERIAL OBSERVATIONS OF RAIN AND SNOW CLOUDS
Selected Bibliography
Roscoe R. Braham, Jr. In its [Cloud Phys.]. 1 Jun. 1965. 28 p
refs (See N65-33092 21-13)

A selected bibliography is presented on aerial observa-
tions of rain and snow clouds. References are included on
cloud microstructure, precipitation particles, liquid water con-
tent, air temperature, water vapor content, air motions, elec-
trical parameters, cumulus clouds, layer clouds, clean air,
weather systems, cloud climatology, aircraft icing, precipita-
tion, dynamical models, aerosols, and symposia and general
texts.

R.N.A.
SATELLITE ORBIT DETERMINATION, A BIBLIOGRAPHY

Dale Denham

Jun 1965 126 p refs

(R5C-415: AD-468532)

The cited references pertain to the area of 'Satellite Orbit Determination.' This bibliography covers the following: 1) Methods to use and combine tracking data from radar and other tracking systems for orbit determination, and 2) The influence of tracking station location, number of stations, and time of tracking on the accuracy of orbit determination. In addition to techniques; prediction and accuracies; programming and computers; error analysis; evaluation of ground coverage; systematic errors; airborne platforms; space dynamics; self-contained orbit determination techniques; and space-time. This bibliography consists of four sections: Section I-Introduction. Section II-Orbit Determination. Entries 1 through 161. Section III-Programs and Satellite Systems. Entries 162 through 187. Section IV-Equipment and Facilities for Orbit Determination. Earth-Based. Entries 188 through 253. Author

N65-33675# Army Missile Command, Huntsville, Ala. Redstone Scientific Information Center.

LUNAR THERMOPHYSICS Annotated Report Bibliography

Charlotte F. Shenk, Herbert P. Eckstein, and William P. Mc Nutt

Jun. 1965 282 p

(R3C-419: AD-469037)

This bibliography, most of which is annotated, contains 673 citations, and is conveniently arranged under 30 sections related to thermal physics of the moon. These sections are Albedo; Atmosphere-Ionosphere; Bibliographies; Books; Color; Composition; Craters. Maria and Rays; Dust; Earth Shine; Eclipse; Environment; Exploration; General Information; Infrared; Instrumentation and Equipment; Light-Optical Properties; Luminoscence; Photometry; Polarimetry and Polarization; Radar and Radio Echo; Radiation, Ultraviolet and Nuclear; Radio Emission-Radio Astronomy; Radiometry; Selenology; Spectrophotometry; Spectroscopy-Spectrometry; Sputtering, Solar Wind; Tekites; Temperature; and Topography. The Radar and Radio Echo Section has 96 citations, and the Photometry. Selenology, Radio Emission-Radio Astronomy, and Temperature Sections have over 40 citations each.

Author


INTERNATIONAL POWDER METALLURGICAL CONFERENCE IN SMOLENICE

Kohlermann 25 May 1965 13 p refs Transl. into ENGLISH from Neue Hutte (Berlin). no. 3. 1963 p 187-190

(FDT-55-1359/1: AD-467250)

Twenty-three articles which deal with powder metallurgy are briefly described. Topics covered include: sintered high melting point compounds, the kinetics of sintering in the presence of the liquid phase, the mechanical properties of materials produced by powder metallurgy, friction materials, metal alloys as high temperature materials, the mechanical properties of hard-metal alloys, and metal-oxide sintering. G.A.L.

N65-33830# National Aeronautics and Space Administration. Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY, JULY 1965

Aug. 1965 143 p refs

(NASA-SP-70111(14)) CFSV: HC $1.00/MF $1.00 CSCL 06E

An annotated bibliography is presented on aerospace medicine and biology. References are included on the biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space; similar effects on biological organisms of lower order; and related topics such as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors. R.N.A.

N65-33908# Midwest Research Inst., Kansas City, Mo.

HIGH-PRESSURE SAMPLING CONFERENCE REPORT

Thomas A. Milne 23 Jul 1965 36 p refs Conf. held at Midwest Res. Inst., 6-7 May 1965

(Contract Nonr-3599(00): ARPA Order 23-63)

(AD-618566)

Various problems encountered in the direct sampling of systems at high pressures were discussed. Abstracts, which indicate the range of topics covered, include Continuum Flow Problems in Direct Sampling; Nonequilibrium Effects in Freely Expanding Jets; Mass Bias in Vacuum Sampling from High Pressure; Influence of Self Collisions in Supersonic Molecular Beams; Collisions in Molecular Beam Collimating Chambers; Disturbances by Sonic Sampling Probes in Flames and Other Systems; Free Radical Sampling from Nonequilibrium Systems; Some Problems of Mass Spectrometric Direct Sampling; Direct Sampling from a Shock Tube; Beam Formation and Sampling of Neutrals from One Atmosphere Flames; A Sampling System for Neutral Particles; Ion Sampling from Gaseous Plasmas; Ion Sampling from a Flowing Gas Stream; and Ion Sampling from Hydrocarbon Combustion Plasmas.

M.G.J.

N65-33997# Autonetics, Downey, Calif.

OCCUPATIONAL LASER HAZARDS—A SURVEY OF THE LITERATURE

Marnelle Kinney 7 Jul 1965 21 p refs

(T-1245/3111: AD-617913)

The need for guidelines to protect personnel involved in laser research is generally recognized. The literature reveals, however, that views differ as to what precautions should be required. This bibliography contains 48 entries arranged alphabetically by author, and includes papers published in the open literature and reports which may be obtained through the Defense Documentation Center. The period of time covered is from 1956 through May 1965.

Author


PROJECTS DEALING WITH ADVANCED ELECTRON DEVICE TECHNOLOGY

Dec. 1964 52 p

(Contract DA-28-043-AMC-00039(E))

(SR-84; AD-463583)

Brief summaries are presented on the results being achieved by government agencies in the field of advanced electron device technology. Microwave, low power, high power, and passive devices, special devices, and optical masers are considered in terms of production evaluation, reliability and device techniques.

G.A.L.


LUNAR DIMENSIONS, ANNOTATED BIBLIOGRAPHY

Surveys of Soviet-Bloc Scientific and Technical Literature 30 Jul 1965 25 p

(ADT-B-65-60: AD-619882)

An annotated bibliography of 42 Soviet-bloc research papers on lunar dimensions is presented. It reflects developments from about 1963 in investigations of lunar revolution, rotation, libration, and mapping techniques.

G.G.

TRACKING OF MISSILES AND SPACE VEHICLES, COMPILATION OF ABSTRACTS
Surveys of Soviet Scientific and Technical Literature, Nov. 1964-March 1965
14 Sep. 1965 50 p refs (Its Rept.-24) (ATD-P-65-51)

Abstracts of 28 Soviet papers on topics related to tracking of missiles and space vehicles are presented. The abstracts are grouped under the headings “ion clouds and ionospheric perturbations” and “radio astronomy: radio emission, antennas, and lasers and masers.” A bibliography of 61 Soviet papers is included.

J.M.D.


BIOLOGICAL EFFECTS OF MICROWAVES
Surveys of Soviet Scientific and Technical Literature
17 Sep. 1965 100 p Compilation of Abstracts
(ATD-P-65-68)

An annotated bibliography which was designed to review the historical development and to survey the contemporary state of Soviet and Soviet-Bloc research on the biological effects of microwaves, especially in the radio frequency ranges, is reported. Abstracts are based primarily on literature published during the period 1937 to 1965. Focused on were those articles concerned with the effects of microwaves on the central nervous system. Data are presented in the following areas: hygienic and clinical aspects of microwaves, experimental effects of microwaves, and the effects of a constant magnetic field and low-frequency electromagnetic fields on higher nervous activity. Included are discussions and reviews on biological effects, experimental methods, and mechanisms of the action of microwaves.

S.C.W.

N65-34212# Argonne National Lab., Ill.

THE CHEMICAL ANALYSIS OF Pu, Pu ALLOYS, AND Pu COMPOUNDS: METHODS, TECHNIQUES, SEPARATIONS PROCEDURES, AND PHYSICAL DATA
Annotated Bibliography, 1947-March 1964

An annotated bibliography which focuses primarily on analytical methodology used in the analysis of plutonium, plutonium alloys, and plutonium compounds; is reported. The scope of reported data exceeds strictly analytical procedures to provide a basis for further development of procedures for analyzing new compounds and alloys of plutonium, and new approaches to long standing problems. Literature covered includes physical chemistry, separations chemistry, physiological and criticality hazards, health and safety, glove-box construction and operation, and corrosion control.

S.C.W.

N65-34447# Space Technology Labs., Inc., Redondo Beach, Calif.

NUCLEAR SPACE MISSIONS: A SELECTED BIBLIOGRAPHY
Special Literature Survey No. 9
R.R. Velin and L.R. Magnolia, comp. 7 Sep. 1965 24 p refs (STL-9980-9988-KU-000)

N65-34703# Battelle-Northwest, Richland, Wash.

SWIN IN BIOMEDICAL RESEARCH
Selected List of References, 1960-May 1965
J.C. Pekas and L.K. Bustad Jun 1965 157 p refs (Contract AF(45-1)-1830) (BNWL-115)


SOLID ROCKET STRUCTURAL INTEGRITY ABSTRACTS, VOLUME 2, NO. 2
R.A. Westmann, ed. Apr. 1965 127 p refs (Contract AF 04(611)-9572) (AD-464736)

CONTENTS:
1. A SUMMARY OF LINEAR VISCOELASTIC STRESS ANALYSIS
H. H. Hilton (Ill. Univ.) p 1-56 refs (See N65-34840 23-27)

ABSTRACTS
2. MECHANICAL CHARACTERIZATION p 58-69
3. THERMAL CHARACTERIZATION p 69-70
4. OPTICAL CHARACTERIZATION p 70-71
5. ANALYTICAL METHODS p 72-97
6. FAILURE p 98-109
7. SPECIAL TEST PROCEDURES p 109-115
8. PHYSICO-CHEMICAL EFFECTS ON MECHANICAL BEHAVIOR p 115-116

N65-35048# North Carolina Univ., Chapel Hill.

Bryce S. De Witt [1965] 13 p refs (Contract Nonr-855(07); Grant AF-AFOSR-153-63) (AD-619183)

Abstracts on quantum theory, relativistic mechanics, and spinor-tensors are presented. Abstracts are included on the inner product in the canonical quantum theory of gravity, radiation dumping in a gravitational field, classical relativistic mechanics of interacting point particles, the conceptual basis and use of the geometric invariance principles, a theorem on spinor-tensors, identities for the curvature tensors in non-Riemannian geometries, conformal and projective Riemann spaces. pedagogical methods in relativity theory, and photon bound states and gravitons.

R.N.A.


TRACKING OF MISSILES AND SPACE VEHICLES
Surveys of Soviet Scientific and Technical Literature
14 Sep. 1965 52 p refs Compilation of abstracts (ATD-P-65-51)

Soviet bloc literature dealing with ion clouds and ionospheric perturbations, radio emissions and antennas, and lasers and masers is reviewed in a series of abstracts. A bibliography of related articles is appended.

M.W.R.


ENGINEERING PSYCHOLOGY, TRAINING PSYCHOLOGY, ENVIRONMENTAL STRESS, SIMULATION TECHNIQUES, AND PHYSICAL ANTHROPOLOGY 1964 Supplement to a Bibliography of Reports Issued by the Behavioral Sciences Lab.
Lavon E. Trygg, comp. 1 Jan. 1965 14 p refs (AD-464531)

A bibliography is presented on Systems Development: Physical Anthropology; Apparatus; Control Design and Arrangement; Environmental Stress; Human Engineering; Maintenance; Methodology and Statistics; Personnel and Manning Requirements; Presentation of Information, Simulation; Tracking and Servo Analysis; Training and Learning; and Zero-G Studies.
E.E.B.
A REVIEW OF THE DISSOLUTION OF PLUTONIUM DIOXIDE
William S. Gilman
17 Sep 1965 14 p refs
(Contract AT(33-1)-GEN-53)
(MLM-1264) CFSTI: $1.00

The presently available dissolution data for plutonium dioxide have been compiled together with a bibliography on the subject. The ease of solubility in various media is strongly dependent upon the method of preparation and temperature to which the PuO₂ was subjected during ignition.

Author

ON CERTAIN AREAS OF HUMAN FACTORS A Literature Search
Charles Edward White Aug. 1964 46 p refs
(Contract NAS8-11675)
(NASA-CR-67336) CFSTI: HC $2.00/MF $0.50 CSCL OSE

An annotated bibliography is presented on human factors and includes references on man's basic characteristics, man's characteristics at an interface, man's characteristics in a group, optimization of machine characteristics to match man's characteristics, optimization of environment to match man, extracted output from man, unusual input to man, handbooks on human factors and engineering, and bibliographies. The appendices contain abstracts of works on the brain machinery, biotechnology, and color vision theory.

R. N. A.

N65-35520# National Aeronautics and Space Administration, Washington, D. C.
BALLISTOCARDIOGRAPHY, A BIBLIOGRAPHY [1877-1964]
Sep. 1965 49 p Prepared jointly with FAA
(NASA-SP-7021; FAA-AM-65-15) GPO $0.50 CSCL OSE

The AGARD technical program for 1966 is mentioned by subject for the various panels, and changes in membership and publications are listed for each of the panels. Technical panels include Aerospace Medical, Avionics, Combustion and Propulsion, Flight Mechanics, Fluid Dynamics, Structures and Materials, and Technical Information. Titles of lectures are given for three AGARD lecture series: (1) Space Navigation, Guidance, and Control; (2) Engineering Applications of Advanced Techniques of Random Process Analysis; and (3) Guided Missile Engineering. New AGARD publications are given in an annotated bibliography and a calendar of AGARD meetings is included.

M. W. R.

A BIBLIOGRAPHY OF THE ELECTRICALLY EXPLODED CONDUCTOR PHENOMENON, SUPPLEMENT NO. 1
(ARFCRL-65-384: AD-618131)

An annotated bibliography is presented on the electrically exploding conductor phenomenon. References are included on arcs, exploding wires, exploding bridge wire, light, mathematics, measurements, photography, shock waves, sparks, spectroscopy, switches, temperature, theory, X-rays, and exploding foils and films.

R. N. A.

POLARIMETRY AND THE LUNAR SURFACE A Literature Survey
W. G. Egan Apr. 1965 61 p refs
(RM-271)

Light reflected by illuminated materials exhibits polarization, with properties dependent upon the nature of the surface and the angles of incidence and observation. This is caused by reflection, scattering, diffraction, single and double refraction, and absorption, with all processes occurring simultaneously. A survey was made of the literature on planetary polarization, with particular emphasis on that of the lunar surface, and the results are presented herein. Following a short introduction and history, a brief synopsis of polarization theory and photometric definitions is presented. A description of measuring devices ensues, with data presented on lunar observations and laboratory measurements. Particular emphasis is placed on the work of the French group (Lyot, Dollfus), but not to the exclusion of the Russian workers. The conclusion summarizes the present state of the art, and outlines areas where further investigation is required. An extensive bibliography is included.

Author

N65-36214# Mound Lab., Miamisburg, Ohio.
PYROLYSIS OF POLYMERS, A BIBLIOGRAPHY
Roland W. Kohl 21 Sep 1965 40 p refs
(Contract AT(33-1)-GEN-53)
(MLM-1271) CFSTI: $2.00

A survey of evaluation work by laboratories is given followed by a tabular summary of the position for each chemical element and for certain isotopes and chemical compounds. This report is a revision of EANDC(UK)26.

Author

A REVIEW OF EVALUATIONS OF NEUTRON CROSS SECTIONS AVAILABLE AT NOVEMBER 1964
K. Parker Mar. 1965 23 p refs
(AWRE-0.13-165) CFSTI: HC $1 00/MF $0.50

A survey of evaluation work by laboratories is given followed by a tabular summary of the position for each chemical element and for certain isotopes and chemical compounds. This report is a revision of EANDC(UK)26.

Author

REFERENCES ON OR RELATED TO STRESSES IN TURBO-MACHINE ROTORS Bibliography
Oct 1964 13 p
(BIB-17) CFSTI: HC $1.00/MF $0.50

A bibliography is presented on radial flow, side-vane impeller configurations typical of centrifugal pumps and compressors and on rotors of other turbomachinery such as gas and steam turbines. Also, a number of references to work on rotating disks is included. Seventy-two articles are represented in the bibliography of which most of the references contain brief abstracts.

E. E. B.

MOSSBAUER EFFECT DATA INDEX, ISSUE 3
(SCTR-65-2) Available from N. Am. Aviation Sci. Center

An organized up-to-date index to published research results relating to the Mössbauer effect is presented. Although the primary emphasis is on experimental results, bibliography sections of theoretical reviews, and instrumentation publications are included. Complete nuclear data and Mössbauer properties summary sheets are included for each isotope and
transition. The organization of the index to the experimental data involves three principal considerations: (1) nuclear transition; (2) source material or host; and (3) absorber (or scatterer) material or host. R.R.D.

**N65-36500**

Hughes Aircraft Co., Culver City, Calif. Services Div.

**DIAPHRAGMS A SELECTED BIBLIOGRAPHY**
J. Seremak Oct 1965 14 p refs

This selective bibliography contains 135 references on design and manufacture of metallic diaphragms including a complete search on bursting diaphragms. The bibliography covers period from 1920 to 1965, and includes unclassified reports and titles from open literature. Author

**N65-36511**


**MATERIALS ADVISORY BOARD COMMITTEE ON BERYLLIUM METALLURGY** Third Progress Report, Sep. 1964-May 1965

1 Jun 1965 24 p (Contract ARPA SD-118)
(MAB-199-M(3))

Abstracts of papers given at a meeting of the Committee on Beryllium Metallurgy emphasizing beryllium purification and structural application are presented. Improved ductility and toughness through new processes of beryllium purification is the subject of the majority of the papers summarized. Also included is a listing of research projects on beryllium studies. G.A.L.

**N65-36571**


**RE-ENTRY COMMUNICATIONS STUDIES** Surveys of Soviet Scientific and Technical Literature

George Stebler 10 Sep 1965 55 p Compilation of abstracts
(ATD P-65-73)

An annotated bibliography is presented on Soviet developments in reentry communications. References are included on charged particle plasma interactions, magneto-acoustic resonance, electromagnetic waves, wave scattering, and wave propagation in plasmas, electron distribution in plasmas, radiowave scattering by meteor trails, magnetohydrodynamics, and magnetic field effects on plasmas. R.N.A.

**N65-3694**

National Aeronautics and Space Administration, Washington, D. C.

**AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY WITH INDEXES**

Sep. 1965 156 p

(NASA-SP-7011115)) CFSTI: HC $1.00/MF $1.00 CSCL 06

Considerable emphasis is given to biological, physiological, psychological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. References describing similar effects on biological organisms of lower order are also included. Related topics such as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, exobiology, and personnel factors receive appropriate attention. The emphasis is placed on applied research, but references to fundamental studies and theoretical principles related to experimental development also qualify for inclusion. R.W.H.

**N66-10170**

Martin Co., Orlando, Fla. Technical Information Center

**RADIO ASTRONOMY, A SELECTED BIBLIOGRAPHY**

Lucille Mc Clure 22 Jun. 1965 50 p

(RB-125; AD-465566)

A selected bibliography on radio astronomy covering domestic and foreign publications is presented. The subject area includes the study of electromagnetic impulses of radio energy emitted by celestial bodies and regions, as well as the study of the universe by using radio waves instead of visible light frequencies. R.R.D.

**N66-10316**

National Aeronautics and Space Administration, Washington, D. C.

**AEROSPACE MEDICINE AND BIOLOGY ** A Continuing Bibliography With Indexes, Sep. 1965

Oct. 1965 132 p

(NASA-SP-7011116) CFSTI: HC $1.00/MF $1.00 CSCL 06

An annotated bibliography of aerospace medicine and biology is presented, along with subject, corporate source, and personal author indices. Subject coverage concentrates on the biological, physiological, and environmental effects to which man is subjected during and following simulated or actual flight in the earth's atmosphere or in interplanetary space. References describing similar effects on biological organisms of lower order are also included. Related topics such as sanitary problems, pharmacology, toxicology, safety and survival, life support systems, and exobiology are also given attention. L.S.

**N66-10435**


**THE PLANET MERCURY: A TWENTY-YEAR SURVEY OF THE LITERATURE**

Rosa Bernstein Mar 1964 30 p refs

(R64SD20)

A bibliography is presented on the planet Mercury and includes 145 references published over the past 20 years, 37 of which have abstracts. This collection was intended as a starting point for a preliminary study to consider sending an unmanned scientific probe to the planet. R.N.A.

**N66-10624**


**INVESTMENT AND OPERATING COSTS FOR CHEMICAL AND PETROLEUM PLANTS**

Bibliography, Jan.-Dec. 1964

Sidney Katell and William C. Morel 1965 136 p refs

(BM IC-8265)

An annotated bibliography is presented on investment, and construction and operating costs for chemical and petroleum plants. Other subjects covered include cost estimating methods and theory, reports on construction projects, nuclear developments, water desalination and purification, and increasing use of computers in the process and development industries. R.N.A.

**N66-10886**

West Virginia Univ., Morgantown.

**ANNUAL STATUS REPORT TO NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**
The purpose of this research was to evaluate the effect of ultrasonic energy in producing a dispersed phase during the metallurgical processing of alloys. Three systems which were investigated included: the effect of insonation during the solidification of cast iron on the distribution of graphite and pearlite formation, the effect of insonation on the decomposition of iron carbide in white case iron during heat treatment, and the dispersion strengthening of aluminum alloys. Ultrasonic vibrations were introduced into the alloys by means of a high purity nickel rod attached to the transducer which operated at a frequency of 20,000 cycles per second with a maximum sonic output of 75 watts. Insonation during solidification of gray cast iron produced more ferrite, less pearlite and more nodular graphite particles when compared with a non-sonated reference specimen.

**EJECTORS AND MIXING OF STREAMS**

Bibliography No. 6
J. Seddon and M. Dyke, comp. (RAE) Nov. 1964 47 p refs

CFSTI: HC $2.00/MF $0.50

References on the mixing of streams, and methods and data for the design and performance prediction of practical ejectors are presented. The compilations are grouped under four headings, as follows: Mixing of Streams—theoretical and experimental fluid mechanics of mixing flows; Ejectors—theory and practice of actual ejectors such as thrust augmenters and aerodynamic nozzles; and basic design, performance, and specific applications in propulsion systems; Jet-Pump Applications—induction wind tunnels, ejectors for boundary layer control, etc.; Miscellaneous—noise of ejector nozzles, external drag of aircraft ejector systems, thrust measurement technique, etc. The bibliography, which contains 585 references, is arranged in alphabetical order by authors.

**VACUUM AS AN INSULATOR: A BIBLIOGRAPHY**

R. Hawley and A. Maitland, comp. Oct. 1965 111 p refs


A comprehensive bibliography is given of papers dealing with the properties of high vacuum as an electrical insulator. The phenomena relating to vacuum insulation and its breakdown are subdivided into 48 main topics. An index and cross-index are included that indicate the topics dealt with in each paper and, conversely, indicate the papers dealing with each topic.

**NUCLEAR SAFETY**

Surveys of Soviet Scientific and Technical Literature
Andrew Valiunas and Bartholomew Poplawski, 22 Oct. 1965 64 p refs Annotated Bibliography (ATD B 65-76)

An annotated bibliography of Soviet scientific and technical literature on nuclear safety is reported. Presented are data on nuclear radiation detectors, radiation shielding, and remote handling and radiation protective devices.

**RADIOISOTOPES IN MEDICINE**

A Selected Literature Search

(NASA-CR-67721) CFSTI: HC $1.00/MF $0.50 CSCL 11F

This annotated bibliography contains 3,160 selected references on the use of isotopes in medical diagnosis, therapy, and research. The major reference sources were *Nuclear Science Abstracts*, *Index Medicus*, *Biological Abstracts*, *Chemical Abstracts*, and *International Abstracts* of Biological Science. The period covered was 1958 through 1963. Author and report number-availability indexes are included.

**NEUTRON PHYSICS DIVISION ANNUAL PROGRESS REPORT FOR PERIOD ENDING AUGUST 1, 1965**

J. A. Biggerstaff et al., Nov. 1965 79 p refs

Contract W-7405-ENG-26

(ORNL-3858, Vol. 1) CFSTI: $3.00

Summaries on work in progress, and abstracts of published papers are presented on the research being conducted by the Neutron Physics Division. The 1286 annotated references are: Nuclear and Reactor Physics, Critical Experiments, Reactor Shielding, Radiation Shielding Information Center, Mathematics and Computer Programs, and Radiation Detector Studies.

**HOT LABORATORIES**

William E. Bost, comp. Nov. 1965 197 p refs

(TID-3545, Rev. 1) CFSTI: $5.00

This bibliography was prepared as a guide to the literature on design, equipment, and operation of laboratories for work with radioactive materials. The 1286 annotated references are arranged by subject. An author index and a report availability index are given.

**SNOW, ICE AND PERMAFROST, VOLUME XIX**

Bibliography With Abstracts
Frank M. Marson et al., Jun. 1965 294 p refs

(NASA-SP-1011(17)) CFSTI: HC $1.00/MF $1.00 CSCL 065

The Bibliography provides a current and comprehensive coverage of basic and applied scientific research on snow, ice, and permafrost, as well as living and working in polar regions and other cold areas. Each entry includes a bibliographic citation, code designating the library holding of the abstracted item, assigned call number, Universal Decimal Classification number, and the abstract. This volume has a geographic index which was included as a forerunner to future editions contingent on the value derived.

**PROTECTIVE COATING SYSTEMS FOR NI OBIM IN THE RANGE 1800-2500 F**


Its PDC Search No. 64-001

(PDL-50205, AD-621546)
A bibliography giving pertinent references on ‘Longtime high reliability coatings for 1800 to 2500 °F columbium applications’. In addition to oxidation protection above 1800 °F, information is given concerning ductility, flexibility, thickness, diffusional stability and resistance of coating systems to thermal shock and cycling, impact abrasion and vibration. TAB

RADIOISOTOPE HEAT SOURCE EVALUATION PROGRAM
(1964) 246 p refs
(Contract NAS5-3849)
(NASA-CR-68128) CFSTI: HC $6.00/MF $1.50 CSCL 18B

The primary objective of the radioisotope heat source evaluation program was the compilation of an annotated bibliography on the nuclear characteristics of the following isotopes: strontium-90, cesium-134, cesium-barium-137, promethium-147, polonium-210, plutonium-238, curium-242, and curium-244. A secondary objective of the program was the preparation of a Fortran computer program capable of computing the low energy bremsstrahlung (< 250 keV) emanated by candidate isotopic fuels. Promethium 147 was used as a typical radioisotope. At the beginning of each isotope section, the best values for the nuclear characteristics of that isotope are presented. These characteristics are: half life, spontaneous fission half life (when applicable), energy levels, decay schemes, spins, alphas/spontaneous fission (when applicable), and neutrons/spontaneous fission (when applicable). The bremsstrahlung computer program was tested using promethium-147 oxide as a typical case. In addition to the program proper a flow diagram of the program is presented along with graphs of the generated bremsstrahlung spectrum.

N66-13078# Georgia Inst. of Tech., Atlanta School of Electrical Engineering
BIBLIOGRAPHY AND SUMMARY OF METHODS RELATED TO THE ERROR ANALYSIS OF HYBRID COMPUTERS
Thomas M. Wright Jr 14 Oct. 1964 23 p refs
(Contract NAS8-2473)
(NASA-CR-68405) CFSTI: HC $2.00/MF $0.50 CSCL 09B

A summary is presented of current methods used in attacking the error problems present in analog computers, sampled data systems, and hybrid computers. The survey indicates that the best approaches to error analysis of hybrid computers are probably the use of sensitivity coefficients based on a modification of the method of Miller and Murray, and the use of root shifting techniques in linear problems or problems which can be linearized. In both approaches, approximations for transfer functions of different components and the use of a variety of mathematical tools such as Z transforms will be helpful. An extensive bibliography is also included.

N66-13081# Melpar, Inc., Falls Church, Va.
THE CHEMISTRY OF COMETS
An Annotated Bibliography
J. B. Evans and V. J. De Carlo Mar. 1965 61 p refs
(Contracts NASw-589; NASw-890)
(NASA-CR-68407) CFSTI: HC $3.00/MF $0.75 CSCL 07D

An annotated bibliography citing references for theoretical and experimental studies on the chemistry of comets is presented. The experimental studies referred to are designed primarily to derive an explanation of the chemical processes and mechanisms responsible for the formation of the emitting species observed from the spectra of comets. The theoretical studies refer to investigations initiated to describe the nucleus, coma, and tail in terms of structure, composition, temperature, evaporation, photodecomposition, and interaction with protons, electrons, and radio waves. The references are divided into three areas: (1) those which report the results of land-based observations and the theoretical interpretations resulting from these observations, (2) those which report data obtained in the laboratory as a direct result of experimentation, and (3) those which report proposed plans for space investigations of comets.

M.R.W.

N66-13244# Oak Ridge National Lab., Tenn.
TRACER DIFFUSION IN METALS. PART II: IMPURITY DIFFUSION IN PURE METALS. A Bibliography, 1938–Dec. 1964
John Askill, comp. Nov. 1965 24 p refs
(Contract W-7405-ENG-26)
(ORNL-3795. Pt. II)

Frequency factors and activation energies for tracer solute diffusion in pure metals have been compiled from the literature reported between 1938 and December 1964. An authors' index is also included.

Author

NONDESTRUCTIVE TESTING THEORY AND APPLICATION FOR COMPOSITES Bibliography
15 Oct. 1965 219 p
(Contracts NAS8-11733: AF 33(615)-2865)
(NASA-CR-68604; NA-65-813) CFSTI: HC $6.00/MF $1.25 CSCL 05B

A comprehensive literature survey was conducted as one phase of work performed under the NASA and Air Force contracts identified in the Foreword. Literature relating to nondestructive testing theory, techniques and equipment was collected and indexed. Material relating to ultrasonics and ultrasonic testing equipment and techniques was of primary interest; however, other fields of nondestructive testing are also included in the survey. Related subject material concerning honeycomb and sandwich construction, composites, and bonding, are included to provide helpful background information.

Author

MIXING OF CONCENTRIC HIGH-VELOCITY AIRSTREAMS
(ATD-P-65-98)

An annotated bibliography, compiled from Soviet research articles, is presented on the mixing of concentric high velocity airstreams.

R.N.A.

GEMINI AGENA TARGET VEHICLE Reports Bibliography, Period Ending 30 Jun. 1964
1 Sep. 1964 18 p refs
(Contract AF 04(695)-129)
(LMSC-A605144, SSD-62-80, AD-462886)
Contents: Communications and Control System Reports; Engineering/Technical Reports; Facilities Reports; Flight Planning Reports; Human Factors Reports; Service, Maintenance, and Operation Manuals; Presentations and Briefing Aids; Product Assurance Reports; Progress Reports; Propulsion System Reports; Study Reports; and Test Reports.

TAB
HIGH EXPLOSIVES, FUZES, AND FUZING MECHANISMS. PART A. CHEMISTRY OF HIGH EXPLOSIVES: COMPOSITION, USE, SELECTION, MANUFACTURE, AND TESTING OF EXPLOSIVES

BIBLIOGRAPHY ON THE HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF MATERIALS IN THE CONDENSED STATE, JULY, AUGUST, SEPTEMBER, VOLUME 1965, NUMBER 3

A bibliography is presented on the high temperature chemistry and physics of materials in the condensed state. References are included on devices for achieving temperatures above 1500° C; devices for measuring and controlling temperatures above 1500° C; devices for physical measurements at temperatures above 1000° C; properties at temperatures below 1000° C of metallic, nonmetallic, and mixed materials which melt above 1500° C; properties at temperatures above 1000° C of metallic, nonmetallic, and mixed materials which melt above 1500° C; properties at temperatures above 1000° C of metallic and nonmetallic materials which melt below 1500° C; phase equilibria; and reactions at temperatures above 1000° C.

AN ANNOTATED BIBLIOGRAPHY ON MOTION OF CHARGED PARTICLES IN MAGNETIC FIELDS AND MAGNETIC SHIELDING AGAINST SPACE RADIATION

Perry F. McDonald Nov. 1965 44 p refs (Contract NAS8-20166) NASA-CR-66657; R-161 CFSTI: HC $2.00/MF $0.50

This annotated bibliography on the theory of charged particle motion in magnetic fields and the shielding against charged particle radiation using magnetic fields in divided into five sections: (1) general references on charged particle motion and cosmic rays, (2) motion of untrapped particles in magnetic fields, (3) motion of trapped particles in magnetic fields, (4) ring currents in the magnetosphere, and (5) space radiation shielding using magnetic and electric fields. It should be helpful to those interested in the interaction of cosmic rays and energetic solar particles with the geomagnetic field and those interested in the active methods of shielding against space radiation.

ANOTHER BIBLIOGRAPHY ON MOTION OF CHARGED PARTICLES IN MAGNETIC FIELDS AND MAGNETIC SHIELDING AGAINST SPACE RADIATION

Perry F. McDonald Nov. 1965 44 p refs (Contract NAS8-20166) NASA-CR-66657; R-161 CFSTI: HC $2.00/MF $0.50

A bibliography is presented on the motion of charged particles in magnetic fields and magnetic shielding against space radiation. It includes: general references on charged particle motion and cosmic rays, motion of untrapped particles in magnetic fields, motion of trapped particles in magnetic fields, ring currents in the magnetosphere, and space radiation shielding using magnetic and electric fields. It is helpful to those interested in the interaction of cosmic rays and energetic solar particles with the geomagnetic field and those interested in the active methods of shielding against space radiation.

A BIBLIOGRAPHY OF CERTAIN OPTICAL PROPERTIES OF LIQUID WATER IN THE INFRARED REGION (1-2000 MICRONS)


A selective bibliography was compiled of references pertaining to the absorption spectra, reflectance spectra and optical constants of liquid water in the infrared from 1 micron to 2000 microns. Representative curves are presented for absorption, reflectance and index of refraction. There is a serious deficiency in the scientific literature on the infrared optical properties of sea water.

PULSED REACTORS AND PULSED CRITICAL ASSEMBLIES


A selective bibliography was compiled of references pertaining to the absorption spectra, reflectance spectra and optical constants of liquid water in the infrared from 1 micron to 2000 microns. Representative curves are presented for absorption, reflectance and index of refraction. There is a serious deficiency in the scientific literature on the infrared optical properties of sea water.

A BIBLIOGRAPHY OF CERTAIN OPTICAL PROPERTIES OF LIQUID WATER IN THE INFRARED REGION (1-2000 MICRONS) Interim Report P. W. Davis Aug. 1965 18 p refs (NRL-BIBL-25; AD-622225) CFSTI: HC $1.00/MF $0.50

A selective bibliography was compiled of references pertaining to the absorption spectra, reflectance spectra and optical constants of liquid water in the infrared from 1 micron to 2000 microns. Representative curves are presented for absorption, reflectance and index of refraction. There is a serious deficiency in the scientific literature on the infrared optical properties of sea water.
A bibliography is given on the high temperature chemistry and physics of gases and gas-condensed phase reactions. Spectroscopy of interest to high temperature chemistry is included.

C.T.C.
A brief comprehensive survey of the literature published in Soviet periodicals during 1964, and an annotated bibliography which supports the survey and is arranged to follow the narrative sequence of the survey is reported. The attention of the Soviet scientist was focused on the following main points of interest: (1) investigation of closely packed chlorophyll modifications in model systems; (2) light conservation, energy transfer, photoexcitation of triplet states in tetrapyrrol pigments; (3) intermediate reduced and oxidized forms of tetrapyrrol pigments; (4) evolution of oxygen in photosynthesis; (5) investigation of the structure of tetrapyrrol pigments; and (6) summaries of scientific meetings.

A survey is presented in the form of tables and graphs of selected documents on reinforce-plant materials dealing with high purity metals is presented. All of the articles included are cataloged at the Library of Congress from which information about availability of translations can be obtained.

An annotated bibliography is presented on upper atmospheric phenomena. References are included on the ionosphere and electromagnetic wave propagation, cosmic radiation and the radiation belts, telluric currents, geomagnetism, whistles, satellite and missile electromagnetic wave propagation, and auroras and electromagnetic wave propagation.

A bibliography on heat and oxidation resistant reinforced plastics and laminates for long-time structural use at temperatures of 600°F and above consists primarily of references which evaluate the ablative characteristics of the materials.

Abstracts and translations of recent material pertaining to the kinetics of supersonic combustion are presented. A general analysis of the subject areas discussed, which include gas combustion behind shock waves, shock wave propagation, flow velocities, detonation, stabilization, and free radical recombination, is given. An author index to the above abstracts is given, and an additional compilation of abstracts in the subject area compiled from the Aerospace Technology Division press of the Library of Congress is also given.

A bibliography is included of zodiacal light and gegenschein references during the period January 1961 through June 1964. Also included are papers on closely related problems which make use of zodiacal light results.

An annotated bibliography is presented on upper atmospheric phenomena. References are included on the ionosphere and electromagnetic wave propagation, cosmic radiation and the radiation belts, telluric currents, geomagnetism, whistles, satellite and missile electromagnetic wave propagation, and auroras and electromagnetic wave propagation.

A bibliography on heat and oxidation resistant reinforced plastics and laminates for long-time structural use at temperatures of 600°F and above consists primarily of references which evaluate the ablative characteristics of the materials.
Research on oscillator strengths of electron transitions from one energy level to another as shown in the spectral lines of chemical elements published in Soviet literature is abstracted and evaluated. No special annotation is given in this bibliography which is a continuation of a previous work entitled "Research on f-Values": Articles dealing with both theoretical and experimental investigations are included. The author's conclusion contains an evaluation of the general approach to the problem of oscillator strengths of spectral lines and new methods introduced in investigations, and comments on individual works.

R.N.A.

An annotated bibliography of 93 Soviet monographs on high temperature energy converters is presented. Studies related to this field are also listed. The data were compiled from open source materials available at the Aerospace Technology Division and the Library of Congress, and cover the years 1955 through 1960. Translations and English abstracts are indicated when available, and an author index is included.

M.G.J.

Abstracts are given of the following publications: Relativistic electron transitions, including theoretical, experimental, and applications. The bibliography is divided into sections on Theory, which includes quantum, programming, game, information, and inventory theories, and the theory of the optimum distribution of effort. Applications, which covers management, military applications, quality control, accountancy, and medical problems. Book Reviews; and News.

M.G.J.

The compilation presented in this bibliography has been prepared as a literature survey in support of an experimental and development program of research on gas lubricated bearings. The bibliography is a continuation of a similar work issued in October 1961. It contains 493 abstracts. It covers the magazine, book, periodical technical report and patent literature, both domestic and foreign. Most of the abstracts are either author's or author modified type. It is arranged in chronological order from January 1961 through December 31, 1964, according to the date of publication. The first two digits of the five digit number of each reference indicate the year. Some 55 sources, which were not recorded in the previous bibliography, are also abstracted. The bibliography is provided with an author index (corporate and individual), subject index and patent index.

Author

Contents: Dissipation of energy due to coupling of thermal and mechanical effect; Syntheses and properties of organometallic compounds; Theory of transport and other properties.
of metals and plasmas; Effect of interaction of imperfections on the deformation mechanism; Microwave investigation of semiconductors and magnetic materials; Electronic properties of solids; Diffraction studies of materials; Polymer studies; Boundary value problems in the elastic theory of dislocations; Studies of semiconducting properties of gray tin; Precipitation studies in solids; Properties of high temperature materials; Thin films and superconductors; Cross linking, chain conformation, and crystallization studies in high polymers; Structure and phase transformations; Ultra thin metal crystals; Theoretical studies of proton transfer mechanisms in hydrogen-bonded solids; Proton relaxation time in polymers; Ultra thin metal crystals; Theoretical studies of proton transfer mechanisms in hydrogen-bonded solids; Proton relaxation time in polymers; Structural studies by diffraction methods; Sintering kinetics; Anisotropic semiconductors; Studies of the defect solid state; Band structure of semiconductors and theory of superfluids; Experimental determination of Fermi surfaces; Direct observation of lattice imperfections and their relation to mechanical and physical properties; Mathematical theories of dislocations, plasticity, viscoelasticity and fracture; Ionization potentials of inorganic molecules by photoionization; Fluorescent lifetimes of large molecules; Solid state nuclear resonance studies; Synthesis and structures of inorganic compounds.


WEATHER SATELLITES: TIROS AND Nimbus LITERATURE SURVEY
Jun 1965 74 p refs
(TDCK-42600) CFSTI: HC $3.00/MF $0.75

Abstracts of selected articles dealing with Tiros and Nimbus satellite observations and a review of weather satellite launchings and observational instrumentation are included in a literature survey listed chronologically in four separate sections. The first chapter includes general background information and deals with objectives and capabilities of weather satellites, design, instrumentation, and evolution of the Tiros system; and plans for future developments. A chapter on design and instrumentation considers weather satellites and their systems, optical instrumentation, radiation experiments, ground stations, and data processing. The section on cloud photography and nephanalysis contains abstracts on cloud pattern and structure, satellite observations, synoptic interpretation, and comparisons of Tiros photography with conventional meteorological observations. In the last chapter are reviews dealing with radiation data interpretation and satellite measurements.

N66-15552# Manitoba Univ., Winnipeg. Dept of Psychology.

BIBLIOGRAPHY OF STUDIES ON SENSORY DEPRIVATION AND RELATED CONDITIONS
John P. Zubek, Doris Dobb, and Louis Bayer [1965] 31 p refs
(Grant NIH G-MH-08748-01) CFSTI: HC $2.00/MF $0.50

A bibliography is presented on studies on sensory deprivation and related conditions. References are included on perceptual deprivation, sensory isolation, sensory invariance, stimulus deprivation, patterned stimulation, confinement, social isolation, monotony, effects of early experiences in humans and animals, and brainwashing.


REVIEW OF LITERATURE ON NATURAL SCIENCES AND CHEMISTRY [LITERATUROVERZICHT, NATUURKUNDE EN SCHEIKUNDE]
9 Sep. 1965 48 p In DUTCH Its Vol. 16, No. A-386

Abstracts compiled from a literature review of research and development efforts in several countries are presented. Subject matter covered includes acoustics and shock, lasers, optics, photography, solid materials, quantum mechanics, superconductivity, corrosion, surface treatment, plastics, fuels, materials, water and air purification, fire fighting, and packing materials. Technical news items are also included.

Transl. by J. O.

N66-15737# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).

REVIEW OF LITERATURE ON AVIATION TECHNOLOGY [LITERATUROVERZICHT, LUCHTVAART-TECHNIEK]
12 Oct. 1965 19 p In DUTCH Its Vol. 13, No. L-284

Abstracts compiled from a literature review of research and development efforts in several countries are presented. Categories include model descriptions, propulsion, industrial materials, panel systems and instruments, navigation and air traffic control, safety, aerodynamics, strength and vibration experiments, and loading. Data on operating costs are also included.

Transl. by J. O.


REVIEW OF LITERATURE ON MILITARY MEDICINE [LITERATUROVERZICHT, MILITAIRE GENEESKUNDE]

CFSTI: HC $2.00/MF $0.50

Abstracts on a wide variety of subjects are presented in a literature survey of military medicine. Subjects of the reviews include radiation exposure dermatology, psychology and psychiatry, aviation medicine, internal medicine, surgery, pharmacology and toxicology, and new trends and devices.


REVIEW OF LITERATURE ON OCEANOGRAPHY AND NAVIGATION [OCEANOGRAPHY. NAVIGATION LITERATUROVERZICHT]

CFSTI: HC $2.00/MF $0.50

A variety of subjects dealing with oceanography and navigation are reviewed in a literature survey. Abstracts deal with physical oceanography, the chemistry of sea water, geophysics, and oceanographic and hydrographic equipment. General navigation problems are included as well as abstracts on equipment and instruments for sea, air, land, and space navigation.


REVIEW OF LITERATURE ON ELECTRO-TECHNOLOGY [ELECTRO-TECHNIEK LITERATUROVERZICHT]
21 Oct. 1965 37 p In ENGLISH, DUTCH, FRENCH, and GERMAN Its Vol. 14, No. E-473 CFSTI: HC $2.00/MF $0.50

Telecommunications, electronics, radar, information processing, and computer systems are the general areas covered in a literature survey. Abstracts deal with analog computers, computer hardware and applications, and measuring and regulating techniques. Other topics reviewed include oscillators and magnifiers, filters and networks, and electromagnetic radiation.

N66-15751# American Meteorological Society, Boston, Mass.

BIBLIOGRAPHY ON PHYSICAL OCEANOGRAPHY OF THE INDIAN OCEAN

33
N66-15780


The scope of this bibliography is limited to the different aspects of physical oceanography, viz: temperature, density, salinity, chemical composition, waves, currents, circulation, methods of measurements, instruments, etc. Papers on bottom topography, geology and biology have been excluded. Material on the weather and climate of the Indian Ocean, of its islands and of the Indian Subcontinent has been reserved for future bibliographies. 

N66-15780# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands). REVIEW OF LITERATURE ON AUTOMOTIVE TECHNOLOGY [AUTOMOBIELTECHNIEK LITERATUROVERZICHT]

16 Oct. 1965 34 p refs In DUTCH, ENGLISH, and GERMAN /its Vol. 1, No V-3 CFSTI: HC $2.00/MF $0.50

An annotated bibliography on automotive technology is presented. Descriptions and design specifications of various trucks, amphibious landing vehicles, bulldozers, and commercial vehicles are reported. Studies on braking, ignition, engine, suspension, and electrical systems are summarized. Reference is given to recent developments in automotive tires and safety glass. Also reported are computer programs to determine the relationship between pressure flow, heat release, and thermal load in diesel engines. A report on computer simulation of the automobile driver is also included. M.R.W.

N66-15783# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands). REVIEW OF LITERATURE ON THE INDUSTRIAL SCIENCES [BEDRIJFSWETENSCHAPPEN LITERATUROVERZICHT]

13 Sep. 1965 29 p refs In DUTCH and ENGLISH /its Vol. 4, No. EM-86 CFSTI: HC $2.00/MF $0.50

An annotated bibliography on management systems, financial control, accounting, cost estimation, logistics, psychology, sociology and personnel training techniques in military, industrial, and research facilities is presented. M.R.W.


1 Nov. 1965 143 p refs (Contract ARPA SD-90) (AD-623906) CFSTI: HC $4.00/MF $1.00

Contents: Chemical and solid state physics; Electronic, magnetic, and optical properties of materials and device applications; Metallurgy; Central facilities. 

N66-15827# National Aeronautics and Space Administration, Washington, D. C. AEROSPACE MEDICINE AND BIOLOGY Bibliography

Jan. 1966 96 p refs (NASA SP-701119) CFSTI: HC $1.00/MF $0.75 CSCL O6E

Abstracts on the biological physiological, psychological, and environmental effects to which man is subjected during, and following simulated or actual flight in the earth's atmosphere or in interplanetary space are presented. References describing similar effects on biological organisms of lower order are also included. Related subjects such as sanitary problems, pharmacology, toxicology, safety, survival, life support systems, exobiology, and personnel factors receive appropriate attention. The abstracts were prepared by three contributing organizations. NASA, AIAA, and LC. E.E.B.

N66-15837# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands). REVIEW OF LITERATURE ON CIVILIAN TRANSPORT [INTERN-TRANSPORT LITERATUROVERZICHT]

Jul. 1965 30 p refs In DUTCH /its No. 50 CFSTI: HC $2.00/MF $0.50

Abstracts are presented covering the transportation of goods, warehouse storage; loading and unloading methods, packing, safety, and transportation aids. E.E.B.

N66-15869# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands). REVIEW OF LITERATURE ON MILITARY CONSTRUCTION [KRIJGSBOUWKUNDE LITERATUROVERZICHT]

4 Oct. 1965 23 p refs In DUTCH and ENGLISH /its Vol 7, No. K-77 CFSTI: HC $1.00/MF $0.50

A compilation of abstracts is presented of literature pertaining to military construction. Major areas considered are: concrete; ground mechanics and foundation technology; bridges, roads, and airfields: photogrammetry and geodetics; civilian construction, and chemical, biological, and radiological warfare; Building constructions, building physics, and building materials are topics considered under civilian construction, and such areas as shock waves, blasting, and protective buildings are included relative to warfare. C.T.C.

N66-15871# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands). REVIEW OF LITERATURE ON MANUFACTURING TECHNOLOGY [LITERATUROVERZICHT WERKPLAATSTECHNIEK]

Oct. 1965 31 p refs In DUTCH, GERMAN, FRENCH, and ENGLISH /its Vol. 10, No. W-91 CFSTI: HC $2.00/MF $0.50

A compilation of abstracts is presented of literature on manufacturing technology. Major areas covered are stressed operations, operations without tension (or stress), and manufacturing techniques. These include such topics as cutting and stressing tools, broaching and filing, grinding, and pressing. C.T.C.

N66-15872# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands). REVIEW OF LITERATURE ON SHIPBUILDING AND NAVIGATION [LITERATUROVERZICHT SCHEPBSBOUW EN SCHOEPVAARTTECHNIEK]

15 Oct. 1965 30 p refs In DUTCH, GERMAN, FRENCH, and ENGLISH /its Vol. 10, No. S-175 CFSTI: HC $2.00/MF $0.50

A compilation of abstracts is presented of literature pertaining to shipbuilding and navigation technology. Included are such areas as ship models, resistance and propulsion, strength and vibrations, design and construction, and upkeep and repair. C.T.C.

for the years 1960 through 1964. published in Soviet open-
cants and heat carrying materials

Piezoelectric Materials: (6) High Polymeric Materials: (71 In-
onic Dielectrics; (8) Applications: (9) Insulating Films; (10) The Breakdown of Dielectrics. Overall reviews are pre-
duced in ten chapters dealing with
(1) Instrumentation and Measurements; (2) Tables of Dielectric Constants, Dipole Moments, and Dielectric Relaxation Times; (3) Molecular and Ionic Interactions in Dielectrics; (4) Con-
duction Phenomena in Dielectric Solids; (5) Ferroelectric and Piezoelectric Materials; (6) High Polymeric Materials; (7) In-
organic Dielectrics; (8) Applications; (9) Insulating Films; and (10) The Breakdown of Dielectrics. Overall reviews are pre-
sented for each of these subject headings. The second chapter
contains tables which summarize data on the static dielectric constants of inorganic and organic pure liquids and pure solids; dipole moments for inorganic, organic, and metallic and non-
metallic-organic compounds as well as complexes and polymers; and unresolved relaxation times for organic compounds.

LIQUID STATE OF METALS. Surveys of Communist World Scientific and Technical Literature
Dimitri Vvedensky 29 Oct. 1965 47 p refs Annotated bibliography
(ADT-B-65-95)
This annotated bibliography was compiled from Soviet-
Satellite open sources published 1964–1965. It is the first in a series. The report is divided into two sections with data published in 1964 making up the first and data published in 1965 comprising the second. Information covered includes the following: selenium, iron, chromium, silicon, rare earth ele-
ments, nickel, sodium alloys, antimony–bismuth system, copper, cadmium–bismuth alloy, lead–tin alloy, magnetic suscept-
ibility, germanium, liquid metal structure, sulfur, aluminum, electrode polarization, liquid metal self-diffusion, electrotrans-
ferr, indium–antimony alloys, temperature resistivity, liquid alkali metals, radiation scattering, melt density, thermochem-
istry, tin, Hall constant, liquid eutectics. X-ray diffraction anal-
ysis, steel, electroconductive diffusion, germanium alloys, electokinetic effect, titanium, ultrahigh pressure melting, zir-
conium, aluminum oxide wetting, lead, cobalt–silicon system.

Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
A REVIEW OF LITERATURE ON NUCLEAR AND REACTOR TECHNOLOGY [LITERATUuroVERZICHT, ATOMKERN-
TECHNIEK EN REACTORKUNDE] Sep 1965 28 p refs In DUTCH, ENGLISH, FRENCH, and GERMAN Its Vol. 7, no. R-78 CFSTI: HC $2.00/ MF $0.50 Abstracts of reports relating to nuclear and reactor tech-
nology are presented. Work is reported for turbo-machinery for high temperature gas-cooled reactors; moderator materials; projection effects on heat transfer and pressure losses in channel flow; special fabrication techniques for cladding and structural materials; reactor instrumentation; and nuclear fuel element pellet sintering. Also reported are a filter pack tech-
nique for the classification of radioactive aerosol by particle size; thermoluminescent and radioluminescent methods for dosimetry; optical properties of titanium dioxide as a re-

Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
REVIEW OF LITERATURE IN GENERAL MANUFAC-
URING [LITERATUuroVERZICHT ALGEMENE WERK-
TUINBOUW] 25 Sep. 1965 31 p In DUTCH, GERMAN, and ENGLISH Its Vol. 3, no. AW-26 CFSTI: HC $2.00/ MF $0.50 Abstracts are presented on radio astronomy, meteorological satellites, cloud and terrestrial albedo determinations from Tiros photography, precipitation, forecasting, weather, air contamination, storm detection, lightning discharge, hurricane seeding experiments, circulation, turbulence. atmospheres, and related meteorological subjects.

Technisch Documentatie en Informatie Centrum voor de Krijgsmacht, The Hague (Netherlands).
GROUNDBWATER POLLUTION AND WASTE WATER PUR-
IFICATION [BIBLIOGRAFIE GRONDWATERONTREI-
NIGING EN AFWALWATERZUIVERING] Bibliography
G. De Vries Jun. 1965 88 p In DUTCH, GERMAN, and ENGL-
ISH (TDCK-42583) CFSTI: HC $4.00/ MF $0.75
This bibliography is meant as an introduction to literature on the subject of ground water pollution and waste water purification. It contains: abstracts from articles and reports; a list of Dutch institutions engaged in water purification and the quality of open water and ground water in Holland; and a list of the most important periodicals on this subject.

Author
pointed out that while environment as a concept has achieved a degree of formal articulation, it lacks systematic versatility; there are few clearly established bridges between its place in psychological theories and in the empirical practices of the psychological investigator. The value of focusing attention on environment as a variable in observational situations, and as a systematic concept is also pointed out. A comprehensive bibliography is included.

Author

N66-16508 Kansas State Univ., Manhattan. Dept. of Psychology.

VVISION IN THE GANZFELD

Lloyd L. Avant In Its Evaluation of Perceptual Frames of Reference Nov. 1965 23 p. refs. Submitted for Publication (See N66-16506 07-04) CFSTI: HC $4.00/MF $1.00 (TR-34)

A summary of the evidence on exposure to structureless visual fields is presented. The data show the experience of such fields to be characterized by reports of immersion in a sea of light which separates into figure and ground as brightness is increased, chromatic adaptation in colored fields, loss of efficiency in detecting the presence and movement of inhomogeneities introduced into the field, disorientation of the observer, an increased and fluctuating state of accommodation, and the occasional joint occurrence of an apparent cessation of function of the visual mechanism and increased alpha activity in the brain.

Author

N66-16566*# National Aeronautics and Space Administration, Washington, D. C.

EXTRATERRESTRIAL LIFE—A BIBLIOGRAPHY. PART II: PUBLISHED LITERATURE, 1900–1964

Dec. 1965 345 p. refs (NASA-SP-7015) GPO: HC $2.00; CFSTI: MF $1.75 CSCL 06C

An annotated bibliography of articles and books on extraterrestrial life published during the period 1900 to 1964 is presented. Although the bibliography is primarily concerned with the general subjects of extraterrestrial life and exobiology, its scope also makes provision for several particular topics that are directly pertinent to the search for extraterrestrial life. Included among these are the origin of life on earth, the suitability of other planets for the development of indigenous life, the possibility of intelligent extraterrestrial life forms, techniques and instrumentation for the detection of extraterrestrial life, the chemical basis of life, including the synthesis of organic compounds from simple precursors, and terrestrial contamination of spacecraft. Several references which describe the examination and analysis of meteorites and the relevance of such studies to the subject of extraterrestrial life are also presented.

C.T.C.
SOLID STATE RESEARCH, 1 May–31 July 1965
4 Nov. 1965 87 p refs (Contract AF 19(628)-5167)
(ESD-TDR-65-318; AD-624611) CFSTI: HC $3.00/MF $0.75
The report covers in detail the solid state research work at Lincoln Laboratory for the period 1 May 1965 through 31 July 1965. The topics covered are Solid State Device Research, Laser Research, Materials Research, and Physics of Solids. Author (TAB)

SOVIET RESEARCH IN PLASMA PHYSICS Surveys of Soviet Scientific and Technical Literature
Frederick Pindy 5 Oct. 1965 212 p refs Compilation of Abstracts (ATD-P-65-82)
Abstracts are presented on the following subjects: Stability and Oscillations; Shock Waves; Electromagnetic Fields; Diagnostics; Containment; Production and Manipulation; Astrophysics; Magnetohydrodynamics; and Plasma Waveguides. E.E.B.

A compilation of abstracts from Soviet literature on problems of space biology are presented. Included are articles on cosmonaut training; space psychology; spaceflight trainers; effect of acclimatization at high altitudes on hypoxia resistance; flight clothing; hygiene, bioprocessing human wastes; cosmonaut immunity and autotloia; isolation and hypokinesia effects; prolonged hypokinesia effect on human resistance to acceleration; physiological effects of partial restraint on monkeys; physiological effects of ammonia, CO, CO2, and increased O2; atmosphere selection by animals; helium-oxygen atmospheres; automatic control of plant physiology in closed systems; aeroponic cultivation of cabbage in closed system; higher plants as spaceflight biosensors; Chlorella nutrition; ultraviolet irradiation of plants; anti-radiation compounds; radiation effects on animals; biological effects of vibration; noise effect on auditory sensitivity; weightlessness rotation effects on human physiology; human reactions to impacts; methods of measuring blood flow and nerve currents; automatic analysis of EEG’s, phonetic speech analysis; information theory and physiological flight data; lip-reading for spacecrew communication; recording tongue movements in speech; and man-machine speech communication. R.N.A.

COMPOUND SEMICONDUCTORS Surveys of Communist World Scientific and Technical Literature
Boris Ofrosimow 30 Dec. 1965 79 p refs (ATD-65-99)
This analytical survey is based on Soviet-Satellite open sources published 1963–1964. It is the first report in this series and it consists of a foreword, an analysis of data for the entire year 1963, and an annotated bibliography with 139 entries. Section 1 of the bibliography (AlBIV compounds) is comprised of 46 entries, Section 2 (AlBIV compounds) of 70 entries, and Section 3 (AlBIV compounds) of 3 entries. There are 3 appendixes: (1) Topic Tags Index; (2) Author Index; (3) Associations Index. The following compounds are covered: indium phosphide, indium antimonide, gallium antimonide, gallium arsenide, gallium phosphide, aluminum nitride, cadmium telluride, gallium nitride; indium nitride, boron phosphide, cadmium selenide, cadmium sulfide, mercury sulfide, zinc sulfide, zinc telluride, mercury telluride, and silicon carbide. According to the analyst the following trends have become apparent: (1) the number of studies made by non-centrally located scientific institutions has increased at the expense of the central institutes; (2) a certain specialization of research institutions is apparent; (3) new facilities are being developed. Author

N68-16960# Villanova Univ., Pa.
A BIBLIOGRAPHY ON DIGITAL COMPUTER-AIDED CIRCUIT ANALYSIS AND DESIGN
Tsute Yang [1965] 28 p refs (Grant NGR-39-023-004)
(NASA-CR-70211) CFSTI: HC $2.00/MF $0.50 CSCL 096
This bibliography lists pertinent literature on computer-aided techniques and programs directly connected with circuit analysis and design. The entries are arranged in the alphabetic order of the last name of the first author of each paper. A subject index and a chronological index are appended. Author

N68-17068# Jet Propulsion Lab., Calif. Inst. of Tech., Pasadena.
INTERACTIONS OF SPACECRAFT AND OTHER MOVING BODIES WITH NATURAL PLASMAS
Carol K. Sterkin Dec. 1965 198 p refs (Contract NAS7-100)
(NASA-CR-70362; JPL/LS-541) CFSTI: HC $5.00/MF $1.50 CSCL 201
A compilation of abstracts is presented on data concerning the interactions of a moving spacecraft (satellite, rocket, or missile) with the surrounding ionized medium: ionosphere, magnetosphere, or interplanetary plasma. Although most of the abstracts concern spacecraft phenomena, related ionospheric instrumentation, and data, the search also includes literature on interactions of other types of moving man made bodies and on similar natural phenomena. The material is presented under the following main headings: spacecraft, aircraft, small projectiles, celestial bodies, interplanetary matter, ionospheric research and related subjects, and selected references on related subjects. C.T.C.

N66-17246# National Aeronautics and Space Administration.
Goddard Space Flight Center, Greenbelt, Md.
A BIBLIOGRAPHY OF MULTIPLE NIGHTLY OBSERVATIONS OF COMET TAILS
Stephen Plagemann (Maryland Univ.) Sep. 1965 18 p refs (Grant NsG-695)
(INASA-TM-X-55370; X-612-65-362) CFSTI: HC $1.00/MF $0.50 CSCL 038
A bibliography of nightly observations of comet tails from astronomical literature over the past 70 years, concentrating on studies which include more than one photograph per night is presented. The bibliographies hopefully will provide the observational basis of a study of the short term behavior of comet tails. The references listed are by the
name of the comet in chronological order. In addition to the usual bibliographic information, a short statement beneath each reference was designed to give an idea of the number of plates available over a certain time period; and the name of the observatory where the plates are located is included.

L. S.

N66-17277# National Aeronautics and Space Administration, Washington, D.C.

BIBLIOGRAPHY ON WELDING METHODS, WITH INDEXES
Feb. 1966 58 p refs
(NASA-SP-5024) CFSTI: HC $1.00/MF $0.50 CSCL 13H
A bibliography with abstracts is presented on the applications and uses of various welding methods, encompassing arc welding, diffusion welding, electron beam welding, fusion welding, spot welding, and ultrasonic welding. Subject and author indices are included.

D. T.

N66-17299# Autonetics, Anaheim, Calif.

MICROELECTRONICS AND MATERIALS IN THE VACUUM ENVIRONMENT OF SPACE Selected Bibliography
Vivian J. Mungle 27 Aug 1965 118 p refs
(TS-1559/3111: AD-469576)
This bibliography consists of 204 references and is directed toward the specific aspects of space environment hard vacuum and radiation as these environments affect microelectronics and covers only the years 1963, 1964, and the first half of 1965. Principal sources consulted were Technical Abstract Bulletins (DCD). Scientific and Technical Aerospace Reports (NASA), International Aerospace Abstracts, and Applied Science and Technology Index. Author (TAB)

N66-17358# National Aeronautics and Space Administration, Washington, D.C.

BIBLIOGRAPHY ON SOLID LUBRICANTS, WITH INDEXES
Feb. 1966 34 p
(NASA-SP-5037) CFSTI: HC $1.00/MF $0.50 CSCL 11H
An annotated bibliography from the collections of TPA, STAR, and IAA entries, covering the years 1962 to 1964, designed to assess and identify literature on the applications and uses of solid lubricants is presented. A subject index and personal author index are included.

L. S.

N66-17359# National Aeronautics and Space Administration, Washington, D.C.

BIBLIOGRAPHY ON ELECTROMECHANICAL TRANSDUCERS, WITH INDEXES
Feb. 1966 44 p
(NASA-SP-5036) CFSTI: HC $1.00/MF $0.50 CSCL 14B
An annotated bibliography from the collections of TPA, STAR, and IAA entries, covering the years 1962 to 1964, designed to assess and identify literature on the applications and uses of electromechanical transducers is presented. A subject index and personal author index are included.

L. S.

N66-17350# International Geophysical Year World Data Center A, Washington, D.C.

ROCKETS AND SATELLITES Catalog of Data, 1 Jan.-30 Jun. 1965
Sep. 1965 28 p refs Sponsored by NSF
Sounding rocket data of launchings by Canada, India, Japan, New Zealand, Norway, Pakistan, United Kingdom, and the United States are tabulated. Also, launchings of artificial earth satellites and space probes for scientific purposes and miscellaneous observations of satellites by visual, photographic, and radio methods are also presented. A bibliography on related subjects is included.

E. E. B.

N66-17396# Aviation Safety Engineering and Research, Phoenix, Ariz.

SYNTHESIS OF AIRCRAFT (CRASH) FIRE, RESCUE, AND EVACUATION TECHNOLOGY
(Contract FA-WA-4458; Proj SAFRET) (ADS-16)
An information retrieval system is described for literature dealing with postcrash aircraft fire, rescue, and evacuation. The system uses a code book, an IBM tab run, and a bibliography with an abstract for each document. The user can find a code number for the specific area of interest, identify the applicable documents, and then read the abstracts to determine which documents he would like to acquire. The system is capable of indexing specific items and requires no manipulation of IBM cards to identify needed references. Major indexing categories are hazard exposure, design, test and analysis, and human factors.

M. W. R.

N66-17475# California Inst. of Tech., Pasadena. Graduate Aeronautical Labs.

LITERATURE SURVEY ON THE BUCKLING OF CONICAL SHELLS
Shigeo Kobayashi Jan. 1966 51 p refs
(Grant NSG-18-59)
(NASA-CR-70457) CFSTI: HC $3.00/MF $0.50 CSCL 20K
A literature survey which represents a comprehensive review of the state-of-the-art of conical shell instability is given. The bibliography is arranged in alphabetical form and is categorized according to loading conditions. Certain key equations used by the authors are indicated.

C. T. C.

N66-17584# National Aeronautics and Space Administration, Washington, D.C.

CUMULATIVE INDEX TO NASA TECH BRIEFS, 1963–1965
Feb. 1966 138 p refs
(NASA-SP-5021(02)) CFSTI: HC $1.00/MF $1.00 CSCL 0SB
The technological innovations published during the period from 1963 through 1965 are listed. The annotated bibliography is divided into the major divisions: Electrical (including Electronics); Energy Sources; Materials; Life Sciences; and Mechanical. A subject index, originating source index, and a category index are included.

E. E. B.

N66-17599# Rio Grande do Sul Univ., Porto Alegre (Brazil). Instituto de Fisica.

APPLICATION OF METHODS COMMON TO ELEMENTARY PARTICLE PHYSICS AND MANY-BODY PROBLEMS Final Report
Gerhard Jacob, comp. Nov. 1965 10 p refs
(Grant DA-ARO-49-092-64-G53)
(Rept-1. AD-624396) CFSTI: HC $1.00/MF $0.50
Work in progress is summarized. Papers on following subjects have been or are being published: Nonspherically Nuclei; Quasi-Free Scattering and Nuclear Structure; Width of nuclear-hole states; Single hole energies; Relaxation effects in angular correlations; Quantum Electrodynamics with Zero Bare Fermion Mass. Generalization of Landau Gauge; Broken Symmetries and Electron-Muon Problem I and II; Length Scale in Quantum Electrodynamics without a Bare Mass.

TAB
articles, books, symposium proceedings, and monographs produced and published by scientists supported in whole or in part by the Air Force Office of Scientific Research (AFOSR) in 1959. The AFOSR supports fundamental research in the five major scientific disciplines: physics, chemistry, engineering sciences (subsuming mechanics and propulsion); life sciences (both biological and behavioral, but not medical); and mathematics (including the information sciences). A detailed subject index, arranged alphabetically, and a special subject classification for mathematics are included in the bibliography. In addition, there are a contract index, an AFOSR control number index, and a personal author index.

R.R.D.

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Phil E. Church et al. 1 Dec. 1965 30 p refs

(Contract Nonr-437(24) Grant NSF GP-2971)

(AD-624294) CFSTI: HC $2.00/MF $0.50

Research programs include radiation, carbon dioxide, ozone, sea ice physics, and micro-oceanography.

Author (TAB)

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INTERNATIONAL CONFERENCE ON METEOROLOGY OF THE STRATOSPHERE AND MESOSPHERE

K. Ya. Kondrat'evyev and Ye. G. Shviokovskiy In its Transl. from Meteorol. i Gidrol. (No. 9, 1965) 29 Oct. 1965 p 50-58 (See N66-17735 08-20) CFSTI: $3.00

Several papers presented at the scientific conference are briefly reviewed. Subject matter covered the dynamics and energy of general atmospheric circulation; hydrodynamic equations applicable to the stratosphere and mesosphere; measurement methods for observing wind and temperature structure in the stratosphere and mesosphere; photochemical processes in upper layers of the atmosphere; ozone investigations, formation, and measurements; noctilucent clouds; radiation transport in the atmosphere; radiant heat flux computations; cosmic dust diffusion; large scale turbulent diffusion in the upper layers of the atmosphere; and moisture content measurement methods.

M.G.J.

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N66-17886# National Aeronautics and Space Administration, Washington, D. C.

AEROSPACE MEDICINE AND BIOLOGY—A CONTINUING BIBLIOGRAPHY, WITH INDEXES, JANUARY 1966

Feb. 1966 113 p refs

(NASA-SP-7011(21)) CFSTI: HC $1.00/MF $0.75 CSCL 06E

A continuing bibliography on aerospace medicine and biology presents annotated references to unclassified reports included in the NASA information system during January 1966. Indexes by subject, corporate source, and author are included.

M.W.R.

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SURVEY OF NEUTRON CROSS SECTIONS REPORTED FOR Z > 93

Sin-Iti Igarashi and Masashi Yamamoto Mar. 1965 35 p refs

In ENGLISH and JAPANESE

(JAERI-4032)

A survey of the experimental data of neutron cross sections, resonance parameters, etc. for Np, Pu, Am, Cf, Fm, Es, and Cm is presented. Experimental method, energy range, accuracy of data, and remarks are briefly described for each individual reference. The data are also listed in tabular form, classified by nuclide. 119 references.

Author (NSA)

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AIR FORCE SCIENTIFIC RESEARCH BIBLIOGRAPHY, 1969, VOLUME III

G. Vernon Hooker, Doris C. Yates, Harvey D. Brookins, and Aaron S. Dann 1965 746 p refs

Sponsored by AFOSR (AFOSR-700-III) GPO: $4.75

This is the third volume of a continuing bibliographic series which includes abstracts of all technical reports, journal articles, books, symposium proceedings, and monographs produced and published by scientists supported in whole or in part by the Air Force Office of Scientific Research (AFOSR) in 1959. The AFOSR supports fundamental research in the five major scientific disciplines: physics, chemistry, engineering sciences (subsuming mechanics and propulsion); life sciences (both biological and behavioral, but not medical); and mathematics (including the information sciences). A detailed subject index, arranged alphabetically, and a special subject classification for mathematics are included in the bibliography. In addition, there are a contract index, an AFOSR control number index, and a personal author index.

R.R.D.

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N66-18316# Massachusetts Inst. of Tech., Brookline.

GLIA BIBLIOGRAPHY, 1960-1964

Margaret S. Little and Joan Morris [1965] 328 p refs


(Grants NaG-462; NIH G-GM-10211-03; Nonr(G)-00089-64)

(NASA-CR-70631) CFSTI: HC $7.00/MF $1.75 CSCL 06P

This bibliography lists about 1100 published references to the world literature on glia cells. It covers publications on glial development, structure, function, pathology and "ultrastructure".

G.G.

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N66-18448# National Aeronautics and Space Administration, Washington, D. C.

CONFERENCE ON ELEMENTARY BIOLOGICAL SYSTEMS AND ON BIOGENESIS [COLLOQUE SUR LES SYSTEMES BIOLOGIQUES ELEMENTAIRES ET LA BIOGENESE]

Jan. 1966 65 p refs


(NASA TT-F-9863) CFSTI: HC $3.00/MF $0.75 CSCL 06C

Brief resumés of papers on elementary biological systems and biogenesis are given, including geological, physical, chemical, and philosophical aspects of the origin of life. Some papers attempt explanations of biogenesis based on metaphysical theories and speculative application of Darwin's postulates. The problems of extraterrestrial life based on meteorite studies, evolution of terrestrial atmospheric composition, electronic factors in biochemical evolution, ultrastructure of chloroplasts and mitochondria, geological factors in biogenesis, deterministic views on cosmology, etc. are covered.

Author
David Turnbull Sep. 1965 7 p refs
(Contract Nonr-1866(50))
(PR-2; AD-625421) CFSTI: HC $1.00/MF $0.50
Topics include: Crystallization of B$_2$O$_3$ under pressure; Crystallization of SiO$_2$ under pressure; Hot stage for X-ray diffraction of ceramic systems; Melting of B$_2$O$_3$ crystals; Kinetics of devitrification of fused silica; Growth and melting of crystals of GeO$_2$; Structure and phase separation in thin sections of silica base glasses.

PLASMA RESEARCH Quarterly Progress Report, 1 Apr.– 30 Jun. 1965
Jun. 1965 65 p refs
(Contract AF 33(615)-1078; Grants AF-AFOSR-139-65, NSF GA-2239)
(QPR-2; AD-625424) CFSTI: HC $3.00/MF $0.75
This research in plasmas is part of an integrated program of research and teaching in the problems of creation, containment, heating, stability, radiation, and measurement of the physical and electromagnetic properties of high- and low-temperature plasmas. The basic high-temperature plasma research facility consists of a 250,000-joule capacitor energy-storage facility and a subcategory of dense silica base glasses.

N66-18549# Geotechnical Corp., Garland, Tex.
ARRAY LITERATURE Bibliography, 1955–1965
9 Nov. 1965 52 p refs
(Contract AF 33(657)-12145)
(TR-65-114, AD-626405) CFSTI: HC $3.00/MF $0.50
A bibliography of available literature on array technology has been compiled, embracing the disciplines of seismology, acoustics, and radio. Over one hundred articles from various scientific journals are listed. Most of the articles are abstracted and are grouped according to a major category, Field of Application, and a subcategory, Character of Content. The majority of the articles were published during the period 1955–1956.

N66-18566# Harry Diamond Labs., Washington, D.C.
FLUERIC (FLUID AMPLIFICATION) Bibliography
30 Aug. 1965 158 p refs
(TR-1304; AD-625885) CFSTI: HC $5.00/MF $1.00
A bibliography of flueric (fluid amplifier) devices and theory is presented with abstracts for the majority. The bibliography includes 376 titles on fluid devices, fluid circuits, sensors and transducers, instrumentation and flow visualization, fabrication, patents and disclosures, and other directly applicable technology. It also includes titles on related topics such as jets; vortex flow; pipes, passages, and diffusers; and vibration and acoustic effects.

Richard J. Wasicko and Raymond E Magdaleno Wright-Patterson AFB, Ohio. AMRL Oct 1965 50 p refs
(Contract AF 33(615)-1782)
(AMRL TR-65-158: AD-626036) CFSTI: HC $2.00/MF $0.50
Available literature on the effects of system nonlinearities on human operator tracking performance is summarized. The reviewed reports include experimental investigations in the technical areas of human engineering and aircraft handling qualities. Pertinent information is presented on experimental details, types of nonlinearities and other experimental variables tested, and primary results; and it is concluded that the general state of knowledge in this area is unsatisfactory. Several nonlinearities (such as actuator rate limiting) important in aircraft manual control systems have not been experimentally investigated, and there is inadequate data on the influence of forcing function characteristics.

N66-18653# Army Missile Command, Huntsville, Ala. Aeronautics Branch.
MICROWAVE (ROTATIONAL) SPECTROSCOPY Bibliography
James E. Wolfbarg 4 Aug. 1965 106 p refs
(RD-TM-65-14; AD-625846) CFSTI: HC $4.00/MF $0.75
The references listed in the bibliography include a majority of the important papers and books that are related to the development of microwave spectroscopy. General references relating to the basic concepts of rotational and, in a limited way, vibrational spectroscopy are also included. The references have been placed under specific topic headings whenever possible. A chronological order under these headings is maintained.

N66-18787# Atomic Energy Commission, Washington, D.C.
Div. of Biology and Medicine.
TERRESTRIAL AND FRESHWATER RADIOECOLOGY A Selected Bibliography (Supplement 3)
Alfred W. Klement, Jr. and Vincent Schultz Feb. 1965 119 p refs
(TID-3910, Suppl. 3) CFSTI: HC $2.50/MF $0.75
A list is presented of 1207 publications in the field of radioecology, including the biological aspects of radioactive fallout, waste disposal, terrestrial radioecology, and freshwater radioecology. An attempt was made to reference publications related to the field or laboratory studies of wild species of plants and animals with respect to radiation effects or metabolic studies involving radionuclides. Complete information concerning reference sources and brief content notes are included.

N66-19086# International Union of Pure and Applied Chemistry, Basle (Switzerland). Commission on High Temperatures in Gases and on Plasma Chemistry
A bibliography is presented on spectroscopy of interest to high temperature chemistry, reactions between gases and condensed phases, and thermodynamics of plasmas.

N66-19164# Centre National de Recherches de l'Espace, Brussels (Belgium)
LOW AND VERY LOW LEVEL DC AMPLIFIERS. PART V: LITERATURE AND REFERENCES
A chronological list and abstracts of references which directly relate to the theory and design of low and very low level d-c amplifiers and modulators are presented. M.R.W.

N66-19181# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht. The Hague (Netherlands).

SATellite-NAVIGATION, TRANSIT-SECOR Bibliography H. J. Bos, comp. Oct. 1965 84 p refs (TDCK-43209) CFSTI: HC $3.00/MF $0.75

This bibliography contains a literature-survey, comprising 125 abstracts of articles, published papers and reports on the subject of satellite-navigation, navigational satellites and geodetic satellites. The available material is presented chronologically in six chapters. A historical review and a summary of technical details is included. Author


This annotated bibliography was compiled from Soviet Satellite open sources published 1964-1965. It is the first in a series. The report is divided into two sections with data published in 1964 making up the first and data published in 1965 comprising the second. Information covered includes the following: selenium, iron, chromium, silicon, rare earth elements, nickel, sodium alloys, antimony-bismuth system, copper, cadmium-bismuth alloy, lead-tin alloy, magnetic susceptibility, germanium, liquid metal structure, sulfur, aluminum, electrode polarization, liquid metal self-diffusion, electrotransfer, indium-antimony alloys, temperature resistivity, liquid alkali metals, radiation scattering, melt density, thermochromy, tin, Hall constant, liquid eutectics, X-ray diffraction analysis: steel, electroconvective diffusion, germanium alloys, electrokinetic effect, titanium, ultrahigh pressure melting, zirconium, aluminum oxide wetting, lead, cobalt-silicon system. Author (ITAB)

N66-19472# Stanford Univ., Calif. Microwave Lab.


Controlled steering of a microwave acoustic beam in a ferrite was demonstrated in a YIG rod, where the direction of an acoustic beam was varied by varying the magnitude of a dc magnetic field applied at an angle to the rod axis. Analysis has been made of the frequency passband characteristics of multiple film acoustic transducers for microwave frequencies. The theory of microwave dielectric resonators with interconnecting walls has been developed, and experimental results on the principal circuit properties of rutile resonators have been obtained. A theory has been developed for mechanisms contributing to the excitation of phonon instabilities in ferrites. A theory has been developed for the coupling efficiency of ferrite disks as magnetostriuctive acoustic transducers. Experimental investigations of nickel film magnetostriuctive transducers have been performed. Measurements have been made of acoustic attenuation at room temperature in sapphire and rutile, which have disclosed that these materials offer low loss acoustic wave transmission at microwave frequencies. Theoretical and experimental investigations of second harmonic generation in ferrites have established the upper bounds on conversion efficiency for low loss ferrites. TAB

N66-19640# Jet Propulsion Lab., Calif. Inst of Tech, Pasadena.

INTERACTIONS OF SPACECRAFT AND OTHER MOVING BODIES WITH NATURAL PLASMAS Carol K. Sterkin, comp. Dec. 1965 198 p refs (Contract NAS7-100) (NASA-CR-71204; JPLAI/LS-541) CFSTI: HC $5.00/MF $1.25 CSCL 201

An annotated bibliography of 829 selected references on astronauts information resulting from a literature search and covering the period 1960 through June 1965 is presented. It is pointed out that recent space exploration has provided data on the interactions of a moving spacecraft (satellite, rocket, or missile) with the surrounding ionized medium—ionosphere, magnetosphere, or interplanetary plasma. The practical aspects of the complex and interrelated electrical and magnetic phenomena are of primary interest. These include electrical hazards to spacecraft; effects on spacecraft communications, tracking, and detection; and effects on measurement of environmental plasma parameters. Although most of the references given concern spacecraft phenomena and related ionospheric instrumentation and data, the search also includes literature on interactions of other types of moving man-made bodies and on similar natural phenomena. The areas covered include spacecraft, aircraft, small projectiles. celestial bodies. interplanetary matter, and ionospheric research and related subjects. The bibliography also contains an author index. R.R.D.


Abstracts from the Soviet literature on liquid propellants, solid propellants, high energy fuels, advanced energy sources, and combustion are presented. A total of 214 entries from 53 journals and 15 books are annotated. E.E.B.

N66-19673# Technisch Documentatie en Informatie Centrum voor de Krijgsmacht. The Hague (Netherlands).

BIBLIOGRAPHY OF FACTORY TECHNOLOGY [LITERATuuroverzicht WerkplaatsTechniek] Jan. 1966 32 p refs in DUTCH, GERMAN, ENGLISH, and FRENCH Its Vol. 11. Pt. 1 (W-94) CFSTI: HC $2.00/MF $0.50

This bibliography on industrial technology contains brief summaries on: (1) factory management and production engineering; (2) measurements and controls in production processes; (3) overall reliability aspects of machine tooling; (4) technology of drilling and abrasion; (5) electrochemical grinding, shaped-electrode machining and twinning; (6) welding and forming processes, and (7) production and economic considerations in industrial metal working operations. Transl by G.G.

Research activities are reported in the following areas: (1) high energy physics; (2) linear accelerator experiments; (3) synchrotron experiments; (4) cryogenics; (5) magnetism; (6) electronics; (7) nuclear technology; (8) dosimetry; and (9) computer programming. A bibliography is included.


FLUID MOTION AND SOUND Final Progress Report, 1 MAY 1959-31 OCT. 1965
Louis Solomon Nov. 1965 11 p. refs. In CONTRACT NONR 233(02) (Rept. 65-49; AO-525087) CFSTI: HC $1.00/MF $0.50

A bibliography is presented along with selected abstracts. Studies of sound include: (1) vortex sound; (2) random pressure field effects on a flexibility support string; (3) hole tone experiments; (4) low speed edgetones; (5) hydraulic analogies of the Hartmann oscillator phenomenon; and (6) jet flows and edgetones.


Abstracts of lectures held at the Physics Laboratory from May to August 1965 are presented. Included among the abstracts are: (1) The Effect of Oligonucleotides on the Activity of Tumor DNA Polymerase. (2) The Mossbauer Effect in the Rare Gases and Inclusion Compounds. (3) Luminescence and Photoconductivity in Silver Halides. R.D.


An annotated bibliography is presented of Soviet developments in electromagnetic and electrostatic generators, electric motors and machines, and associated technology. Arranged in chronological order, the data were taken from four open source journals published between 1961 and 1965. M.W.R.


Abstracts and bibliographic notes are included on the topics of ground mechanics and foundation techniques, roads, airports, photogrammetry and land geometry, civilian utility buildings, construction, building physics, and steel buildings, atomic-biologic-chemical warfare (including general results, shock waves, fallout, and protective constructions), and application of the moire method.


Abstracts and bibliographic notes are included on the topics of model descriptions, airplane properties and achievements, propulsion, board systems and instruments, steering, airports, navigation and air traffic control, safety, aerodynamics, strength and vibration research, air cushion vehicles, helicopter problems, and bird-impact testing.


Abstracts and bibliographic notes are included in the categories of ship types, resistance and propulsion, stability, strength computations and vibrations, design, equipment, docks, propulsion installations, ventilation and heating, sound insulation, navigation, rescue techniques, materials, and technical news.


Abstracts and bibliographic notes are included in the categories of telecommunications, radar, electromagnetic radiation, geometry, information processing, analog computers, computers (hardware and software), computer applications, measurement techniques, regulating techniques, miniaturization, oscillators and amplifiers, components and materials, and technical news.

This bibliography lists 75 publications in the fields of high temperature chemistry and physics of condensed materials. Primarily considered were devices for achieving temperatures above 1500°C, and properties of materials which melt around 1000°C.

Joan S. Laughlin et al 23 Jun. 1965 196 p refs
(Contract AT(30-1)-910) CFSTI: HC $5.00/MF $1.00
Summaries of research done in the period July 1, 1950 to March 15, 1965, are presented, and bibliographies of publications resulting from research in the period are included. Separate abstracts were prepared for reports on biophysics, biological chemistry, and clinical investigations.

N66-20612# Max-Planck-Institut für Biophysik, Frankfurt am Main (West Germany).
RADIATION EFFECTS ON LIVING TISSUES AND ORGANISMS. SERIES C: BIBLIOGRAPHIES
W. Stahlhofen, comp. Apr. 1965 248 p refs In GERMAN; ENGLISH Summary
(AED-C-04-18)
A list is presented of 820 references to recent publications on radiation effects on living tissues and organisms. Author, corporate source, and subject indexes are included. NSA

INTERNAL WAVES BIBLIOGRAPHY
Sep. 1965 30 p refs
(Contract NObsr-93055)
(Rept. 4030986: AD-625237) CFSTI: HC $2.00/MF $0.50
This bibliography has been prepared as a part of a study of the military implications of internal waves. It includes all papers concerning internal waves in the ocean, given a wide distribution in the United States. Papers given limited distribution have been included when possible. Undoubtedly, many papers concerning references to internal waves or data which can be interpreted in terms of internal waves exist that are not included; however, this bibliography is believed to be complete with respect to papers dealing primarily with internal waves in the oceans. Entries are arranged in alphabetical order by author and date of publication.
Author (TAB)

LITERATURE SURVEY ON ELECTROTECHNOLOGY [ELEKTROTECHNIK, LITERATUUROVERZICHT]
7 Feb. 1966 39 p refs In DUTCH, ENGLISH, and GERMAN
Its Vol. 15, No. E-480
CFSTI: HC $2.00/MF $0.50
Abstracts and bibliographic notes are included on the topics of telecommunications, electronics, electromagnetic radiation, geometry, information processing, computers (software and hardware), computer applications, measurement techniques, control techniques, reduction, interference and reliability, oscillators and magnifiers, components and materials, filters and networks, energy techniques, presentations, and technical news. Transl. by J.O.

N66-20858# George Washington Univ., Washington, D. C.
Human Resources Research Office.
SHORT-TERM MEMORY: AN ANNOTATED BIBLIOGRAPHY
Donald Reynolds and Richard D. Rosenblatt Dec. 1965 83 p refs
(Contract DA-44-188-ARO-2)
(HUMRRO-TR-65-13: AD-627394) CFSTI: HC $3.00/MF $0.75
The bibliography is divided into 12 areas as follows: (1) Information Theory; (2) Proactive and Retroactive Interference and Interpolated Activities; (3) Set Subject-Strategies, and Coding Techniques; (4) Paired-Associate Studies; (5) Simultaneous Listening and Memory Span Studies; (6) Rate and Mode of Stimulus Presentation; (7) Rate and Order of Recall, and Serial and Sequential Tasks; (8) Methods, Theory, and Review Articles; (9) Meaningfulness, Degree of Learning, and Stimulus Organization; (10) Age Differences; (11) Comparisons of Short-Term Memory and Long-Term Memory; and (12) Perceptual Studies. There are 170 articles annotated
in the bibliography and extensive cross-indexing to facilitate location of articles. Although the earliest study included is dated 1910, the majority of articles were published in the period from 1959 through 1964.

N66-20866*# National Aeronautics and Space Administration, Washington, D. C.

SELECTED LISTING OF TECHNOLOGY UTILIZATION PUBLICATIONS
Feb 1966 23 p refs Including all Tech Briefs through Dec 1965 (NASA-TM-X-57316) CFSTI HC $1.00/MF $0.50 CSCL 13H

This information booklet on technical developments that have general industrial applications includes brief abstracts of the following publications: Advanced bearing technology; reliable electrical connections; space batteries; measurements of blood pressure in the human body; measurement of bird embryo heartbeat with a micrometeorite transducer; selected welding techniques; selected shop techniques; welding for electronic assemblies; low temperature effects on structural materials; precision tooling techniques; technology of inorganic coatings; joining and sealing of dissimilar metals; metal-forming techniques; advanced valve technology; micropower logic circuits; medical and biological applications of space technology; status of magnesium-lithium alloys; elastic orifices for gas bearings; microelectronics in space research; handling of hazardous materials; plasma jet technology; and the electromagnetic hammer. Included is a numbered Tech Brief list that covers electrical (electronic), energy sources, materials (chemistry), and life science publications.

G.G.

N66-20984# British Hydromechanics Research Association, Cranfield (England).

A BIBLIOGRAPHY OF HYDRAULIC GATES
T. E. Brock, ed. Sep 1965 45 p refs (BIB-20) CFSTI HC $2.00/MF $0.50

References and illustrations dealing with hydraulic gates are presented in a chronological bibliography. Most of the 166 references are papers or sections of books published during the last 15 years, although some earlier references are presented. Many abstracts are given, and both subject and author indexes are included.

M.W.R.

N66-20985# British Hydromechanics Research Association, Cranfield (England).

A BIBLIOGRAPHY ON HOT WIRE ANEMOMETRY
T. E. Brock and C. J. Moon, Oct 1965 43 p refs (BIB-18) CFSTI HC $2.00/MF $0.50

A chronological presentation is given to a bibliography on hot wire anemometry. Abstracts are included for many of the 175 references listed, and both subject and author indexes are appended.

M.W.R.

N66-21418# Naval Research Lab., Washington, D. C.

DIRECT ENERGY CONVERSION Literature Abstracts
Dec 1965 156 p refs (AD-628049) CFSTI HC $5.00/MF $1.00

This is the tenth in a series of bibliographies covering unclassified literature related to the direct conversion of energy. Subject coverage includes energy conversion, thermoelectricity, thermionics, photovoltaic, magnetohydrodynamics, electrohydrodynamics, electrochemical, nuclear and energy storage.

TAB
A65-17578
HEAT TRANSFER BIBLIOGRAPHY.

Heat-transfer bibliography compiled by workers of the Heat Transfer Laboratory, Department of Mechanical Engineering, University of Minnesota. This is a very extensive bibliography and is divided into the following subheadings: applications, books, boundary-layer flow, change of phase, channel flow, conduction, flow with separated regions, heat and mass transfer, liquid metals, low density, magnetohydrodynamics, measurement techniques, natural convection, packed and fluidized beds, radiation, rotating surfaces, thermodynamic and transport properties, and transfer mechanisms. A. B. K.

A65-17773
SOLAR SYSTEM SCIENCE - 1963 LITERATURE SURVEY
CUMULATIVE AUTHOR-INSTITUTION INDEX.

USAF-supported research.
Compilation of the names of authors who have had papers published in the July and Sept. 1964, issues of Icarus, and the institutions with which the authors are associated. The index contains more than 550 entries. D. H.

A65-18406
HEAT TRANSFER BIBLIOGRAPHY - RUSSIAN WORKS.

Listing of Russian works on heat transfer in the following departments: (1) books, (2) general, (3) experimental methods, (4) analytical calculation methods, (5) thermodynamics, (6) transfer processes involving phase conversions, (7) transfer processes involving chemical conversions, (8) transfer processes involving very high velocities, (9) drying processes, (10) thermal properties of various materials, heat transfer agents and their determination methods, (11) high temperature physics and magnetohydrodynamics, and (12) transfer processes in technological apparatuses. M. M.

A65-18407
HEAT TRANSFER BIBLIOGRAPHY.

Listing of heat transfer books covering the following areas: (1) applications, (2) books, (3) boundary-layer flow, (4) change of phase, (5) channel flow, (6) conduction, (7) flow with separated regions, (8) heat and mass transfer, (9) liquid metals, (10) low density, (11) magnetohydrodynamics, (12) measurement techniques, (13) natural convection, (14) packed and fluidized beds, (15) radiation, (16) rotating surfaces, (17) thermodynamic and transport properties, and (18) transfer mechanisms. M. M.
transfer, radiant heat transfer, transfer processes involving a
cchange of phase, transfer processes involving chemical changes
and combustion, mass transfer, fluid dynamics, drying processes,
thermal properties and methods of determining them, heat and mass
transfer involving high temperatures or occurring in plasma, and
transfer processes in technological installations. A.B.K.

A65-29113

SOLAR SYSTEM SCIENCE - 1964 LITERATURE SURVEY. I.
Edna O'Connell (RAND Corp., Santa Monica, Calif.).

Review of recent work on filamentary structures. Some recent work on the mechanical properties of reinforced materials is surveyed. A list of 41 references is appended.

A65-32657

A REVIEW OF RECENT WORK ON FILAMENTARY STRUCTURES.
L. M. Habib (Florida, University, Dept. of Engineering Science
and Mechanics, Gainesville, Fla.).
International Journal of Mechanical Sciences, vol. 7, Apr. 1965,
p. 297-299, 41 refs.

Review of contributions to the theory of filament-wound structures. Some recent work on the mechanical properties of reinforced materials is surveyed. A list of 41 references is appended.

A65-32749

LASER BIBLIOGRAPHY.
K. Tomiyasu (General Electric Co., Schenectady, N.Y.).
IEEE Journal of Quantum Electronics, vol. QE-1, June 1965,

Bibliography of articles compiled during the period from June
to Dec. 1964. The subject categories listed include: laser analyses,
tube laser, neodymium laser, He-Ne gas laser, organic laser,
GaAs injection luminescent devices, laser amplifiers, giant pulse
techniques (Q-switching), laser-beam control and steering, coherencc
interference and quantum noise, pumping and light sources, transmussion,
propagation scattering, reflection and filtering, nonlinear,
thermal, and other interaction effects with matter, and laser instrumen-
tation.

A65-32842

PLASMA PHYSICS - BIBLIOGRAPHY, 1955-1961
[FIZIKA PLAZMY -
BIBLIOGRAFIChESKI UKAZATEL', 1955-1961].
Edited by I. S. Shpilev and L. M. Kovrizhnykh.

This literature index of theoretical plasma physics has been
compiled specifically for scientists, rather than engineers. It
covers roughly 7000 publications from the period from Jan. 1955 to
Dec. 1961. All material is ordered in 11 major sections (with
numerous subsections). The first two sections cover symposia and
books, respectively. Subsequent sections deal with plasma kinetic
and hydrodynamics, controlled thermonuclear reactions, elementar-
ry processes in plasmas and their kinetics, plasma spectra and
emission, gas discharges, shock waves, plasma and ion engines,
electrode phenomena, and methods used in plasma diagnostics.

A65-33320

BIBLIOGRAPHY.
D. Dowson (Leeds, University, Mechanical Engineering Dept.,
Leeds, England) and J. F. Archard (Leicester, University, Dept.
IN: ELASTOHYDRODYNAMIC LUBRICATION, SYMPOSIUM.
LEEDS, ENGLAND, SEPTEMBER 21-23, 1965. NOTATION,
REVIEW PAPERS, BIBLIOGRAPHY.

Bibliography of the symposium on elastohydrodynamic lubrica-

F.R.L.

A65-34873

CHRONOLOGY AND BIBLIOGRAPHY OF ESASI DIODES.
Teruhiko Besho and Hajime Niyma (Nippon Telegraph
and Telephone Public Corp., Electrical Communication Laboratory,
Tokyo, Japan).
Electronics and Communications in Japan, vol. 47, Apr. 1964,

Chronological listing, within categories, of selections (mostly
US and Japanese) from the published literature on the Esaki diode
for the period Jan. 1938 to Nov. 1963. The categories include (1)
general principles and characteristics; (2) materials, fabrication
methods, and design; (3) measurement techniques; (4) general
circuits; (5) oscillators and pulse generators; (6) amplifiers; (7)
frequency converters; (8) logic circuits; and (9) memory circuits.
Of the 929 entries, about half are devoted to amplifiers and logic
circuits. Recent improvements are noted that should counter the adverse reaction that set in in 1960 when early expectations for the diode were not fully realized.

F. R. L.

A65-35373
SOLAR SYSTEM SCIENCE - 1964 LITERATURE SURVEY. II.
Edna O'Connell (RAND Corp., Santa Monica, Calif.).

Bibliography containing 290 entries on various astronomical subjects. The articles, the great majority of which are in English, were published in 1964 in 18 technical publications. The entries are distributed among 11 main subject headings: atmospheric physics, cosmogony, interplanetary physics, planetary biology, meteorites, planetary geology, planetary physics, solar physics, solar-system dynamics, and solar-terrestrial relations.

R. A. F.

A65-35441
HEAT TRANSFER BIBLIOGRAPHY.

Bibliography of recent literature on various phases of heat transfer. Among the subjects covered are boundary-layer flow, change of phase, channel flow, conduction, flow with separated regions, heat and mass transfer, liquid metals, magnetohydrodynamics, measurement techniques, natural convection, packed and fluidized beds, radiation, thermodynamic and transport properties, and transfer mechanisms.

A. B.

A65-81664
PERCEPTION BIBLIOGRAPHY: XVIII. PSYCHOLOGICAL INDEX NO. 14.

This is an alphabetical list of 97 references to work in perception selected from the Psychological Index, no. 14, 1967.

A65-81660
PERCEPTION BIBLIOGRAPHY: XIX. PSYCHOLOGICAL INDEX NO. 15.

This is an alphabetical listing of 77 references related to perception from the Psychological Index, no. 15, 1968.

A65-82342
PERCEPTION BIBLIOGRAPHY: XX. PSYCHOLOGICAL INDEX, NO. 16.

This is a listing of 115 items dealing with various aspects of perception, selected from the Psychological Index, no. 16, 1969.

A65-82344
MOTOR SKILLS BIBLIOGRAPHY: XLIV. PSYCHOLOGICAL ABSTRACTS, 1964, VOLUME 38, FIRST HALF.

This is an alphabetical listing of 99 articles on motor skills selected from Psychological Abstracts, 1964, vol. 38, First Half.

1966

IAA ENTRIES

A66-10178
THERMODYNAMICS.
F. Banjakovin and K. H. Lillich.
IN: PROGRESS IN TECHNOLOGY 1962/63. VOLUME 6 [FORTSCHRITT-TE DER VERFAHRENSTECHNIK 1962/63. VOLUME 6].
Edited by H. Merssen and E. O. Schmidt.
Weinheim, West Germany, Verlag Chemie, Gmbh, 1964, p. 139-168. 495 refs. In German.

Survey of the literature dealing directly with the fundamental concepts of thermodynamics, with particular reference to the bibliographies published periodically in the International Journal of Heat and Mass Transfer, the ASME symposia, and Ibele's Modern Developments in Heat Transfer. The literature is ordered as follows: (1) general principles of thermodynamics, including textbooks, and books dealing with the laws of thermodynamics, the exergy concept, radiation, irreversible thermodynamics, and measuring and testing techniques; (2) properties of one-component systems, including phase transition, behavior in the critical range, monatomic gases, air and certain diatomic gases, water and water vapor, organic substances, and inorganic substances; (3) properties of multicomponent systems, including the determination of equilibrium properties, inorganic mixtures, organic mixtures, and inorganic-organic mixtures; (4) transport properties of materials, including theoretical and experimental works on heat conductivity and viscosity; and (5) technological properties, including problems in conventional energy production, unconventional energy conversion, cryogenic and low-temperature technology, and high-temperature technology.

V. P.

A66-11372
LASER BIBLIOGRAPHY. II.
K. Tomiyasu (General Electric Co., Schenectady, N. Y.).

Bibliography of 561 references on all aspects of laser devices and related systems compiled during the period from January through June, 1965. The references are divided into 25 subject categories and listed chronologically. Brief annotations are added to many references.

M. F.

A66-11612
BIBLIOGRAPHY.
IN: CURRENT ASPECTS OF EXOBIOLOGY.
Edited by Gregg Mamikian and M. H. Briggs.

Bibliography of current aspects of exobiology, divided into sections dealing with (1) the solar system, (2) life detection systems, (3) the origin of life, and (4) life in the universe. Subsections of (1) list works discussing the subject in general terms, and others discussing terrestrial organic matter, the moon, Mars, Venus, Jupiter, other planets, and meteorites. The second section gives titles which review the subject in general, and present accounts of specific devices. In section 3 the listed titles include reviews, the synthesis of organic compounds from simple precursors, the origins of cells, the natural interplanetary transfer of organisms, the artificial transfer of organisms, and the sterilization of space vehicles. Reviews, the incidence of planets, the origin of planets, and communication across interstellar distances are the subdivisions of the fourth section.

F. R. L.

A66-12457
INTERNATIONAL SATELITE BIBLIOGRAPHY.
Biuletyn Polskich Obserwacji Sztucznych Satellitek. Dec. 1964,
Bibliographic selection that constitutes a part of the International Satellite Bibliography. The subjects covered are: orbital theory of earth satellites; influence of the earth's gravitational field and of the atmosphere, lunar and solar perturbations, and radiation effects; theory of lunar-satellite motion; theory of motion of artificial satellites of other planets; theory of motion of artificial asteroids; rotational motion of satellites; methods for calculating orbits (particularly from radio observations); determination of orbits; computation of ephemeredes; orbital data; results of observations; study of the earth's gravitational field; application of artificial satellites in navigation; atmospheric studies; study of solar pressure; and problems in the theory of relativity. To avoid transliteration, the Russian references are listed separately and in their original spelling.

INDEX OF LITERATURE ON SPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN THE USSR IN 1964 AND 1965 [UKZATEL LITERATURY PO AVIAKOSMICHESKOI MEDIITINE I BIOASTRONAVTKE, IZDANNOI V SSSR (1964-1965)].

A66-16308 #
A SELECT BIBLIOGRAPHY ON SEMICONDUCTOR RELIABILITY.
B. J. S. Williams (Hatfield College of Technology, Hatfield, Hers., England).
Bibliography that is classified under applications (computers, converters, guided weapons, radio, spacecraft, switching, telephony, etc.), costs, devices, environments, microminiaturation, networks and circuits, production processes, standards, and techniques. The entries are also classified under subject and author indices.

A66-20100 #
BOILING OF LIQUIDS [KIPENIE ZHIIDKOSTEI].
Review of recent Soviet and foreign papers on the physics of boiling. Sections of the review deal with heattransfer and heat release in boiling, techniques of experimental boiling studies, various aspects of bubbling processes, the kinetics and sonic aspects of boiling; and boiling of solutions and mixtures. Theories of various authors are analyzed and assessed.

A66-20180 #
HEAT TRANSFER BIBLIOGRAPHY.
R. R. Ecker, E. M. Sparrow, W. E. Ibele, and R. J. Goldstein (Minneapolis, University, Dept. of Mechanical Engineering, Heat Transfer Laboratory, Minneapolis, Minn.).
Bibliography on the subject of heat transfer. The subject headings include: applications; boundary layer; change of phase; channel flow; conduction; flow with separated regions; heat and mass transfer; liquid metals; low density; magnetohydrodynamics; measurement techniques; natural convection; packed and fluidized beds; radiation; rotating surfaces; thermodynamic and transport properties; and transfer mechanisms.

A66-21614 #
A BIBLIOGRAPHY OF ARTICLES ON RADAR REFLECTIVITY AND RELATED SUBJECTS 1957-1964.
H. A. Corshott, Jr., and R. C. Pyron (Georgia Institute of Technology, Engineering Experimental Station, Atlanta, Ga.).
IEEE Proceedings, vol. 53, Aug. 1965, p. 1025-1064. Contract No. DA-36-039-AMC-03759(E). This bibliography consists of 1420 references from over 275 journals or other sources in the open literature, and represents contributions from over 1225 authors. Material has been selected from that now being compiled at the Georgia Institute of Technology for a comprehensive collection of abstracts and references entitled "A Bibliography of Radar Reflection Characteristics." Coverage is extensive but not exhaustive, is international in scope (with heavy representation from the Soviet literature), and is restricted to the time period 1957 to 1964. Subject coverage includes: scattering and diffraction theory, simple geometrical shapes, geophysical targets (auroras, ionosphere, meteor trails, sea surface, terrain, and angels and related atmospheric phenomena); planets and space targets, and plasmas. Other topics include: absorbers, aircraft, missiles, chaff and dipoles, acoustic scattering, laser radar, reflectors, and measurement techniques and equipment. (Author)
Subject Index

BIBLIOGRAPHIES ON AEROSPACE SCIENCE / a continuing bibliography  JUNE 1966

with indexes

Listing of Subject Headings of Reports

<table>
<thead>
<tr>
<th>SUBJECT HEADING</th>
<th>NOTATION OF CONTENT</th>
<th>ACCESSION NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEROSPACE MEDICINE</td>
<td>BIBLIOGRAPHY OF SOVIET PAPERS ON SPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN 1964 AND 1965</td>
<td>N66-15910</td>
</tr>
</tbody>
</table>

A Notation of Content (NOC), rather than the title of the document, is used to provide a more exact description of the subject matter. In order to provide the user with more than one approach in the search for specific information, a subject may be listed under several subject headings. The accession number is included to assist the user in locating the abstract in the abstract section.

A

ABSORPTION
BIBLIOGRAPHY OF INFRARED REFLECTION, REFRACTION, AND ABSORPTION PROPERTIES OF LIQUID WATER
NRL-BIBL-25 N66-13765

ABSORPTION SPECTRUM
MOSSBAUER EFFECT DATA INDEX - EXPERIMENTAL DATA ON NUCLEAR TRANSITION, SOURCE MATERIAL, AND ABSORBER MATERIAL - BIBLIOGRAPHY
SCR-65-2 N66-36424

ACOUSTICS
SPEECH PRODUCTION, TRANSMISSION, AND ANALYSIS - INSTRUMENTATION, NASAL CAVITY STRUCTURES, ACOUSTICS, SPEECH SPECTRUM, DEAFNESS AIDS, AND BIBLIOGRAPHY ON SPEECH RECODING FOR DEAFNESS
STL-OPSR-4/1964 N65-23850

SEISMOLOGICAL, ACOUSTIC, AND RADIO ANTENNA ARRAY TECHNOLOGY - BIBLIOGRAPHY AND ABSTRACTS
TR-65-114 N66-18549

ACTINIDE
BIBLIOGRAPHY AND ABSTRACTS ON HYDRATED ACTINIDE OXIDE SOLS AND URANIUM HYDROLYSIS REACTIONS
ORNL-TR-1052 N66-18285

AERODYNAMIC CHARACTERISTICS
X-15 AIRCRAFT DEVELOPMENT CONCEPT, FLIGHT RESEARCH, AERODYNAMIC CHARACTERISTICS OF SUPERSONIC-HYPERSONIC FLIGHT, HYPERSONIC STRUCTURE, FLYING LABORATORY, AND BIBLIOGRAPHY
NASA-SP-60 N65-20162

MIXING OF CONCENTRIC HIGH VELOCITY AIR STREAMS - JET MIXING FLOW AERODYNAMIC CHARACTERISTICS - ABSTRACTS
AID-U-64-24 N66-14181

AERODYNAMICS
BIBLIOGRAPHY ON FLIGHT NAVIGATION SYSTEMS, FLIGHT SAFETY, AIRCRAFT REFUELING, AND AERODYNAMICS
N65-21184

BIBLIOGRAPHY ON CURRENT AERODYNAMIC RESEARCH
ARC-CP-650 N65-26432

AEROSONICS BIBLIOGRAPHY - FLUID DYNAMICS OF SUPERSONIC JET FLOWS
REPT.-65-3 N65-28720

ABSTRACTS ON PARACHUTE TECHNOLOGY - AERODYNAMICS, MATERIALS, TRAINING, AND RECOVERY
AD-427014 N65-29865

TITLES AND ABSTRACTS OF ALL UNCLASSIFIED U.S. NAVAL CRANCANCE LABORATORY REPORTS PUBLISHED BY AEROGIABLICS AREA
NOLTR-64-222 N65-33395

COMPILATION OF ABSTRACTS ON MODEL DESCRIPTIONS, PROPULSION, INDUSTRIAL MATERIALS, PANEL SYSTEMS AND INSTRUMENTS, NAVIGATION AND AIR TRAFFIC CONTROL, SAFETY, AND AERODYNAMICS
N66-15737

AEROSPACE
BIBLIOGRAPHY OF AERONAUTICAL STUDIES FROM 1912 TO 1945
N65-23490

AEROSOLS
ANNOTATED BIBLIOGRAPHY ON MICROMETEOROLOGY - STAGNANT WEATHER CONDITIONS, BOUNDARY LAYER TURBULENCE, AEROSOLS, AND AIR POLLUTION
ATD-P-65-18 N65-22778

AEROSOLS - BIOLOGICAL PATHOGENS, CHEMICAL SUBSTANCES - BIBLIOGRAPHY OF SOVIET OPEN LITERATURE PRIOR TO 31 DECEMBER 1962
ATD-B-65-43 N65-32709

AEROSPACE MEDICINE
ABSTRACTS ON AEROSPACE REPORTS - TUMBLING TEST ON GYROSCOPE - ORBIT DETERMINATION PROGRAM TRACE - RADAR RESOLUTION - DIGITAL ELECTRONICS - DATA ANALYSIS - THERMAL DIFFUSIVITY - CRYSTAL GROWTH
EPR-469/9980/MS-7 N65-33238

AEROSPACE MEDICINE AND BIOLOGY - CONTINUING BIBLIOGRAPHY
NASA-SP-7011/06/ N65-17879

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY
NASA-SP-7011/08/ N65-19038

BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY
NASA-SP-7011/07/ N65-19271

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE
AM-64-20 N65-20372

ANNOTATED BIBLIOGRAPHY ON EFFECTS OF RADIATION ABSORPTION ON ANIMALS, FLIGHT MEDICINE, PSYCHOLOGY, PSYCHIATRY, PHYSIOLOGY, AND HUMAN PATHOLOGY
N65-21202

AEROSPACE MEDICINE AND BIOLOGY - ANNOTATED BIBLIOGRAPHY FOR 1962 AND 1963
NASA-CR-62127 N65-21424

BIBLIOGRAPHY ON AVIATION MEDICINE FROM BEGINNING TO YEAR 1950
N65-21735

AEROSPACE MEDICINE AND BIOLOGY - BIBLIOGRAPHY
NASA-SP-7011/09/ N65-22164

AEROSPACE MEDICINE AND BIOLOGY - BIBLIOGRAPHY
NASA-SP-7011/10/ N65-22615

BIBLIOGRAPHIC INDEX TO LITERATURE ON AEROSPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN U.S.S.R., 1962-1964
NASA-TF-270 N65-22968
ANNOTATED BIBLIOGRAPHY OF AVIATION MEDICINE TRANSLATIONS AM-65-17 N65-26955

COMPILED ABSTRACTS ON SPACE MEDICINE AND BIOLOGY, SPACE PHYSIOLOGY, AND SPACE VEHICLE ECÖLGY - LIFE SUPPORT SCIENCES ATO-P-64-66 N65-27748

ANNOTATED BIBLIOGRAPHY ON BIOLOGICAL, PHYSIOLOGICAL, PSYCHOLOGICAL, AND ENVIRONMENTAL EFFECTS OF AIR AND INTERPLANETARY FLIGHT UPON MAN NASA-SP-7011/11 N65-29646

BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY NASA-SP-7011/13 N65-30951

ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY NASA-SP-7011/14 N65-33630

BIBLIOGRAPHY ON BALLISTOCARDIOGRAPHY NASA-SP-7021 N65-35520

AEROSPACE MEDICINE AND BIOLOGY - CONTINUING BIBLIOGRAPHY WITH INDEXES NASA-SP-7011/15 N65-36894

BIBLIOGRAPHY OF SOVIET PAPERS ON SPACE MEDICINE AND BIOONAUTICS PUBLISHED IN 1964 AND 1965 A66-15910

ANNOTATED BIBLIOGRAPHY OF AEROSPACE MEDICINE AND BIOLOGY NASA-SP-7011/16 N66-101316

BIBLIOGRAPHY OF AEROSPACE MEDICINE AND BIOLOGY NASA-SP-7011/17 N66-12345

ANNOTATED BIBLIOGRAPHY OF AEROSPACE MEDICINE AND BIOLOGY WITH SUBJECT, AUTHOR, AND CORPORATE SOURCE INDEXES - PHYSIOLOGICAL, PSYCHOLOGICAL, AND SPACE ENVIRONMENT EFFECTS ON MAN NASA-SP-7011/18 N66-14160

AEROSPACE MEDICINE AND BIOLOGY - ANNOTATED BIBLIOGRAPHY NASA-SP-7011/19 N66-15827

SOVIET ABSTRACTS ON PROBLEMS OF SPACE BIOLOGY N66-16933

AEROSPACE MEDICINE AND BIOLOGY - CONTINUING BIBLIOGRAPHY WITH ABSTRACTS NASA-SP-7011/21 N66-17886

AEROSPACE TECHNOLOGY BIBLIOGRAPHY ON LONG RANGE PLANNING IN AEROSPACE TECHNOLOGY AND DEFENSE INDUSTRY LMSC-5-10-65-3 N65-19831

ANNOTATED BIBLIOGRAPHY ON AEROSPACE SCIENCES NASA-SP-7006/017 N65-21737

ANNOTATED BIBLIOGRAPHY OF SOVIET AEROSPACE INSTRUMENTATION RESEARCH ATO-P-65-49 N65-29703

BIBLIOGRAPHICAL INDEX ON AEROSPACE TECHNOLOGY NASA-CR-64613 N65-33147

AGENA ROCKET

GEMINI AGENA TARGET VEHICLE BIBLIOGRAPHY LMSC-AG05144 N65-53349

BIBLIOGRAPHY ON GEMINI AGENA TARGET VEHICLE LMSC-AG05144 N66-13440

AIR

ABSTRACTS ON MIXED FLOW CONCENTRIC HIGH VELOCITY AIR STREAMS ATO-P-65-41 N65-30530

AIR BREATHEING ENGINE ABSTRACTS OF PAPERS ON LIQUID PROPELLANT ROCKETS AND AIR BREATHEING COMBUSTION AFFOR-64-0258 N66-16477

AIR CURRENT

PRINTING OF CONCENTRIC HIGH SPEED AIR CURRENTS - ANNOTATED BIBLIOGRAPHY ATO-P-65-15 N65-20927

AIR POLLUTION

ANNOTATED BIBLIOGRAPHY ON MICROMETEOROLOGY - STAGNANT WEATHER CONDITIONS, BOUNDARY LAYER TURBULENCE, AEROSOLS, AND AIR POLLUTION ATO-P-60-60 N65-22778

BIBLIOGRAPHY ON AIR POLLUTION - ATMOSPHERE, BIOCHEMISTRY, CHEMISTRY, PHYSICS, CONTROL DEVICES, INSTRUMENTATION, METEOROLOGY, PHYSIOLOGY, AND ECONOMICS N65-23773

ANNOTATED BIBLIOGRAPHY ON SULFUR OXIDES AND OTHER SULFUR COMPOUNDS WITH RELATION TO AIR POLLUTION N66-23857

AIR TRAFFIC CONTROL

COMPILED ABSTRACTS ON MODEL DESCRIPTIONS, PROPULSION, INDUSTRIAL MATERIALS, PANEL SYSTEMS AND INSTRUMENTS, NAVIGATION AND AIR TRAFFIC CONTROL, SAFETY, AND AERODYNAMICS N66-15737

ABSTRACTS AND BIBLIOGRAPHY ON AIRCRAFT, GROUND EFFECT MACHINE, AND HELICOPTER AERODYNAMICS PROPULSION, CONTROL, AND INSTRUMENTATION, AND AIR TRAFFIC CONTROL AND NAVIGATION N66-19933

AIRCRAFT

ABSTRACTS AND BIBLIOGRAPHY ON AIRCRAFT, GROUND EFFECT MACHINE, AND HELICOPTER AERODYNAMICS PROPULSION, CONTROL, AND INSTRUMENTATION, AND AIR TRAFFIC CONTROL AND NAVIGATION N66-19933

AIRCRAFT HAZARD

INFORMATION RETRIEVAL SYSTEM USING BIBLIOGRAPHY DEALING WITH POSTCRASH AIRCRAFT FIRE, RESCUE, AND EVALUATION ADS-16 N66-17396

AIRPORT

ABSTRACTS AND BIBLIOGRAPHY ON AIRPORT, ROAD, AND BUILDING CONSTRUCTION, ON PHOTOGRAMMETRY, ON CHEMICAL-BIOLOGICAL-RADIOLOGICAL WARFARE, AND ON APPLICATION OF MOIRE METHOD N66-19926

ALLOY


ANNOTATED ABSTRACTS OF MATERIALS SCIENCE TECHNICAL MEMORANDUM - PLASTIC, COMPOSITE, EXPLOSIVE, LUBRICANT, ENGINEERING, PROPELLANT, ALLOY, AND HEAT CARRYING MATERIALS NASA-TM-X-53378 N66-16157

ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES, THERMOCHEMISTRY, AND THERMODYNAMICS ATO-B-65-95 N66-19399

ALUMINUM COMPOUND

ALUMINUM SALTS OF SUBSTITUTED BENZOIC ACIDS FOR USE AS HIGH TEMPERATURE GREASE THICKENERS - BIBLIOGRAPHY WITH ABSTRACTS AFML-TR-64-324 N65-31634

AMPHIBIOUS VEHICLE

ANNOTATED BIBLIOGRAPHY ON AUTOMOTIVE TECHNOLOGY, AMPHIBICUS VEHICLES, TRUCKS, AND STUDIES ON BRAKING, I GNIITION, ENGINE, SUSPENSION, AND ELECTRICAL SYSTEMS N66-15780

AMPLIFIER

ABSTRACTS OF REFERENCES ON LOW AND VERY LOW LEVEL DIRECT CURRENT AMPLIFIERS AND MODULATORS N66-19164

ANALOG COMPUTER

BIBLIOGRAPHY AND SUMMARY OF METHODS USED IN ERROR
<table>
<thead>
<tr>
<th>SUBJECT INDEX</th>
<th>BIOASTRONAUTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALYSIS OF HYBRID COMPUTERS</td>
<td>EFFECTS ON RADIO-RADAR WAVE PROPAGATION -</td>
</tr>
<tr>
<td>NASA-CR-62045</td>
<td>BIBLIOGRAPHY</td>
</tr>
<tr>
<td>N66-13078</td>
<td>TR-183, VOL. I</td>
</tr>
<tr>
<td>ANALYTICAL CHEMISTRY</td>
<td>ATMOSPHERICS</td>
</tr>
<tr>
<td>IMPROVEMENTS ON ANALYTICAL METHODS, ELECTROANALYTICAL STUDIES, EQUIPMENT, SERVICES, QUALITY CONTROL - ABSTRACTS OF PUBLICATIONS</td>
<td>ABSTRACTS ON METEOROLOGY - ATMOSPHERICS, DYNAMICS, INSTABILITIES, SPECTRAL ANALYSIS, HEAT BALANCE, ICE FORMATION, IONIZATION, WINDS, RADIATION, AND CIRCULATION</td>
</tr>
<tr>
<td>100-14055</td>
<td>E-TC-CH-64-25</td>
</tr>
<tr>
<td>RADIOCHEMISTRY OF RHODIUM - ISOTOPES, ANALYTICAL AND SEPARATIONS CHEMISTRY, ACTIVATION, BIOLOGICAL ASPECTS, AND BIBLIOGRAPHY</td>
<td>ATOMIC COLLISION</td>
</tr>
<tr>
<td>NAS-N-5-3084/REV.</td>
<td>ANNOTATED BIBLIOGRAPHY ON ATOMIC AND MOLECULAR PROCESSES, PARTICLE INTERACTIONS, INTERACTIONS OF ELECTRIC AND MAGNETIC FIELD, AND GAS TRANSPORT</td>
</tr>
<tr>
<td>N65-27920</td>
<td>CRNL-AMP IC-1</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON ANALYTICAL METHODOLOGY USED IN ANALYSIS OF PLUTONIUM, AND PLUTONIUM ALLOYS AND COMPOUNDS</td>
<td>AURORA</td>
</tr>
<tr>
<td>ANL-6956</td>
<td>BIBLIOGRAPHY ON SOLAR WIND EFFECT, RADIATION AND ARTIFICIAL RADIATION BELTS, AURORA, SOLAR ENERGY PARTICLES, GALACTIC COSMIC RAYS, GEOMAGNETISM, AND NEUTRONS</td>
</tr>
<tr>
<td>ANIMAL STUDY</td>
<td>AUTOMATION</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON EFFECTS OF RADIATION ABSORPTION ON ANIMALS, FLIGHT MEDICINE, PSYCHOLOGY, PSYCHIATRY, PHYSIOLOGY, AND HUMAN PATHOLOGY</td>
<td>ANNOTATED BIBLIOGRAPHY ON CYBERNETICS, AUTOMATION, AND TELEMECHANICS</td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON EFFECTS OF RADIONUCLIDES ON METABOLISM OF WILD SPECIES OF PLANTS AND ANIMALS</td>
<td>FTD-KT-63-191</td>
</tr>
<tr>
<td>TID-3910, SUPPL. 3</td>
<td>AUTOMOBILE</td>
</tr>
<tr>
<td>N66-23596</td>
<td>N66-15780</td>
</tr>
<tr>
<td>ABSTRACTS OF ARTICLES ON EFFECT OF IONIZING RADIATION ON ANIMALS AND PLANTS</td>
<td>AUTORADIOGRAPHY</td>
</tr>
<tr>
<td>ATD-65-110</td>
<td>BIBLIOGRAPHY AND ABSTRACTS FOR AUTORADIOGRAPHY AND MICRORADIOGRAPHIC LITERATURE</td>
</tr>
<tr>
<td>N66-14667</td>
<td>AMRA-M-64-10</td>
</tr>
<tr>
<td>ANTENNA</td>
<td>BIBLIOGRAPHY OF PLASMA PHYSICS - ATMOSPHERIC RERENTRY OF SPACE VEHICLES, ELECTROMAGNETIC WAVE PROPAGATION, ANTENNA BREAKDOWN, GROUND-BASED RERENTRY TEST FACILITIES, AND PLASMA DIAGNOSTICS</td>
</tr>
<tr>
<td>CAL-ER/RIS-3</td>
<td>N65-24842</td>
</tr>
<tr>
<td>ANTENNA ARRAY</td>
<td>BIBLIOGRAPHICAL INDEX TO LITERATURE ON AEROSPACE MEDICINE AND BIOASTRONAUTICS</td>
</tr>
<tr>
<td>SEISMOLOGICAL, ACOUSTIC, AND RADIO ANTENNA ARRAY TECHNOLOGY - BIBLIOGRAPHY AND ABSTRACTS</td>
<td>ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY</td>
</tr>
<tr>
<td>TR-65-114</td>
<td>PHYSIOLOGICAL, PSYCHOLOGICAL, AND ENVIRONMENTAL EFFECTS ON RADIO-RADAR WAVE PROPAGATION -</td>
</tr>
<tr>
<td>N66-18549</td>
<td>BIBLIOGRAPHY WITH ABSTRACTS</td>
</tr>
<tr>
<td>ANTICYCLONE</td>
<td>AMFM-TR-64-324</td>
</tr>
<tr>
<td>METEOROLOGY, HYDROLOGY, WEATHER FORECASTING, AND HYDROMETEOROLOGY - STRATOSPHERICAL CYCLONES AND ANTICYCLONES, WEATHER NAVIGATION AID FOR SHIPS, PRECIPITATION, AND BIBLIOGRAPHY</td>
<td>BERYLLIUM</td>
</tr>
<tr>
<td>JPRS-29481</td>
<td>ABSTRACTS OF PAPERS ON BERYLLIUM PURIFICATION AND STRUCTURAL APPLICATION</td>
</tr>
<tr>
<td>N65-23439</td>
<td>MAB-199-N/3F</td>
</tr>
<tr>
<td>ARCTIC</td>
<td>BIOASTRONAUTICS</td>
</tr>
<tr>
<td>RADIATION, ATMOSPHERIC CHEMISTRY, AND SEA ICE STUDIES IN ARCTIC AREAS - ANNOTATED BIBLIOGRAPHY</td>
<td>BIOGRAPHICAL INDEX TO LITERATURE ON AEROSPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN U.S.S.R., 1962-1964</td>
</tr>
<tr>
<td>AD-624294</td>
<td>NASA-TF-270</td>
</tr>
<tr>
<td>N66-17603</td>
<td>BIBLIOGRAPHY ON U.S.S.R. MANNEC SPICE PROGRAM - FUTURE PLANS, BIOASTRONAUTICS, LUNAR AND MARS FLIGHTS, AND EXOBIOLOGY</td>
</tr>
<tr>
<td>N65-25247</td>
<td>ANNOTATED BIBLIOGRAPHY ON BIOLOGICAL, PHYSIOLOGICAL, PSYCHOLOGICAL, AND ENVIRONMENTAL EFFECTS OF AIR AND INTERPLANETARY FLIGHT UPON MAN</td>
</tr>
<tr>
<td>N65-29448</td>
<td>NASA-SP-7011/13</td>
</tr>
<tr>
<td>ASTRONOMICAL PHOTOGRAPHY</td>
<td>ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND</td>
</tr>
<tr>
<td>BIBLIOGRAPHY OF MULTIPLE NIGHTLY ASTRONOMICAL PHOTOGRAPHIC OBSERVATIONS OF COMET TAIL</td>
<td>SP-7011/13</td>
</tr>
<tr>
<td>NASA-TH-X-55370</td>
<td>N66-33220</td>
</tr>
<tr>
<td>N66-17246</td>
<td>BIBLIOGRAPHY ON 1964 LITERATURE ON SOLAR SYSTEM SCIENCE</td>
</tr>
<tr>
<td>N65-17737</td>
<td>BEARING</td>
</tr>
<tr>
<td>N65-29113</td>
<td>BIBLIOGRAPHY OF THE IPE SYMPOSIUM ON ELASTOHYDRODYNAMIC LUBRICATION AT LEEDS, ENGLAND IN SEPTEMBER 1965</td>
</tr>
<tr>
<td>N65-35520</td>
<td>AFML-TR-64-324</td>
</tr>
<tr>
<td>N65-31634</td>
<td>N65-36511</td>
</tr>
<tr>
<td>BENZOIC ACID</td>
<td>BERYLLIUM</td>
</tr>
<tr>
<td>ALUMINUM SALTS OF SUBSTITUTED BENZOIC ACIDS FOR USE AS HIGH TEMPERATURE GREASE THICKENERS</td>
<td></td>
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<tr>
<td>AMF-TR-64-324</td>
<td>ABSTRACTS OF PAPERS ON BERYLLIUM PURIFICATION AND STRUCTURAL APPLICATION</td>
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<tr>
<td>N65-31634</td>
<td>MAB-199-N/3F</td>
</tr>
<tr>
<td>BIRDS</td>
<td>BIOGRAPHICAL INDEX TO LITERATURE ON AEROSPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN U.S.S.R., 1962-1964</td>
</tr>
<tr>
<td>NASA-TF-270</td>
<td>N65-22968</td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON U.S.S.R. MANNEC SPICE PROGRAM - FUTURE PLANS, BIOASTRONAUTICS, LUNAR AND MARS FLIGHTS, AND EXOBIOLOGY</td>
<td></td>
</tr>
<tr>
<td>N65-25247</td>
<td>ANNOTATED BIBLIOGRAPHY ON BIOLOGICAL, PHYSIOLOGICAL, PSYCHOLOGICAL, AND ENVIRONMENTAL EFFECTS OF AIR AND INTERPLANETARY FLIGHT UPON MAN</td>
</tr>
<tr>
<td>NASA-SP-7011/13</td>
<td>N65-29448</td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON AEROSPACE MEDICINE AND BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>NASA-SP-7011/13</td>
<td>N65-30951</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON AEROSPACE MEDICINE AND</td>
<td>I-3</td>
</tr>
</tbody>
</table>
SUBJECT INDEX

ELEMENTARY PARTICLE
BIBLIOGRAPHIES AND DATA SURVEY OF NEUTRON CROSS SECTIONS REPORTED FOR Z GREATER THAN OR EQUAL TO 93
JAERI-4032 N66-17913

ENERGY CONVERSION
BIBLIOGRAPHIES ON DIRECT CONVERSION OF NUCLEAR ENERGY INTO ELECTRIC ENERGY
AEO-C-15-05 N65-26430
DIRECT CONVERSION OF ENERGY - ANNOTATED BIBLIOGRAPHY
N65-27630
DIRECT CONVERSION OF NUCLEAR ENERGY TO ELECTRIC ENERGY - BIBLIOGRAPHY
AEO-C-15-06 N65-29215
MATERIALS FOR HIGH-TEMPERATURE ENERGY CONVERTER - ANNOTATED BIBLIOGRAPHY OF SOVIET LITERATURE
ATO-65-112 N66-15195
DIRECT ENERGY CONVERSION LITERATURE ABSTRACTS
AD-628049 N66-21418

ENVIRONMENT
SELECTED BIBLIOGRAPHY ON METEOROID ENVIRONMENT
STL-9990-7156-KU-000 N66-14539
ENVIRONMENT CONCEPT AS PSYCHOLOGICAL FACTOR, AND PERTINENT LITERATURE REVIEW
TR-33 N66-16507

ENVIRONMENTAL SCIENCE
LUNAR, PLANETARY, AND SPACE ENVIRONMENT PARAMETERS AFFECTING SPACE VEHICLE DESIGN AND FLIGHT MECHANICS - ANNOTATED BIBLIOGRAPHY
NASA-461037 N65-17610
ERROR
BIBLIOGRAPHY AND SUMMARY OF METHODS USED IN ERROR ANALYSIS OF HYBRID COMPUTERS
NASA-CR-64045 N66-13078
EUTECTIC ALLOY
ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES, THEROCHEMISTRY, AND THERMODYNAMICS
ATO-6-65-95 N66-19399
EXPLODING CONDUCTOR
ANNOTATED BIBLIOGRAPHY ON ELECTRICALLY EXPLODING CONDUCTOR PHENOMENON
AFCRL-65-384 N65-35939
EXPLOSION
ABSTRACTS OF SOVIET LITERATURE ON COMBUSTION AND EXPLOSION
ATO-65-111 N66-14611
EXPLOSIVE
ANNOTATED ABSTRACTS OF MATERIALS SCIENCE TECHNICAL MEMORANDUM - PLASTIC, COMPOSITE, EXPLOSIVE, LUBRICANT, ENGINEERING, PROPELLANT, ALLOY, AND HEAT CARRYING MATERIALS
NASA-TM-X-53978 N66-16157

EXTRATERRESTRIAL LIFE
ANNOTATED BIBLIOGRAPHY ON EXTRATERRESTRIAL LIFE
NASA-SP-7015, PT. I
BIBLIOGRAPHY AND ABSTRACTS ON EXISTENCE AND DETECTION OF LIFE OUTSIDE EARTH BIOSPHERE, ORIGIN OF LIFE, METEORITIC LIFE STUDIES, AND CONTAMINATION PROBLEMS - EXOBIOLOGY
STL-9990-6737-KU-000 N65-19834
ANNOTATED BIBLIOGRAPHY ON EXTRATERRESTRIAL LIFE
NASA-SP-7015 N66-16566

F CENTER
BIBLIOGRAPHY ON RESEARCH OF F-VALUES - OSCILLATOR STRENGTHS OF SPECTRAL LINES
ATO-65-86 N66-15123

FACILITY
ANNOTATED BIBLIOGRAPHY OF REPORTS, PUBLISHED
SUBJECT INDEX

GROUND EFFECT MACHINE
ABSTRACTS AND BIBLIOGRAPHY ON AIRCRAFT, GROUND
EFFECT MACHINE, AND HELICOPTER AERODYNAMICS
PROPULSION, CONTROL, AND INSTRUMENTATION, AND
AIR TRAFFIC CONTROL AND NAVIGATION N66-19933

HEARING LOSS
SPEECH PRODUCTION, TRANSMISSION, AND ANALYSIS -
INSTRUMENTATION, NASAL CAVITY STRUCTURES,
ACOUSTICS, SPEECH SPECTRUM, DEAFNESS AIDS, AND
BIBLIOGRAPHY ON SPEECH RECODING FOR DEAFNESS
STL-GP8R-4/1964 N65-23850

HEAT FLUX
BIBLIOGRAPHY ON INTERFACE CONTACT RESISTANCE AND
SURFACE HEAT FLUX AND TEMPERATURE MEASUREMENTS
UCRL-14264 N66-20385

HEAT RESISTANCE
HEAT AND OXIDATION RESISTANT REINFORCED PLASTICS
AND LAMINATES FOR HIGH TEMPERATURE ENVIRONMENT -
ANNOTATED BIBLIOGRAPHY PDC-64-009 N66-14737

HEAT SOURCE
RADIOISOTOPE HEAT SOURCE - ANNOTATED BIBLIOGRAPHY
ON NUCLEAR CHARACTERISTICS OF RADIOACTIVE
ISOTYPES NASA-CR-68182 N66-12928

HEAT TEST
ANNOTATED BIBLIOGRAPHY OF THERMAL TESTING
LITERATURE AMRA-MS-64-14 N65-22320

HEAT TRANSFER
BIBLIOGRAPHY ON HEAT TRANSFER COMPILED BY
MECHANICAL ENGINEERING DEPARTMENT OF
UNIVERSITY OF MINNESOTA A65-17578
BIBLIOGRAPHY OF RUSSIAN BOOKS ON HEAT TRANSFER
A65-18406
BIBLIOGRAPHY OF HEAT TRANSFER BOOKS
A65-18407
BIBLIOGRAPHY OF HEAT AND MASS TRANSFER IN POLISH
A65-25561
BIBLIOGRAPHY OF HEAT TRANSFER INCLUDING BOUNDARY
LAYER FLOW, DENSITY, LIQUID METALS, CONVECTION,
RADIATION, ETC A65-25562
HEAT TRANSFER BIBLIOGRAPHY OF JAPANESE WORKS
INCLUDING CHANNEL FLOW, CONVECTION, MASS TRANSFER,
ETC A65-26383
HEAT TRANSFER BIBLIOGRAPHY OF RUSSIAN WORKS
INCLUDING THERMODYNAMICS, CONVECTION, MASS
TRANSFER, PHASE CHANGE, COMBUSTION, ETC
A65-26384
HEAT TRANSFER RESEARCH, REVIEW OF CURRENT
PUBLISHED LITERATURE A65-32418
HEAT TRANSFER BIBLIOGRAPHY INCLUDING BOUNDARY
LAYER FLOW, PHASE CHANGE, MASS TRANSFER, MHD,
RADIATION, NATURAL CONVECTION, ETC A65-35441
HEAT TRANSFER AND HYDRAULICS OF TWO PHASE MEDIA
PROBLEMS - ANNOTATED BIBLIOGRAPHY
FTD-MT-64-271 N65-16676
BIBLIOGRAPHY ON HEAT AND MASS EXCHANGE
FTD-TT-64-395/1 N65-20016
BIBLIOGRAPHY OF CONTACT HEAT TRANSFER MEASUREMENTS
AND THEORIES, AND THERMAL METALLIC CONTACT
CONDUCTANCE NASA-TM-X-53227 N65-24564
SOVIET AND FOREIGN PAPERS ON PHYSICS OF BOILING
INCLUDING HEAT TRANSFER, HEAT RELEASE, BUBBLING
PROCESSES, KINETICS AND SONIC ASPECTS OF BOILING
AND BIBLIOGRAPHY A66-20100

HEAT TRANSFER BIBLIOGRAPHY A66-20180

HELICOPTER
ABSTRACTS AND BIBLIOGRAPHY ON AIRCRAFT, GROUND
EFFECT MACHINE, AND HELICOPTER AERODYNAMICS
PROPULSION, CONTROL, AND INSTRUMENTATION, AND
AIR TRAFFIC CONTROL AND NAVIGATION N66-19933

HELIUM 3
NUCLEAR INTERACTIONS OF HELIUM 3 - BIBLIOGRAPHY
LA-3205-M S N65-20837
HIGH ENERGY FUEL $HELF$
ABSTRACTS ON LIQUID AND SOLID PROPELLANTS, HIGH
ENERGY FUELS, ADVANCED ENERGY SOURCES, AND
COMBUSTION FROM SOVIET LITERATURE - ANNOTATED
BIBLIOGRAPHY ATO-66-2 N66-19672

HIGH EXPLOSIVE
BIBLIOGRAPHY WITH ABSTRACTS ON CHEMICAL
PROPERTIES, COMPOSITION, MANUFACTURE, AND
TESTING OF HIGH EXPLOSIVES ATO-P-65-65 N66-13506

HIGH TEMPERATURE ENVIRONMENT
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N65-23268
HEAT AND OXIDATION RESISTANT REINFORCED PLASTICS
AND LAMINATES FOR HIGH TEMPERATURE ENVIRONMENT -
ANNOTATED BIBLIOGRAPHY PDC-64-009 N66-14737

HIGH TEMPERATURE GAS
BIBLIOGRAPHY ON SPECTROSCOPY RELATED TO HIGH
TEMPERATURE CHEMISTRY, REACTIONS BETWEEN GASES
AND CONDENSED PHASES, AND PLASMA THERMODYNAMICS
REPT.-17 N66-19086

HIGH TEMPERATURE MATERIAL
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N65-23268
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N65-32378
MATERIALS FOR HIGH-TEMPERATURE ENERGY CONVERTER -
ANNOTATED BIBLIOGRAPHY OF SOVIET LITERATURE
ATO-65-112 N66-15195
BIBLIOGRAPHY ON CONDENSED MATERIALS HIGH
TEMPERATURE CHEMISTRY AND PHYSICS
N66-19973

HIGH TEMPERATURE PLASMA
ABSTRACTS OF HIGH TEMPERATURE AND LOW TEMPERATURE
PLASMA PHYSICS CPR-2 N66-18502

HIGH TEMPERATURE RESEARCH
HIGH TEMPERATURE LIGUIID METAL TECHNOLOGY -
BIBLIOGRAPHY ENL-896/PR-11/ N65-15839
HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES
AND GAS-CONDENSED PHASE REACTIONS - BIBLIOGRAPHY
REPT.-13 N65-16663
ANNOTATED BIBLIOGRAPHY AND LIST OF SOVIET
ARTICLES ON METHODS USED IN HIGH TEMPERATURE
MEASUREMENT OF GASES ATO-F-65-53 N65-32226
BIBLIOGRAPHY OF SPECTROSCOPY IN HIGH TEMPERATURE
CHEMISTRY, AND OF REACTION STUDIES BETWEEN GASES
AND CONDENSED PHASES N65-32763
BIBLIOGRAPHY ON HIGH TEMPERATURE PHYSICS AND
CHEMISTRY OF REFRAC'TORY AND OTHER MATERIALS
N66-13522
BIBLIOGRAPHY ON HIGH TEMPERATURE PHYSICS AND
CHEMISTRY OF REFRAC'TORY MATERIALS IN LIQUID AND
SOLID STATE N66-15417

I-11
AND ADVANCED COMMUNICATION TECHNIQUES - THEORY AND APPLICATIONS OF SPACE COMMUNICATIONS NASA-SP-7022/037 N65-31136

LITERATURE SURVEY OF RESEARCH DEALING WITH TELECOMMUNICATIONS, ELECTRONICS, INFORMATION PROCESSING, COMPUTER DESIGN, AND RELATED SUBJECTS - ANNOTATED BIBLIOGRAPHY N66-15748

BIBLIOGRAPHY AND ABSTRACTS SUMMARY ON MICROWAVE, ELECTROMAGNETIC THEORY, AND INFORMATION PROCESSING STUDIES PI9MBR-1278-65 N66-20095

ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION PROCESSING, TELECOMMUNICATIONS, ELECTRONICS, QUALITY CONTROL AND RELIABILITY OF ELECTRONIC PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS N66-20740

INFORMATION RETRIEVAL INFORMATION RETRIEVAL SYSTEM USING BIBLIOGRAPHY DEALING WITH POSTCRASH AIRCRAFT FIRE, RESCUE, AND EVALUATION ADS-16 N66-17396

INFORMATION THEORY INFORMATION THEORY, MEMORY, LEARNING, AND RETRIEVAL - ANNOTATED BIBLIOGRAPHY HUMRRO-TR-65-13 N66-20858

INFRARED REFLECTION BIBLIOGRAPHY OF PAPERS DEALING WITH REFLECTION AND TRANSMISSION OF IR MATERIALS A65-20825

BIBLIOGRAPHY OF INFRARED REFLECTION, REFRACTION, AND ABSORPTION PROPERTIES OF LIQUID WATER NRL-818L-25 N66-13765

INSTRUMENT BIBLIOGRAPHY ON INSTRUMENTS AND MEASURING TECHNIQUES IN NUCLEAR PHYSICS AED-C-06-10 N65-30598

AERIAL OBSERVATIONS OF RAIN AND SNOW CLOUDS - SELECTED BIBLIOGRAPHY ON INSTRUMENTS AND OBSERVING TECHNIQUES USED IN CLOUD PHYSICS N65-33094

INSTRUMENTATION BIBLIOGRAPHY ON SYSTEMS ENGINEERING, PHYSICAL ANTHROPOLOGY, HUMAN ENGINEERING, INSTRUMENTATION AND SIMULATION, AND TRAINING AND LEARNING AD-464531 N65-35343

INSTRUMENTATION PROGRAM ANNOTATED BIBLIOGRAPHY OF SOVIET AEROSPACE INSTRUMENTATION RESEARCH ATO-P-65-49 N65-29703

INSULATING MATERIAL DIELECTRIC CONSTANTS, DIPOLE MOMENTS, RELAXATION TIMES, CONDUCTION PHENOMENA, INSULATING FILMS, BREAKDOWN, MATERIALS, AND APPLICATIONS OF DIELECTRICS - ANNOTATED BIBLIOGRAPHY NASA-CR-69880 N66-16184

INTEGRATED CIRCUIT ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION PROCESSING, TELECOMMUNICATIONS, ELECTRONICS, QUALITY CONTROL AND RELIABILITY OF ELECTRONIC PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS N66-20740


INTERFACE BIBLIOGRAPHY ON INTERFACE CONTACT RESISTANCE AND SURFACE HEAT FLUX AND TEMPERATURE MEASUREMENTS UCRL-14264 N66-20385

INTERMETALLICS SOLID STATE PHYSICS, POLYMER CHEMISTRY, ORGANIC AND ORGANOMETALLIC COMPOUNDS, SEMICONDUCTORS, INTERMETALLICS, PLASTICS, AND NUCLEAR MAGNETIC RESONANCE - ANNOTATED BIBLIOGRAPHY N66-15498

INTERPLANETARY FLIGHT BIBLIOGRAPHY ON SPACE RESEARCH - ECONOMIC AND POLITICAL IMPLICATIONS OF SPACE, INTERPLANETARY FLIGHT, LUNAR FLIGHT, SATELLITES, SPACE SCIENCE, SPACE APPLICATIONS, AND SPACE TECHNOLOGY RP-4508 N65-25929

ANNOTATED BIBLIOGRAPHY ON BIOLOGICAL, PHYSIOLOGICAL, PSYCHOLOGICAL, AND ENVIRONMENTAL EFFECTS OF AIR AND INTERPLANETARY FLIGHT UPON MAN NASA-SP-7011/11/ N65-29648

IGNITION BIBLIOGRAPHY ON PLASMA PHYSICS FROM 1955-61 INCLUDING PLASMA KINETICS, GAS DISCHARGES, IGNITION, SHOCK WAVES, ETC. COVERING ALSO SYMPOSIA AND BOOKS A65-32842

IONIC PROPULSION ABSTRACTS ON ION AND PLASMA PROPULSION - ANNOTATED BIBLIOGRAPHY AL-65-77 N66-14558

IGNITATION CHANGE TRANSFER COLLISIONS IN GASES - ANNOTATED BIBLIOGRAPHY AIC-U-64-4, PT. 1 N66-14146

IGNITION CROSS SECTION ANNOTATED BIBLIOGRAPHY ON CONTROLLED THERMONUCLEAR REACTIONS - HOT AND COLD PLASMA, CROSS SECTIONS, VACUUM AND WALL STUDIES, DIAGNOSTIC TECHNIQUES, AND CYCLOGENICS TID-4005/PT. 5/ N65-21621

IGNIZING RADIATION ABSTRACTS OF ARTICLES ON EFFECT OF IONIZING RADIATION ON ANIMALS AND PLANTS ATO-65-110 N66-14667

IONSHERE ABSTRACTS ON TRACKING OF MISSILES AND SPACE VEHICLES FROM SOVIET OPEN LITERATURE - ION CLOUDS AND IONOSPHERE PERTURBATIONS, REFLECTION OF ELECTROMAGNETIC WAVES, AND RADIO ASTRONOMY ATO-P-65-40 N65-31097

ABSTRACTS OF SOVIET-BLOC LITERATURE DEALING WITH RADIATION ON ANIMALS AND PLANTS ATO-P-65-51 N65-35189

IONSHEPHERIC COMPOSITION ABSTRACT COMPILATION ON SPACECRAFT INTERACTIONS WITH IONOSPHERE, METEROSPHERE, AND INTERPLANETARY PLASMA NASA-CR-70362 N66-17066

IONSHEPERIC ELECTRON DENSITY ANNOTATED BIBLIOGRAPHY ON UPPER ATMOSPHERE - SOLAR RADIATION, IONOSPHERIC ELECTRON CONCENTRATION, VAN ALLEN RADIATION BELTS, GEOPHYSICS, NUCLEAR BURSTS, COMMUNICATIONS, AND METEOROLOGY AID-P-64-34 N65-15714

IRON Metallurgy of Iron, Steel, and Alloys of Transition Metals - ANNOTATED BIBLIOGRAPHY JPRS-28358 N65-16501

ISOTOPE RADIOCHEMISTRY OF RHODIUM - ISOTOPES, ANALYTICAL AND SEPARATIONS CHEMISTRY, ACTIVATION, BIOLOGICAL ASPECTS, AND BIBLIOGRAPHY NAS-NS-3008/REV./ N65-27920

NEUTRON CROSS SECTIONS EVALUATION FOR CHEMICAL ELEMENTS, COMPOUNDS, AND ISOTOPES - BIBLIOGRAPHY ANRE-0-13/65 N65-36351

JAPAN HEAT TRANSFER BIBLIOGRAPHY OF JAPANESE WORKS 1-13
INCLUING CHANNEL FLOW, CONVECTION, MASS TRANSFER, ETC

JET FLOW
AEROSONICS BIBLIOGRAPHY - FLUID DYNAMICS OF SUPersonic JET FLOWS
REPT.-65-3

JET MIXING
ANNOTATED BIBLIOGRAPHY ON MIXING OF CONCENTrIC
HIGH VELOCITY AIR STREAMS
ATD-P-65-96

MIXING OF CONCENTRIC HIGH VELOCITY AIR STREAMS - JET MIXING FLUX AERODYNAMIC CHARACTERISTICS - ABSTRACTS
ATD-U-64-24

JET PROPULSION
SQUID PROJECT BIBLIOGRAPHY ON JET PROPULSION
UVA-6-R

CUMULATIVE INDEX OF JET PROPULSION LABORATORY
BIBLIOGRAPHIES
NASA-CR-63654

L
LABORATORY APPARATUS
ANNOTATED BIBLIOGRAPHY ON DESIGN, EQUIPMENT, AND OPERATION OF LABORATORIES FOR WORK WITH RADIOACTIVE MATERIALS
TID-3545, REV. 1

LAMINATE
HEAT AND OXIDATION RESISTANT REINFORCED PLASTICS AND LAMINATES FOR HIGH TEMPERATURE ENVIronMENT - ANNOTATED BIBLIOGRAPHY
PDC-64-005

LASER
LASER BIBLIOGRAPHY / JUNE TO DECEMBER 1964/

APPLICATIONS OF LASERS AND MASERS TO COMMUNICATION SYSTemS, ASTRONOMY, OPTICS, AND METALWORKING - BIBLIOGRAPHY
NASA-SP-7009

BIBLIOGRAPHY ON LASERS
LR-18863

SOVIEt LASER RESEARCH - BIBLIOGRAPHY
ATD-P-65-23

BIBLIOGRAPHY ON BIOLOGICAL EFFECTS AND HAZARDS OF LASER RADIATION
T5-1245/3111

LASER BIBLIOGRAPHY COVERING DEVICES AND RELATED SYSTEMS FOR PERIOD JANUARY-JUNE 1965
A66-11372

SOLID STATE DEVICES, LASERS, AND MATERIALS SCIENCE ABSTRACTS - ANNOTATED BIBLIOGRAPHY
ESO-TDA-65-318

LAUNCHING
SPACE SCIENCE PROGRAM OF USA - THEORETICAL ASPECTS, SUMMARY OF LAUNCHINGS FOR 1964, LIST OF RESEARCH PROJECTS AND AGENTS, AND BIBLIOGRAPHY
TID-3583

LEAD TELLURIDE
BIBLIOGRAPHY ON BISMUTH TELLURIDES, LEAD TELLURIDES, AND TIN TELLURIDES

LEARNING
INFORMATION THEORY, MEMORY, LEARNING, AND RETRIEVAL - ANNOTATED BIBLIOGRAPHY
HUMMR-TR-65-13

LIFE SCIENCE
BIBLIOGRAPHY OF CURRENT ASPECTS OF ECOLOGY, CLIMATE, HUMAN BEHAVIOR, ECOLOGICAL SYSTEMS, AND ECOLOGICAL PROCESSES - ABSTRACTS

LIFE SUPPORT SYSTEM
COMPIILATION OF ABSTRACTS ON SPACE MEDICINE AND BIOLOGICAL RESEARCH - BIBLIOGRAPHY
ATD-P-64-66

LIGHT AMPLIFIER
LASER BIBLIOGRAPHY / JUNE TO DECEMBER 1964/

LIQUID FLOW
FLUID MOTION AND SOUND BIBLIOGRAPHY WITH ABSTRACTS
REPT.-65-49

LIQUID METAL
HIGH TEMPERATURE LIQUID METAL TECHNOLOGY - BIBLIOGRAPHY
EML-896/PR-11/

BIBLIOGRAPHY ON MAGNETOHYDRODYNAMIC EXPERIMENTS WITH LIQUID METALS AND ELECTROLYTES
JUL-BIEL-6

BIBLIOGRAPHY ON LIQUID STATE OF METALS STUDIES IN U.S.S.R.
ATD-B-65-95

ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES, THERMOCHEMISTRY, AND THERMODYNAMICS
ATD-B-65-95

LIQUID PROPPELLANT
LIQUID ROCKETS PROPPELLANTS IN ZERO GRAVITY - BIBLIOGRAPHY
LS-818-64-2

ABSTRACTS ON LIQUID AND SOLID PROPPELLANTS, HIGH ENERGY FUELS, ADVANCED ENERGY SOURCES, AND COMBUSTION FROM SOVIET LITERATURE - ANNOTATED BIBLIOGRAPHY
ATC-66-2

LIQUID PROPPELLANT ROCKETS AND AIR BREATHING COMBUSTION
AFOSR-64-0258

LOGIC CIRCUIT
ESAKI DIODE BIBLIOGRAPHY FROM JANUARY 1958 TO NOVEMBER 1963, ESPECIALLY AMPLIFIERS AND LOGIC CIRCUITS
A65-34873

FLUID AMPLIFICATION BIBLIOGRAPHY WITH ABSTRACTS - LOGIC CIRCUITS, TRANSCUROTORS, FLOW VISUALIZATION,
MANAGEMENT PLANNING

OPERATIONS RESEARCH BIBLIOGRAPHY - GAME THEORY, COMPUTER PROGRAMMING, MANAGEMENT PLANNING, AND QUALITY CONTROL
TDCK-40683 N66-15402

MANAGED SPACE FLIGHT

MANUAL CONTROL SYSTEMS, HUMAN ENGINEERING, AND MAN IN SPACE - BIBLIOGRAPHY OF RUSSIAN LITERATURE ON MANAGED SPACE FLIGHT TECHNOLOGY NASA-CR-199 N65-21126

MANUAL CONTROL

MANUAL CONTROL SYSTEMS, HUMAN ENGINEERING, AND MAN IN SPACE - BIBLIOGRAPHY OF RUSSIAN LITERATURE ON MANAGED SPACE FLIGHT TECHNOLOGY NASA-CR-199 N65-21126

MANUFACTURING

COMPILED ABSTRACTS ON MANUFACTURING TECHNOLOGY N66-15871

MANY-BODY PROBLEM

ANNOTATED BIBLIOGRAPHY OF APPLICATION OF METHODS COMMON TO ELEMENTARY PARTICLE PHYSICS AND MANY-BODY PROBLEMS REPT.-1 N66-17599

MANY-PARTICLE THEORY

BIBLIOGRAPHY ON QUANTUM THEORY OF MANY-PARTICLE SYSTEMS ARL-65-25 N65-19620

MARAGING STEEL

BIBLIOGRAPHY ON MARAGING STEEL UCRL-12223 N65-19336

MARINER PROGRAM

JPL PUBLICATIONS BIBLIOGRAPHY WITH ABSTRACTS - REPORTS ON DSIF, MARINER PROGRAM, RANGER PROJECT, SURVEYOR PROJECT, AND OTHER SPACE PROGRAMS, AND SPACE SCIENCES NASA-CR-69354 N66-15386

MARS SPACECRAFT

BIBLIOGRAPHY ON U.S.S.R. MANAGED SPACE PROGRAM - VOSKHOD, FUTURE PLANS, BIOASTRONAUTICS, LUNAR AND MARS FLIGHTS, AND EXOBIOLOGY ATO-P-65-19 N65-25247

MARS SURFACE

ANNOTATED BIBLIOGRAPHY OF SURFACE CHARACTERISTICS OF MOON, MARS, AND VENUS ATO-P-65-6 N65-22568

MASER

APPLICATIONS OF LASERS AND MASERS TO COMMUNICATION SYSTEMS, ASTRONOMY, OPTICS, AND METALWORKING - BIBLIOGRAPHY NASA-SP-709 N65-25599

MASS TRANSFER

BIBLIOGRAPHY OF HEAT AND MASS TRANSFER IN POLISH A65-25561

BIBLIOGRAPHY ON HEAT AND MASS EXCHANGE FTD-IT-64-395/1 N65-20016

MATERIAL TESTING

BIBLIOGRAPHY ON GENERAL MACHINE CONSTRUCTION AND MATERIAL TESTING N65-21199

BIBLIOGRAPHY ON THEORY AND TESTS FOR LOW CYCLE STRAIN FATIGUE OF FUEL CLADDING MATERIALS PUBL.-147 N65-24714

MATERIALS SCIENCE

MATERIALS FOR HIGH-TEMPERATURE ENERGY CONVERTER - ANNOTATED BIBLIOGRAPHY OF SOVIET LITERATURE ATO-65-112 N66-15195

SOLID STATE PHYSICS, ELECTRONICS, METALLURGY, OPTICS, AND MATERIALS SCIENCE - ANNOTATED BIBLIOGRAPHY AD-63906 N66-15802

ANNOTATED ABSTRACTS OF MATERIALS SCIENCE TECHNICAL

PENETRANT - PLASTIC, COMPOSITE, EXPLOSIVE, LUBRICANT, ENGINEERING, PROPPELLANT, ALLOY, AND HEAT CARRYING MATERIALS NASA-TM-X-53378 N66-16157

SOLID STATE DEVICES, LASERS, AND MATERIALS SCIENCE ABSTRACTS - ANNOTATED BIBLIOGRAPHY ESD-TDR-65-318 N66-16745

SPACE ENVIRONMENT VACUUM AND RADIATION EFFECTS ON MICROELECTRONICS AND MATERIALS - ANNOTATED BIBLIOGRAPHY T5-1599/1111 N66-17299

MATHEMATICAL STATISTICS

BIBLIOGRAPHY AND ABSTRACTS ON ORBIT DETERMINATION, PROGRAMS AND SATELLITE SYSTEMS, TRACKING STATIONS, SPACE DYNAMICS, PARAMETER OF ORBITS, AND MATHEMATICS OF ORBITS RSIC-415 N65-33449

MEASURING APPARATUS

ANNOTATED BIBLIOGRAPHY OF DEVELOPMENTS IN METEOROLOGICAL SENSORS AND MEASURING TECHNIQUES AO-61396 N65-30007

BIBLIOGRAPHY ON INSTRUMENTS AND MEASURING TECHNIQUES IN NUCLEAR PHYSICS AEO-C-06-10 N65-30598

MECHANICAL PROPERTY

FILAMENT WOUND STRUCTURES, REVIEW OF RECENT INVESTIGATIONS A65-32657

MEMORY

INFORMATION THEORY, MEMORY, LEARNING, AND RETRIEVAL - ANNOTATED BIBLIOGRAPHY UMRR0-TR-65-13 N66-20858

MERCURY /PLANET/

BIBLIOGRAPHY ON PLANET MERCURY R90S020 N66-10436

MESOSPHERE

ABSTRACTED REPORTS FROM CONFERENCE ON STRATOSPHERE AND MESCSPHERE METEOLOGY N66-17738

METABOLISM

BIBLIOGRAPHY ON EFFECTS OF RADIONUCLIDES ON METABOLISM OF WILDLIFE SPECIES OF PLANTS AND ANIMALS TIO-3910, SUPPL. 3 N65-23596

METAL

SURVEY OF FORMATION CHARACTERISTICS OF METALS AND PROCESS OPERATIONS - ANNOTATED BIBLIOGRAPHY N65-16024


SELECTIVE BIBLIOGRAPHY OF RADIATION EFFECTS ON NOBLE METALS WITH EMPHASIS ON COPPER, GOLD, PLATINUM, AND SILVER - 1958-1963 UCRL-7810 N65-32339

BIBLIOGRAPHY RADIOACTIVE TRACER DIFFUSION IN METALS - IMPURITY DIFFUSION CNL-3795, PT. II N66-13244

ANNOTATED BIBLIOGRAPHY OF SOVIET AND SOVIET-BLOC ARTICLES ON HIGH PURITY METALS ATO-P-65-109 N66-14700

MERCURY /PLANET/

BIBLIOGRAPHY ON PLANET MERCURY R645020 N66-10436

MESOSPHERE

ABSTRACTED REPORTS FROM CONFERENCE ON STRATOSPHERE AND MESCSPHERE METEOLOGY N66-17738

MATERIAL TESTING

BIBLIOGRAPHY ON GENERAL MACHINE CONSTRUCTION AND MATERIAL TESTING N65-21199

BIBLIOGRAPHY ON THEORY AND TESTS FOR LOW CYCLE STRAIN FATIGUE OF FUEL CLADDING MATERIALS PUBL.-147 N65-24714

MATERIALS SCIENCE

MATERIALS FOR HIGH-TEMPERATURE ENERGY CONVERTER - ANNOTATED BIBLIOGRAPHY OF SOVIET LITERATURE ATO-65-112 N66-15195

SOLID STATE PHYSICS, ELECTRONICS, METALLURGY, OPTICS, AND MATERIALS SCIENCE - ANNOTATED BIBLIOGRAPHY AD-63906 N66-15802

ANNOTATED ABSTRACTS OF MATERIALS SCIENCE TECHNICAL
SUBJECT INDEX

TRANSITION METALS - ANNOTATED BIBLIOGRAPHY JPRS-28358 N65-19501

SOLID STATE PHYSICS, ELECTRONICS, METALLURGY, OPTICS, AND MATERIALS SCIENCE - ANNOTATED BIBLIOGRAPHY AD-623906 N66-19802

ANNOTATED BIBLIOGRAPHY AND ABSTRACTS ON DIESEL ENGINES, DIFFUSION WELDING, ULTRASONICS, STEAM PLANTS, GAS DYNAMICS, LUBRICANTS, METALLURGY, THERMODYNAMICS, AND STRUCTURAL DYNAMICS N66-16444

METEORITE BIBLIOGRAPHY AND ABSTRACTS ON EXISTENCE AND DETECTION OF LIFE OUTSIDE EARTH BIOSPHERE, ORIGIN OF LIFE, METEORIC LIFE STUDIES, AND CONTAMINATION PROBLEMS - EXOBIOLOGY STL-9990-6737-KU-000 N65-19834

METEORIC COMPOSITION METEORIC COMPOSITION AND STRUCTURE OF CRATERS - ABSTRACTS AID-U-64-51 N66-20167

METEOROID SELECTED BIBLIOGRAPHY ON METEOROID ENVIRONMENT STL-9990-7156-KU-000 N65-14539

METEOROID HAZARD ANNOTATED BIBLIOGRAPHY ON PHYSICS OF HYPERSONIC IMPACT AND METEOROID HAZARD NASA-TM-X-56505 N65-25011

METEOROLOGICAL ROCKET BIBLIOGRAPHY ON METEOROLOGICAL ROCKET AND SATELLITE INVESTIGATIONS OF UPPER ATMOSPHERE AND OUTER SPACE JPRS-30925 N65-27664

METEOROLOGICAL SATELLITE BIBLIOGRAPHY ON METEOROLOGICAL ROCKET AND SATELLITE INVESTIGATIONS OF UPPER ATMOSPHERE AND OUTER SPACE JPRS-30925 N65-27664

METEOROLOGICAL STATION U.S.S.R. 300-METER METEOROLOGICAL TOWER - FACILITY, PERSONNEL PROGRAM, AND ABSTRACTS OF LOWER ATMOSPHERIC RESEARCH AID-U-64-6 N66-13757

METEOROLOGY BIBLIOGRAPHY ON CLIMATOLOGY AND METEOROLOGY N65-21201

BIBLIOGRAPHY OF RUSSIAN LITERATURE ON METEOROLOGY AND HYDROLOGY FOR 1964 N65-20101

ANNOTATED BIBLIOGRAPHY OF DEVELOPMENTS IN METEOROLOGICAL SENSORS AND MEASURING TECHNIQUES AD-616396 N65-34194

ABSTRACTS AND ANNOTATED BIBLIOGRAPHY OF RADIO ASTRONOMY, METEOROLOGY, SATELLITES, WEATHER FORECASTING, AIR CONTAMINATION, STORM DETECTION, LIGHTNING, AND HURRICANE SEEDING N66-16444

MICROELECTRONICS SPACE ENVIRONMENT VACUUM AND RADIATION EFFECTS ON MICROELECTRONICS AND MATERIALS - ANNOTATED BIBLIOGRAPHY TS-1559/3111 N66-17299

ABSTRACTS AND BIBLIOGRAPHY ON TELECOMMUNICATIONS, RADAR, ELECTROMAGNETIC RADIATION, INFORMATION PROCESSING, COMPUTERS, MICROELECTRONICS, AND OSCILLATORS AND MAGNIFIERS N66-19939

ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION PROCESSING, TELECOMMUNICATIONS, ELECTRONICS, QUALITY CONTROL AND RELIABILITY OF ELECTRONIC PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS N66-20740

MICROMETEOROLOGY ANNOTATED BIBLIOGRAPHY ON MICROMETEOROLOGY - STAGNANT WEATHER CONDITIONS, BOUNDARY LAYER TURBULENCE, AEROSOLS, AND AIR POLLUTION ATO-P-65-10 N65-22778

MICROWAVE CONTROLLED STEERING OF MICROWAVE ACOUSTIC BEAM IN FERRITE USING YIG MOD, AND ABSTRACTS ON MICROWAVE PROPERTIES OF FERRITES AFCLR-65-665 N66-19472

BIBLIOGRAPHY AND ABSTRACTS SUMMARY ON MICROWAVE, ELECTROMAGNETIC THEORY, AND INFORMATION PROCESS STUDIES PIMRI-1278-65 N66-20005

MICROWAVE APPARATUS PHYSICS OF FERRIMAGNETIC MATERIALS, GARNETS, SPINEL FERRITES, AND HEXAGONAL FERRITES FOR MICROVAVE APPARATUS - BIBLIOGRAPHIES M-78-64-224 N66-20070

MICROWAVE RADIATION ANNOTATED BIBLIOGRAPHY ON BIOLOGICAL EFFECTS OF MICROWAVES ATO-P-65-68 N66-34204

MICROWAVE SPECTRUM MICROWAVE SPECTROSCOPY, VIBRATIONAL SPECTROSCOPY, MOLECULAR STRUCTURE, QUADRUPOLE COUPLING, STARK EFFECT, AND ZEEMAN EFFECT - BIBLIOGRAPHY RD-TM-65-14 N66-18653

MILITARY PSYCHIATRY ABSTRACTS DEALING WITH RADIATION EXPOSURE, PSYCHOLOGY AND PSYCHIATRY, PHARMACOLOGY AND TOXICOLOGY, AND OTHER ASPECTS OF MILITARY MEDICINE - BIBLIOGRAPHY N66-15746

MILITARY TECHNOLOGY COMPILATION OF ABSTRACTS ON MILITARY CONSTRUCTION N66-15869

BIBLIOGRAPHY RELATED TO MILITARY IMPLICATIONS STUDY OF INTERNAL CALENE WAVES REPT.-403006 N66-20643

MISSILE TRACKING ABSTRACTS OF SOVIET PAPERS ON MISSILE AND SPACE VEHICLE TRACKING ATO-P-65-51 N66-34194

MIXED FLOW ABSTRACTS ON MIXED FLOW CONCENTRIC HIGH VELOCITY AIR STREAMS ATO-P-65-41 N65-30530

MIXING OF CONCENTRIC HIGH VELOCITY AIR STREAMS - JET MIXING AERODYNAMIC CHARACTERISTICS - ABSTRACTS AID-U-64-24 N66-14181

MODULATOR ABSTRACTS OF REFERENCES ON LOW AND VERY LOW LEVEL DIRECT CURRENT AMPLIFIERS AND MODULATORS N66-19164

MOIRE METHOD ABSTRACTS AND BIBLIOGRAPHY ON AIRPORT, ROAD, AND BUILDING CONSTRUCTION, ON PHOTOGRAMMETRY, ON CHEMICAL-BIOLOGICAL-RADIOLOGICAL WARFARE, AND ON APPLICATION OF MOIRE METHOD N66-19926

MOLECULAR STRUCTURE MICROWAVE SPECTROSCOPY, VIBRATIONAL SPECTROSCOPY, MOLECULAR STRUCTURE, QUADRUPOLE COUPLING, STARK EFFECT, AND ZEEMAN EFFECT - BIBLIOGRAPHY RD-TM-65-14 N66-18653

MOSSBAUER EFFECT MOSSBAUER EFFECT CATA INDEX - EXPERIMENTAL CATA ON NUCLEAR TRANSITION, SOURCE MATERIAL, AND ABSORBENT MATERIAL - BIBLIOGRAPHY SRC-65-2 N65-36424

EFFECT OF OLIGONUCLEOTIDES ON ACTIVITY OF TUMOR DNA POLYMERASE. MOSSBAUER EFFECT IN RARE GASES AND INCLUSION COMPOUNDS, AND
MOTOR SYSTEM / BIOL /

SILVER HALIDES LUMINESCENCE AND PHOTOCONDUCTIVITY IS5-65/29 N66-19804

MOTOR SYSTEM / BIOL /
SELECTED LIST OF REFERENCES ON MOTOR SKILLS A66-80410

MULTIPLEX TRANSMISSION
ANNOTATED BIBLIOGRAPHY ON MODULATION AND CHANNELS WITH REGARD TO SPACE APPLICATIONS - DIGITAL, SAMPLING, WIDEBAND, MULTIPLEX, AND PULSE CODE MODULATION NASA-SP-7022/01, VOL. 1 N65-27821

NAVIGATION AID
METEOROLOGY, HYDROLOGY, WEATHER FORECASTING, AND HYDROMETEOROLOGY - STRATOSPHERICAL CYCLONES AND ANTICYCLONES, WEATHER NAVIGATION AID FOR SHIPS, PRECIPITATION, AND BIBLIOGRAPHY JPRS-29481 N65-23439

NAVIGATION AND GUIDANCE
LITERATURE SURVEY OF RESEARCH IN OCEANOGRAPHY AND NAVIGATION - ANNOTATED BIBLIOGRAPHY N66-15747

GEODETIC AND TRANSIT SATELLITE NAVIGATION, TRAJECTORY STABILITY AND CONTROL, TELEMETRY, VISUAL OBSERVATION AND TRACKING EQUIPMENT - BIBLIOGRAPHY AND ABSTRACTS TOCK-43209 N66-19181

NAVIGATION SYSTEM
BIBLIOGRAPHY ON FLIGHT NAVIGATION SYSTEMS, FLIGHT SAFETY, AIRCRAFT REFUELING, AND AERODYNAMICS N65-21184

INTERNATIONAL SATELLITE BIBLIOGRAPHY INCLUDING ORBITAL THEORY, LUNAR-SATELLITE MOTION, ARTIFICIAL ASTEROIDS, GEOMAGNETIC FIELD, GEODESY, NAVIGATION, ETC. NASA-CR-70631 N66-18316

COMPILED ABSTRACTS ON SHIPBUILDING AND NAVIGATION TECHNOLOGY N66-15672

NEPTUNIUM
ANNOTATED BIBLIOGRAPHY ON NEPTUNIUM LITERATURE FOR PERIOD COVERING 1957-1964 - CHEMISTRY, PHYSICS, METALLURGY AND NUCLEAR PROPERTIES OF NEPTUNIUM AERE-K-4792 N65-25185

NERVOSYSM
BIBLIOGRAPHY OF GLIA CELL STUDIES NASA-CR-70631 N66-18316

NEURISTOR
PROBLEMS IN CONSTRUCTING SOLID STATE NEURISTORS FOR LOGIC SYSTEMS - ANNOTATED BIBLIOGRAPHY AD-610095 N65-20308

NEUROLOGY
BIBLIOGRAPHY OF GLIA CELL STUDIES NASA-CR-70631 N66-18316

NEUTRON
ANNOTATED BIBLIOGRAPHY OF REPORTS, PUBLISHED LITERATURE AND PATENTS CONCERNING TECHNOLOGY OF PULSED NEUTRON REACTOR FACILITIES TID-3571/SUPPL. 1/ N66-13927

NEUTRON CROSS SECTION
BIBLIOGRAPHY OF RECENT DEVELOPMENTS AND DATA ON NUCLEAR CROSS SECTIONS WASR-1056 N65-27022

C INDA - BIBLIOGRAPHY ON MICROSCOPIC NEUTRON CROSS SECTION DATA, LISTED BY TARGET NUCLEI AND CROSS SECTION PARAMETER UNC-5090 N65-30444

NEUTRON CROSS SECTIONS EVALUATION FOR CHEMICAL ELEMENTS, COMPOUNDS, AND ISOTOPES - BIBLIOGRAPHY ANRE-O-13/65 N65-36351

BIBLIOGRAPHY AND DATA SURVEY OF NEUTRON CROSS SECTIONS REPORTED FOR Z GREATER THAN OR EQUAL TO 93 N65-17913

NEUTRON PHYSICS
ANNOTATED BIBLIOGRAPHY ON NEUTRON PHYSICS - REACTOR PHYSICS, RADIATION SHIELDING, COMPUTER PROGRAMS, AND RADIATION DETECTION CRNL-3858, VOL. I N66-12297

NEUTRON SCATTERING
POLARIZATION AND ELASTIC SCATTERING OF PROTONS AND NEUTRONS FROM NUCLEIDES - BIBLIOGRAPHY LA-3281-P N65-26247

NIMBUS SATELLITE
LITERATURE SURVEY OF SELECTED ARTICLES DEALING WITH TIROS AND NIMBUS SATELLITE OBSERVATIONS - ANNOTATED BIBLIOGRAPHY TOCK-42600 N66-15514

NIOBIUM
ANNOTATED BIBLIOGRAPHY ON PROTECTIVE COATINGS FOR HIGH TEMPERATURE NIOBIUM APPLICATIONS PDL-50205 N66-12789

NOCTILUCENT CLOUD
BIBLIOGRAPHY ON NOCTILUCENT, NACREDUS, AND CIRRIFORM CLOUDS, AND CONDENSATION TRAILS ERDA-181 N65-25423

NOISE
WORK CAPACITY, PHYSICAL REACTIONS OF MAN, AND NOISE NORMALIZATION IN LIFE SUPPORT SYSTEMS DURING SPACE FLIGHTS, AND CHLOREREA CULTURES AS LINK IN ECOSSYTEM - ABSTRACTS NASA-TT-F-9536 N66-32876

NONDESTRUCTIVE TESTING
ANNOTATED BIBLIOGRAPHIES ON LIQUID PENETRANTS - NONDESTRUCTIVE TESTING INFORMATION AMRA-MS-65-12 N65-22299

ANNOTATED BIBLIOGRAPHY OF THERMAL TESTING LITERATURE AMRA-MS-64-14 N65-22230

NONDESTRUCTIVE TESTING INVOLVING ELECTROMAGNETIC TEST METHODS - BIBLIOGRAPHY AMRA-MS-65-03 N65-28197

ANNOTATED BIBLIOGRAPHY OF MAGNETIC PARTICLE TESTING LITERATURE AMRA-MS-65-04 N65-32692

BIBLIOGRAPHY OF NONDESTRUCTIVE TESTING THEORY AND APPLICATION FOR COMPOSITE MATERIAL NASA-CR-66004 N66-13338

PROGRAM AND LECTURE ABSTRACTS OF CONFERENCE ON PHYSICS AND NONDESTRUCTIVE TESTING AD-624582 N66-16734

NONLINEAR SYSTEM
EFFECTS OF SYSTEM NONLINEARITIES ON HUMAN OPERATOR TRACKING PERFORMANCE - LITERATURE SURVEY AND BIBLIOGRAPHY AMRL-TR-65-158 N66-18582

NUCLEAR ENERGY
BIBLIOGRAPHIES ON DIRECT CONVERSION OF NUCLEAR ENERGY INTO ELECTRIC ENERGY AEC-C-15-05 N65-26430

DIRECT CONVERSION OF NUCLEAR ENERGY TO ELECTRIC ENERGY - BIBLIOGRAPHY AEC-C-15-06 N65-26215

NUCLEAR FUEL
BIBLIOGRAPHY ON NUCLEAR VESSEL REACTORS, FUEL, PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT REQUIREMENTS, PERFORMANCE, AND CONTROL AEC-C-22-03 N65-19525

NUCLEAR INTERACTION
NUCLEAR INTERACTIONS OF HELIUM 3 - BIBLIOGRAPHY LA-3205-M N65-20837

NUCLEAR MAGNETIC RESONANCE
NUCLEAR MAGNETIC RESONANCE - CHRONOLOGICAL BIBLIOGRAPHY
<table>
<thead>
<tr>
<th>SUBJECT INDEX</th>
<th>PARACHUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFOSR-65-0579</td>
<td>N65-28838</td>
</tr>
<tr>
<td>NUCLEAR PARACHUTE</td>
<td></td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY OF APPLICATION OF METHODS COMMON TO ELEMENTARY PARTICLE PHYSICS AND MANY-BODY PROBLEMS</td>
<td>REPT-1</td>
</tr>
<tr>
<td>NUCLEAR PHYSICS</td>
<td></td>
</tr>
<tr>
<td>NUCLEAR REACTOR PHYSICS, TECHNOLOGY, AND INSTRUMENTATION, AND RADIOACTIVE ISOTOPE AND WASTE DISPOSAL – BIBLIOGRAPHY</td>
<td>N65-21198</td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON INSTRUMENTS AND MEASURING TECHNIQUES IN NUCLEAR PHYSICS</td>
<td>AED-C-06-10</td>
</tr>
<tr>
<td>NUCLEAR POWER</td>
<td></td>
</tr>
<tr>
<td>NUCLEAR POWER APPLICATIONS FOR SPACE MISSIONS – BIBLIOGRAPHY</td>
<td>STL-9990-6998-KU-000</td>
</tr>
<tr>
<td>NUCLEAR PROPULSION</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON NUCLEAR VESSEL REACTORS, FUEL, PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT REQUIREMENTS, PERFORMANCE, AND CONTROL</td>
<td>AEC-C-22-03</td>
</tr>
<tr>
<td>NUCLEAR RADIATION</td>
<td></td>
</tr>
<tr>
<td>RADIOISOTOPE HEAT SOURCE – ANNOTATED BIBLIOGRAPHY ON NUCLEAR CHARACTERISTICS OF RADIOACTIVE ISOTOPES</td>
<td>NASA-CR-68182</td>
</tr>
<tr>
<td>NUCLEAR RESEARCH</td>
<td></td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY OF SOVIET SCIENTIFIC AND TECHNICAL LITERATURE ON NUCLEAR SAFETY</td>
<td>AID-8-65-76</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON NUCLEAR AND REACTOR TECHNOLOGY</td>
<td>N66-16406</td>
</tr>
<tr>
<td>NUCLEAR SHIP</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON NUCLEAR VESSEL REACTORS, FUEL, PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT REQUIREMENTS, PERFORMANCE, AND CONTROL</td>
<td>AEC-C-22-03</td>
</tr>
<tr>
<td>NUCLEAR SUBMARINE</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON NUCLEAR VESSEL REACTORS, FUEL, PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT REQUIREMENTS, PERFORMANCE, AND CONTROL</td>
<td>AEC-C-22-03</td>
</tr>
<tr>
<td>NUCLEOTIDE</td>
<td></td>
</tr>
<tr>
<td>EFFECT OF OLIGONUCLEOTIDES ON ACTIVITY OF TUMOR DEOXYRIBONUCLEIC ACID POLYMERASE, MOSSBAUER EFFECT IN RARE GASES AND INCLUSION COMPOUNDS, AND SILVER HALIDES LUMINESCENCE AND PHOTOCOUDUCTIVITY</td>
<td>ISS-65/29</td>
</tr>
<tr>
<td>OCEAN</td>
<td></td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON LAND AND SEA BREEZE – WIND CIRCULATION</td>
<td>N65-31374</td>
</tr>
<tr>
<td>OCEANOGRAPHY</td>
<td></td>
</tr>
<tr>
<td>LITERATURE SURVEY OF RESEARCH IN OCEANOGRAPHY AND NAVIGATION – ANNOTATED BIBLIOGRAPHY</td>
<td>N66-15747</td>
</tr>
<tr>
<td>PHYSICAL OCEANOGRAPHY OF INDIAN OCEAN – BIBLIOGRAPHY</td>
<td>AD-62466</td>
</tr>
<tr>
<td>BIBLIOGRAPHY RELATED TO MILITARY IMPLICATIONS OF STUDY OF INTERNAL OCEAN WAVES</td>
<td>REPT.-403065</td>
</tr>
<tr>
<td>OPACITY</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON OPACITY CALCULATION</td>
<td>LANS-3002, SUPPL. I</td>
</tr>
<tr>
<td>OPERATIONS RESEARCH</td>
<td></td>
</tr>
<tr>
<td>OPERATIONS RESEARCH BIBLIOGRAPHY – GAME THEORY, COMPUTER PROGRAMMING, MANAGEMENT PLANNING, AND QUALITY CONTROL</td>
<td>TDC-40683</td>
</tr>
<tr>
<td>OPTICAL PROPERTY</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY OF INFRARED REFLECTION, REFRACTION, AND ABSORPTION PROPERTIES OF LIQUID WATER</td>
<td>N66-13765</td>
</tr>
<tr>
<td>OPTICS</td>
<td></td>
</tr>
<tr>
<td>SOLID STATE PHYSICS, ELECTRONICS, METALLURGY, OPTICS, AND MATERIALS SCIENCE – ANNOTATED BIBLIOGRAPHY</td>
<td>AD-623906</td>
</tr>
<tr>
<td>OPTIMAL CONTROL</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY OF OPTIMUM CONTROL THEORY, 1962</td>
<td>AID-65-23397</td>
</tr>
<tr>
<td>ORBIT CALCULATION</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY AND ABSTRACTS ON ORBIT DETERMINATION, PROGRAMS AND SATELLITE SYSTEMS, TRACKING STATIONS, SPACE DYNAMICS, PARAMETER OF ORBITS, AND MATHEMATICS OF ORBITS</td>
<td>RSIC-415</td>
</tr>
<tr>
<td>ORGANIC CHEMISTRY</td>
<td></td>
</tr>
<tr>
<td>POLYMER COMPOUNDS OF BORON – LITERATURE REVIEW</td>
<td>JPRS-28683</td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON STRUCTURE OF ORGANIC CRYSTALS</td>
<td>N66-16485</td>
</tr>
<tr>
<td>ORGANISM</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON RADIATION EFFECTS ON LIVING TISSUES AND ORGANISMS</td>
<td>AEC-C-04-16</td>
</tr>
<tr>
<td>ORGAN SYSTEMS AND BIOGENESIS – ABSTRACTS</td>
<td>NASA-FT-6963</td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON RADIATION EFFECTS ON LIVING TISSUE AND ORGANISMS</td>
<td>AEC-C-04-18</td>
</tr>
<tr>
<td>ORGANOMETALLIC COMPOUND</td>
<td></td>
</tr>
<tr>
<td>SOLID STATE PHYSICS, POLYMER CHEMISTRY, ORGANIC AND ORGANOMETALLIC COMPOUNDS, SEMICONDUCTORS, INTERMETALLICS, PLASTICS, AND NUCLEAR MAGNETIC RESONANCE – ANNOTATED BIBLIOGRAPHY</td>
<td>N66-15498</td>
</tr>
<tr>
<td>OSCILLATION</td>
<td></td>
</tr>
<tr>
<td>PLASMA PHYSICS BIBLIOGRAPHY WITH ABSTRACTS ON STABILITY AND OSCILLATIONS, SHOCK WAVES, ELECTROMAGNETIC FIELDS, AND OTHER AREAS</td>
<td>AID-P-65-82</td>
</tr>
<tr>
<td>OSCILLATOR</td>
<td></td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON RESEARCH OF F-VALUES – OSCILLATOR STRENGTHS OF SPECTRAL LINES</td>
<td>AID-65-86</td>
</tr>
<tr>
<td>OXIDATION RESISTANCE</td>
<td></td>
</tr>
<tr>
<td>HEAT AND OXIDATION RESISTANT REINFORCED PLASTICS AND LAMINATES FOR HIGH TEMPERATURE ENVIRONMENT – ANNOTATED BIBLIOGRAPHY</td>
<td>POC-64-009</td>
</tr>
<tr>
<td>OZONE</td>
<td></td>
</tr>
<tr>
<td>ATMOSPHERIC OZONE – CONCENTRATION, DISTRIBUTION, DETECTION, AND RELATIONSHIP WITH METEOROLOGICAL PHENOMENA – BIBLIOGRAPHY</td>
<td>LA-3328-P5</td>
</tr>
<tr>
<td>PACKING</td>
<td></td>
</tr>
<tr>
<td>ABSTRACTS ON TRANSPORTATION OF GOODS, WAREHOUSE STORAGE, LOADING AND UNLOADING METHODS, PACKING, AND SAFETY</td>
<td>N66-15837</td>
</tr>
<tr>
<td>PANEL</td>
<td></td>
</tr>
<tr>
<td>COMPILATION OF ABSTRACTS ON MODEL DESCRIPTIONS, PROPULSION, INDUSTRIAL MATERIALS, PANEL SYSTEMS AND INSTRUMENTS, NAVIGATION AND AIR TRAFFIC CONTROL, SAFETY, AND AERODYNAMICS</td>
<td>N66-15737</td>
</tr>
<tr>
<td>PARACHUTE</td>
<td></td>
</tr>
<tr>
<td>ABSTRACTS ON PARACHUTE TECHNOLOGY – AERODYNAMICS, MATERIALS, TRAINING, AND RECOVERY</td>
<td>AD-427014</td>
</tr>
</tbody>
</table>
PSYCHOLOGICAL FACTOR

PROPULSION

N66-16157

COMPILED CONTENTS ON MODEL DESCRIPTION, SYSTEMS, PANEL SYSTEMS, AND INSTRUMENTS, NAVIGATION AND AIR TRAFFIC CONTROL, SAFETY, AND AERODYNAMICS

N66-15737

PROPULSION SYSTEM ABSTRACTS AND BIBLIOGRAPHY ON SHIP TYPES, PROPULSION SYSTEMS, HYDRODYNAMIC DESIGN, STRENGTH COMPUTATIONS, AND VENTILATION, AS WELL AS DUCES, NAVIGATION, AND RESCUE TECHNIQUES

N66-19934

PROTECTIVE COATING

ANNOTATED BIBLIOGRAPHY ON PROTECTIVE COATINGS FOR HIGH TEMPERATURE NIOBIUM APPLICATIONS

N66-12789

PSYCHOMOTOR PERFORMANCE

MOTOR SKILLS BIBLIOGRAPHY

SELECTED LIST OF REFERENCES ON MOTOR SKILLS

A66-82344

PULSE CODE MODULATION /PCM/

ANNOTATED BIBLIOGRAPHY ON MODULATION AND CHANNELS WITH REGARD TO SPACE APPLICATIONS - DIGITAL, SAMPLING, WIDEBAND, MULTIPLEX, AND PULSE CODE MODULATION

N66-28014

PUMP IMPELLER

CENTRIFUGAL PUMP AND COMPRESSOR IMPELLERS, GAS AND STEAM TURBINE ROTORS, AND ROTATING DISKS - ANNOTATED BIBLIOGRAPHY

N66-36379

PURITY

ANNOTATED BIBLIOGRAPHY OF SOVIET AND SOVIET-BLOC ARTICLES ON HIGH PURITY METALS

N66-14700

PYROLYSIS

PYROLYSIS OF POLYMERS AND CARBOHYDRATES - BIBLIOGRAPHY

N66-36214

QUALITY CONTROL

IMPROVEMENTS ON ANALYTICAL METHODS, ELECTROANA LYTICAL STUDIES, EQUIPMENT, SERVICES, QUALITY CONTROL - ABSTRACTS OF PUBLICATIONS

N65-26632

OPERATIONS RESEARCH BIBLIOGRAPHY - GAME THEORY, COMPUTER PROGRAMMING, MANAGEMENT PLANNING, AND QUALITY CONTROL

N65-26632

R

RADER

ABSTRACTS OF U.S.S.R. RADAR ELECTRONICS - RADER, RECEIVERS, INTERCEPTION DEVICES, ANTENNAS DATA TRANSMISSION SYSTEMS, NOISE, TELEMETRY, AND RANGE AND ERECTION FINDERS

N66-15751

ABSTRACTS AND BIBLIOGRAPHY ON TELECOMMUNICATIONS, RADER, ELECTROMAGNETIC RADIATION, INFORMATION PROCESSING, COMPUTERS, MICROELECTRONICS, AND OSCILLATORS AND MAGNIFIERS

N66-19939

RADER REFLECTOR

BIBLIOGRAPHY OF ARTICLES ON RADER REFLECTIVITY AND RELATED SUBJECTS, 1957-1964

A66-21614

RADIATION

ABSTRACTS ON METEOROLOGY - ATMOSPHERICS, DYNAMICS, INSTABILITIES, SPECTRAL ANALYSIS, HEAT BALANCE, ICE FORMATION, IONIZATION, WINDS, RADIATION, AND CIRCULATION

N66-28041

RADIATION ABSORPTION

ANNOTATED BIBLIOGRAPHY ON EFFECTS OF RADIATION ABSORPTION ON ANIMALS, FLIGHT MEDICINE, PSYCHOLOGY, PSYCHIATRY, PHYSIOLOGY, AND HUMAN PATHOLOGY

N65-21202

RADIATION BELT

BIBLIOGRAPHY ON SOLAR WIND EFFECT, RADIATION AND ARTIFICIAL RADIATION BELTS, AURORA, SOLAR ENERGY PARTICLES, GALACTIC COSMIC RAYS, GEOMAGNETISM, AND NEUTRONS

N65-21659

ANNUAL BIBLIOGRAPHY ON IONOSPHERE AND ELECTROMAGNETIC WAVE PROPAGATION, COSMIC RADIATION AND RADIATION BELTS, TELLURIC CURRENT, GEOMAGNETISM, WHISTLERS, AND AURORAS

A65-85-81

RADIATION EFFECT

SHORT-WAVE AND PARTICLE RADIATION EFFECT ON GLASSES - ANNOTATED BIBLIOGRAPHY

N65-15819

BIBLIOGRAPHY ON RADIATION EFFECTS ON LIVING TISSUES AND ORGANISMS

AED-C-04-16

BIBLIOGRAPHY ON EFFECTS OF RADIATION ON METABOLISM OF WILD SPECIES OF PLANTS AND ANIMALS

AED-C-3910, SUPPL. 3

SELECTIVE BIBLIOGRAPHY OF RADIATION EFFECTS ON NOBLE METALS WITH EMPHASIS ON COPPER, GOLD, PLATINUM, AND SILVER - 1958-1963

N65-23596

SELECTIVE BIBLIOGRAPHY OF RADIATION EFFECTS ON NOBLE METALS WITH EMPHASIS ON COPPER, GOLD, PLATINUM, AND SILVER - 1958-1963

N65-32339

SPACE ENVIRONMENT VACUUM AND RADIATION EFFECTS

N66-15402

ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION PROCESSING, TELECOMMUNICATIONS, ELECTRONICS, QUALITY CONTROL AND RELIABILITY OF ELECTRONIC PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS

N66-21614

QUANTUM GENERATOR

ANNOTATED BIBLIOGRAPHY ON COMPOUND SEMICONDUCTORS

N65-15819

QUANTUM THEORY

BIBLIOGRAPHY ON QUANTUM THEORY OF MANY-PARTICLE SYSTEMS

N65-21659

ABSTRACTS ON QUANTUM THEORY, RELATIVISTIC MECHANICS, AND PARTICLE MOTION

A65-35048

R

RADIUS
<table>
<thead>
<tr>
<th>SUBJECT INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON MICROELECTRONICS AND MATERIALS - ANNOTATED BIBLIOGRAPHY</td>
</tr>
<tr>
<td>TID-1559/3111</td>
</tr>
<tr>
<td>BIOLOGICAL EFFECTS OF RADIATION - ANNOTATED BIBLIOGRAPHY</td>
</tr>
<tr>
<td>NYO-910-23</td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON RADIATION EFFECTS ON LIVING TISSUE AND ORGANISMS</td>
</tr>
<tr>
<td>AED-C-04-18</td>
</tr>
<tr>
<td>RADIATION EXPOSURE</td>
</tr>
<tr>
<td>ABSTRACTS DEALING WITH RADIATION EXPOSURE, PSYCHOLOGY AND PSYCHIATRY, PHARMACOLOGY AND TOXICOLOGY, AND OTHER ASPECTS OF MILITARY MEDICINE - BIBLIOGRAPHY</td>
</tr>
<tr>
<td>N66-15746</td>
</tr>
<tr>
<td>RADIATION HAZARD</td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON BIOLOGICAL EFFECTS AND HAZARDS OF LASER RADIATION</td>
</tr>
<tr>
<td>TID-1245/3111</td>
</tr>
<tr>
<td>RADIATION PROTECTION</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON USE OF RADIOISOTOPES IN MEDICAL DIAGNOSIS, THERAPY, AND RESEARCH</td>
</tr>
<tr>
<td>TID-3077, SUPPL. 1</td>
</tr>
<tr>
<td>RADIATION SHIELDING</td>
</tr>
<tr>
<td>BIBLIOGRAPHY, SUBJECT AND AUTHOR INDEX OF RADIATION SHIELDING INFORMATION</td>
</tr>
<tr>
<td>ORNL-R515-5</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON NEUTRON PHYSICS - REACTOR PHYSICS, RADIATION SHIELDING, COMPUTER PROGRAMS, AND RADIATION DETECTION</td>
</tr>
<tr>
<td>ORNL-385B, VOL. 1</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON CHARGED PARTICLE MOTION IN MAGNETIC FIELDS AND ON SPACE RADIATION MAGNETIC SHIELDING</td>
</tr>
<tr>
<td>NASA-CR-68657</td>
</tr>
<tr>
<td>RADIATION THERAPY</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON USE OF RADIOISOTOPES IN MEDICAL DIAGNOSIS, THERAPY, AND RESEARCH</td>
</tr>
<tr>
<td>TID-3077, SUPPL. 1</td>
</tr>
<tr>
<td>RADIOASTRONOMY</td>
</tr>
<tr>
<td>ABSTRACTS ON TRACKING OF MISSILES AND SPACE VEHICLES FROM SOVIET OPEN LITERATURE - ION CLOUDS AND IONOSPHERE PERTURBATIONS, REFLECTION OF ELECTROMAGNETIC WAVES, AND RADIO ASTRONOMY</td>
</tr>
<tr>
<td>AED-P-65-40</td>
</tr>
<tr>
<td>ABSTRACTS OF SOVIET-BLOC LITERATURE DEALING WITH RADIOASTRONOMY, ION CLOUDS, AND IONOSPHERIC PERTURBATIONS</td>
</tr>
<tr>
<td>AED-P-65-51</td>
</tr>
<tr>
<td>SELECTED BIBLIOGRAPHY ON RADIO ASTRONOMY</td>
</tr>
<tr>
<td>RB-125</td>
</tr>
<tr>
<td>ABSTRACTS AND ANNOTATED BIBLIOGRAPHY OF RADIO ASTRONOMY, METEOROLOGY, SATELLITES, WEATHER FORECASTING, AIR CONTAMINATION, STORM DETECTION, LIGHTNING, AND HURRICANE SEEDING</td>
</tr>
<tr>
<td>N66-16443</td>
</tr>
<tr>
<td>RADIOCOMMUNICATION</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON RADIO COMMUNICATIONS EQUIPMENT AND COMMUNICATIONS FACILITIES AND LOCATIONS IN U.S.S.R.</td>
</tr>
<tr>
<td>AED-P-65-71</td>
</tr>
<tr>
<td>RADIO ELECTRONICS</td>
</tr>
<tr>
<td>ABSTRACTS OF U.S.S.R. RADIO ELECTRONICS - RADAR, RECEIVERS, INTERCEPTION DEVICES, ANTENNAS DATA TRANSMISSION SYSTEMS, NOISE, TELEMETRY, AND RANGE AND DIRECTION FINDERS</td>
</tr>
<tr>
<td>AID-6-U-64-15</td>
</tr>
<tr>
<td>RADIO EQUIPMENT</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON RADIO COMMUNICATIONS</td>
</tr>
<tr>
<td>RADIOCHEMISTRY</td>
</tr>
<tr>
<td>EQUIPMENT AND COMMUNICATIONS FACILITIES AND LOCATIONS IN U.S.S.R.</td>
</tr>
<tr>
<td>AID-P-65-71</td>
</tr>
<tr>
<td>SEISMICAL, ACOUSTIC, AND RADIO ANTENNA ARRAY TECHNOLOGY - BIBLIOGRAPHY AND ABSTRACTS</td>
</tr>
<tr>
<td>TR-65-114</td>
</tr>
<tr>
<td>RADIO SIGNAL</td>
</tr>
<tr>
<td>CONFERENCE ON SATELLITE TRACKING, TELEMETRY, AND DYNAMICS, SPACE RESEARCH BIBLIOGRAPHY, SATELLITE RADIO SIGNALS FOR STUDYING IONOSPHERE, AND SATELLITE OBSERVATIONS</td>
</tr>
<tr>
<td>N65-24650</td>
</tr>
<tr>
<td>RADIO WAVE</td>
</tr>
<tr>
<td>ATMOSPHERIC REFRACTION, CLIMATE, AND WEATHER EFFECTS ON RADIO-RADIO WAVE PROPAGATION - BIBLIOGRAPHY</td>
</tr>
<tr>
<td>TR-183, VOL. 1</td>
</tr>
<tr>
<td>BIBLIOGRAPHY AND ABSTRACTS ON TROPOSPHERIC PROPAGATION OF RADIO WAVES</td>
</tr>
<tr>
<td>N65-3N-304</td>
</tr>
<tr>
<td>RADIOACTIVE CONTAMINATION</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON PHYSICAL AND CHEMICAL METHODS FOR REMOVAL OF RADIOACTIVE CONTAMINATION</td>
</tr>
<tr>
<td>TID-3535, SUPPL. 1</td>
</tr>
<tr>
<td>RADIOACTIVE DEBRIS</td>
</tr>
<tr>
<td>SELECTED BIBLIOGRAPHY ON TERRESTRIAL AND FRESHWATER RADIOECOLOGY, WASTE DISPOSAL, AND BIOLOGICAL ASPECTS OF RADIOACTIVE FALLOUT</td>
</tr>
<tr>
<td>TID-3910, SUPPL. 3</td>
</tr>
<tr>
<td>RADIOACTIVE ISOTOPE</td>
</tr>
<tr>
<td>NUCLEAR REACTOR PHYSICS, TECHNOLOGY, AND INSTRUMENTATION, AND RADIOACTIVE ISOTOPE AND WASTE DISPOSAL - BIBLIOGRAPHY</td>
</tr>
<tr>
<td>N65-21198</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON TECHNIQUES AND INSTRUMENTS FOR RADIOACTIVE ISOTOPES</td>
</tr>
<tr>
<td>TID-3512, SUPPL. 1</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON USE OF RADIOISOTOPES IN MEDICAL DIAGNOSIS, THERAPY, AND RESEARCH</td>
</tr>
<tr>
<td>TID-3077, SUPPL. 1</td>
</tr>
<tr>
<td>RADIOACTIVE ISOTOPE HEAT SOURCE - ANNOTATED BIBLIOGRAPHY ON NUCLEAR CHARACTERISTICS OF RADIOACTIVE ISOTOPES</td>
</tr>
<tr>
<td>NASA-CR-68182</td>
</tr>
<tr>
<td>RADIOACTIVE MATERIAL</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON DESIGN, EQUIPMENT, AND OPERATION OF LABORATORIES FOR WORK WITH RADIOACTIVE MATERIALS</td>
</tr>
<tr>
<td>TID-3545, REV. 1</td>
</tr>
<tr>
<td>RADIOACTIVE WASTE</td>
</tr>
<tr>
<td>BIBLIOGRAPHY ON NUCLEAR VESSEL REACTORS, FUEL, PROPULSION, WASTE DISPOSAL, OPERATION, COMPONENT REQUIREMENTS, PERFORMANCE, AND CONTROL</td>
</tr>
<tr>
<td>AEC-C-22-03</td>
</tr>
<tr>
<td>NUCLEAR REACTOR PHYSICS, TECHNOLOGY, AND INSTRUMENTATION, AND RADIOACTIVE ISOTOPE AND WASTE DISPOSAL - BIBLIOGRAPHY</td>
</tr>
<tr>
<td>N65-21198</td>
</tr>
<tr>
<td>RADIOACTIVITY</td>
</tr>
<tr>
<td>ABSTRACTS ON SPACE RELATED SCIENCES, PHYSICAL LIFE AND ENGINEERING SCIENCES - RADIOACTIVITY - DISPERSION HARDENING OF ALLOYS - ULTRASONIC TREATMENT - PHYSIOLOGY - PSYCHOLOGY</td>
</tr>
<tr>
<td>NASA-CR-67721</td>
</tr>
<tr>
<td>RADIOBIOLOGY</td>
</tr>
<tr>
<td>SELECTED BIBLIOGRAPHY ON TERRESTRIAL AND FRESHWATER RADIOECOLOGY, WASTE DISPOSAL, AND BIOLOGICAL ASPECTS OF RADIOACTIVE FALLOUT</td>
</tr>
<tr>
<td>TID-3910, SUPPL. 3</td>
</tr>
<tr>
<td>RADIOCHEMISTRY</td>
</tr>
<tr>
<td>RADIOCHEMISTRY OF RAOIOACTIVITY - ISOTOPES, ANALYTICAL AND SEPARATIONS CHEMISTRY, ACTIVATION, BIOLOGICAL ASPECTS, AND BIBLIOGRAPHY</td>
</tr>
<tr>
<td>NAS-55-3008/REV.</td>
</tr>
</tbody>
</table>
Subjects Index

Chemistry of refractory and other materials N66-13522

Bibliography on high temperature physics and chemistry of refractory materials in liquid and solid state N66-19417

Refueling
Bibliography on flight navigation systems, flight safety, aircraft refueling, and aerodynamics N65-21184

Reinforced Material
Filament wound structures, review of recent investigations N65-32657

Reinforced Plastic
Heat and oxidation resistant reinforced plastics and laminates for high temperature environment - annotated bibliography N66-14737

Relativistic Theory
Abstracts on quantum theory, relativistic mechanics, and particle motion AD-619183 N65-35048

Relaxation Time
Electric constants, dipole moments, relaxation times, conduction phenomena, insulating films, breakdown, materials, and applications of cielectrics - annotated bibliography NASA-CR-69880 N66-16184

Relay
Annotated bibliography on aircraft circuit breakers, relays, contactors, generator control boxes, and storage battery switching boxes AD-65-54, N65-32205

Reliability
Survey of computer programming methods adaptable to system analysis for reliability, system effectiveness, maintainability, simulation, and circuit and failure mode analysis - bibliography CEN-1 N66-13752

Abstracts and bibliographic notes information processing, telecommunications, electronics, quality control and reliability of electronic parts, integrated circuits, and microelectronics N66-20740

Remote Control
Annotated bibliography on cybernetics, automation, and telemechanics FTC-MT-63-191 N65-29125

Research Facility
Projects conducted at new materials sciences research facility - annotated bibliography AR-4 N66-24420

Annotated bibliography on design, equipment, and operation of laboratories for work with radioactive materials TD-3545, REV. 1 N66-12484

U.S.S.R. 300-meter meteorological tower - facility, personnel, program, and abstracts of lower atmospheric research ADC-U-64-6 N66-13757

Research Project
Projects conducted at new materials sciences research facility - annotated bibliography AR-4 N65-24420

Bibliography on current aerodynamic research AEC-CP-650 N65-26432

Space science program of USA - theoretical aspects, summary of launches for 1964, list of research projects and agencies, and bibliography N65-29509

Resistivity
Annotated bibliography on measurement of bulk resistivity of semiconductor materials for...
<table>
<thead>
<tr>
<th>SUBJECT INDEX</th>
<th>SENSORY STIMULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECTRON DEVICE</td>
<td>NBS-TN-232</td>
</tr>
<tr>
<td>RETRIEVAL INFORMATION THEORY, MEMORY, LEARNING, AND RETRIEVAL - ANNOTATED BIBLIOGRAPHY</td>
<td>HUMRRO-TR-65-13</td>
</tr>
<tr>
<td>RHODIUM Radiochemistry of Rhodium - Isotopes, Analytical and Separations Chemistry, Activation, Biological Aspects, and Bibliography</td>
<td>NBS-N5-3008/REV./</td>
</tr>
<tr>
<td>ROCKETS Bibliography of reports and reprints covering rockets and satellites</td>
<td>N65-32393</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON SOLID ROCKET STRUCTURAL INTEGRITY AND SUMMARY REVIEW ON DEVELOPMENTS IN LINEAR VISCOELASTIC STRESS ANALYSIS</td>
<td>AD-644736</td>
</tr>
<tr>
<td>ROTATING DISK CENTRIFUGAL PUMP AND COMPRESSOR IMPELLERS, GAS AND STEAM TURBINE ROTORS, AND ROTATING DISKS - ANNOTATED BIBLIOGRAPHY</td>
<td>BIB-17</td>
</tr>
<tr>
<td>RUBIDIUM Bibliography on properties of nitrates, chlorates, and bromates of sodium, potassium, and rubidium</td>
<td>PA-TR-3161</td>
</tr>
<tr>
<td>RUBY LASER LASER BIBLIOGRAPHY / JUNE TO DECEMBER 1964/</td>
<td>A65-32749</td>
</tr>
<tr>
<td>SAFETY ABSTRACTS ON TRANSPORTATION OF GOODS, WAREHOUSE STORAGE, LOADING AND UNLOADING METHODS, PACKING, AND SAFETY</td>
<td>N66-15837</td>
</tr>
<tr>
<td>SAFETY DEVICE ANNOTATED BIBLIOGRAPHY OF SOVIET SCIENTIFIC AND TECHNICAL LITERATURE ON NUCLEAR SAFETY</td>
<td>ATD-0-65-76</td>
</tr>
<tr>
<td>SALT ALUMINUM SALTS OF SUBSTITUTED BENZIC ACIDS FOR USE AS HIGH TEMPERATURE GREASE THICKENERS - BIBLIOGRAPHY WITH ABSTRACTS</td>
<td>AFML-TR-64-324</td>
</tr>
<tr>
<td>SAMPLED DATA SYSTEM BIBLIOGRAPHY AND SUMMARY OF METHODS USED IN ERROR ANALYSIS OF HYBRID COMPUTERS</td>
<td>NASA-CR-68405</td>
</tr>
<tr>
<td>SAMPLING ABSTRACTS OF PRESENTATIONS AT HIGH PRESSURE SAMPLING CONFERENCE</td>
<td>AD-618566</td>
</tr>
<tr>
<td>SATELLITE BIBLIOGRAPHY ON SPACE RESEARCH - ECONOMIC AND POLITICAL IMPLICATIONS OF SPACE, INTERPLANETARY FLIGHT, LUNAR FLIGHT, SATELLITES, SPACE SCIENCE, SPACE APPLICATIONS, AND SPACE TECHNOLOGY</td>
<td>RM-4508</td>
</tr>
<tr>
<td>BIBLIOGRAPHY OF REPORTS AND REPRINTS COVERING ROCKETS AND SATELLITES</td>
<td>N65-32393</td>
</tr>
<tr>
<td>SATELLITE NAVIGATION SYSTEM GEODETIC AND TRANSIT SATELLITE NAVIGATION, TRAJECTORY STABILITY AND CONTROL, TELEMETRY, VISUAL OBSERVATION AND TRACKING EQUIPMENT - BIBLIOGRAPHY AND ABSTRACTS</td>
<td>TCK-43209</td>
</tr>
<tr>
<td>SATELLITE OBSERVATION CONFERENCE ON SATELLITE TRACKING, TELEMETRY, AND DYNAMICS, SPACE RESEARCH BIBLIOGRAPHY, SATELLITE RADIO SIGNALS FOR STUDYING IONOSPHERE, AND SATELLITE OBSERVATIONS</td>
<td>N65-24650</td>
</tr>
<tr>
<td>SATELLITE ORBIT BIBLIOGRAPHY AND ABSTRACTS ON ORBIT DETERMINATION, PROGRAMS AND SATELLITE SYSTEMS, TRACKING STATIONS, SPACE DYNAMICS, PARAMETER OF ORBITS, AND MATHEMATICS OF ORBITS</td>
<td>KSIC-415</td>
</tr>
<tr>
<td>INTERNATIONAL SATELLITE BIBLIOGRAPHY INCLUDING DIGITAL THEORY, LUNAR-SATELLITE PILOT, ARTIFICIAL ASTEROIDS, GEOMAGNETIC FIELD, GEGENSY, NAVIGATION, ETC</td>
<td>A66-12457</td>
</tr>
<tr>
<td>SATELLITE TRACKING CONFERENCE ON SATELLITE TRACKING, TELEMETRY, AND DYNAMICS, SPACE RESEARCH BIBLIOGRAPHY, SATELLITE RADIO SIGNALS FOR STUDYING IONOSPHERE, AND SATELLITE OBSERVATIONS</td>
<td>N65-24650</td>
</tr>
<tr>
<td>SATURATION BIBLIOGRAPHY OF SATURATION PROPERTIES OF CYTROGENIC FLUIDS IN SOLID, LIQUID, AND VAPOR PHASES</td>
<td>NASA-CR-62800</td>
</tr>
<tr>
<td>SCATTERING CROSS SECTION BIBLIOGRAPHY OF RECENT DEVELOPMENTS AND DATA ON NUCLEAR CROSS SECTIONS</td>
<td>WASH-1056</td>
</tr>
<tr>
<td>BIBLIOGRAPHY OF REFERENCES TO DEUTERON AND TRITON CROSS SCATTERING DATA</td>
<td>LA-3322-M5</td>
</tr>
<tr>
<td>SEA WATER RADIATION, ATMOSPHERIC CHEMISTRY, AND SEA ICE STUDIES IN ARCTIC AREAS - ANNOTATED BIBLIOGRAPHY</td>
<td>AD-624294</td>
</tr>
<tr>
<td>SEISMOLOGY SEISMOLOGY AND GEOLOGY - BIBLIOGRAPHY</td>
<td>AFCL-64-998</td>
</tr>
<tr>
<td>SEISMOLOGICAL, ACOUSTIC, AND RADIO ANTENNA ARRAY TECHNOLOGY - BIBLIOGRAPHY AND ABSTRACTS</td>
<td>TR-65-114</td>
</tr>
<tr>
<td>SEMICONDUCTOR SINGLE CRYSTAL HIGH PURITY SILICON CARBIDE FOR SEMICONDUCTORS - BIBLIOGRAPHY AND TECHNOLOGICAL SURVEY</td>
<td>KSIC-361</td>
</tr>
<tr>
<td>ANNOTATED BIBLIOGRAPHY ON MEASUREMENT OF BULK RESISTIVITY OF SEMICONDUCTOR MATERIALS FOR ELECTRON DEVICE</td>
<td>NBS-TN-232</td>
</tr>
<tr>
<td>SOLID STATE PHYSICS, POLYMER CHEMISTRY, ORGANIC AND ORGANOMETALLIC COMPOUNDS, SEMICONDUCTORS, INTERMETALLICS, PLASTICS, AND NUCLEAR MAGNETIC RESONANCE - ANNOTATED BIBLIOGRAPHY</td>
<td>N66-15498</td>
</tr>
<tr>
<td>SEMICONDUCTOR DEVICE BIBLIOGRAPHY ON SEMICONDUCTOR RELIABILITY CLASSIFIED UNDER APPLICATIONS /COMPUTERS, RADIO, SPACECRAFT, ETC/ DEVICES, DEVICES, ENVIRONMENTS, NETWORKS, PRODUCTION, ETC</td>
<td>A66-16308</td>
</tr>
<tr>
<td>SEMICONDUCTOR LASER ANNOTATED BIBLIOGRAPHY ON COMPOUND SEMICONDUCTORS</td>
<td>ATO-65-99</td>
</tr>
<tr>
<td>SENSORS BIBLIOGRAPHY ON BIOSENSORS - MECHANDRECEPTORS, PHOTOSENSORS, CHEMOSENSORS, THERMOSENSORS, AND ELECTRIC AND MAGNETIC FIELD SENSORS</td>
<td>NASA-CR-63145</td>
</tr>
<tr>
<td>SENSORY DEPRIVATION BIBLIOGRAPHY ON SENSORY DEPRIVATION, SENSORY ISOLATION AND INVARIANCE, STIMULUS DEPRIVATION, PATTERED STIMULATION, CONFINEMENT, SOCIAL ISOLATION, MENTALITY, AND BRAINWASHING</td>
<td>N66-15552</td>
</tr>
<tr>
<td>SENSORY STIMULATION BIBLIOGRAPHY ON SENSORY DEPRIVATION, SENSORY ISOLATION AND INVARIANCE, STIMULUS DEPRIVATION, PATTERED STIMULATION, CONFINEMENT, SOCIAL</td>
<td>I-25</td>
</tr>
</tbody>
</table>
Isolation, monotony, and brainwashing

Subject index

Social isolation

Bibliography on sensory deprivation, sensory isolation and invariance, stimulus deprivation, patterned stimulation, confinement, social isolation, monotony, and brainwashing

N66-15552

Sodium compound

Bibliography on properties of nitrates, chlorates, and bromates of sodium, potassium, and rubidium

PA-TR-3161

N65-19482

Sodium nitrate

Bibliography on properties of nitrates, chlorates, and bromates of sodium, potassium, and rubidium

PA-TR-3161

N65-19482

Solar radiation

Annotated bibliography on upper atmosphere - solar radiation, ionospheric electron concentration, van Allen radiation belts, geoelectricity, nuclear bursts, communications, and meteorology

AID-P-64-34

N65-15714

Solar system

Cumulative author-institution index for Volume 3 of Icarus, international journal of solar system

A65-17773

Bibliography containing 275 entries on astronomical subjects from eleven U.S. British and Soviet technical publications published in 1964

A65-29113

Bibliography of 1964 literature on solar system science

A65-35373

Bibliography of current aspects of exobiology dealing with solar system, life detection system, origin of life and life in universe

A66-11612

Solar wind

Bibliography on solar wind effect, radiation and artificial radiation belts, aurora, solar energy particles, galactic cosmic rays, geomagnetism, and neutrons

NASA-TM-X-55192

N65-21659

Solid lubricant

Annotated bibliography on solid lubricants - with indexes

NASA-SP-5037

N66-17358

Solid propellant

Annotated bibliography on solid rocket structural integrity and summary review on developments in linear viscoelastic stress analysis

AD-464736

N65-34839

Abstracts on liquid and solid propellants, high energy fuels, advanced energy sources, and combustion from Soviet literature - annotated bibliography

ATD-66-2

N66-19672

Solid state

Bibliography on high temperature physics and chemistry of refractory materials in liquid and solid state

N66-15417

Solid state device

Problems in constructing solid state neuromators for logic systems - annotated bibliography

AD-610095

N65-20308

Solid state devices, lasers, and materials science abstracts - annotated bibliography

ESD-TDR-65-318

N66-16745

Solid state physics

Annotated bibliography on surface physics, strength properties of solids, solid state physics, and decomposition in solid state

N65-24651

Solid state physics, polymer chemistry, organic and organometallic compounds, semiconductors,
SURFACE WAVE EXCITATION AND RADIATION PATTERNS FROM EARTHQUAKES AND UNDERGROUND NUCLEAR EXPLOSIONS - ELASTIC WAVE PROPAGATION STUDY - ABSTRACTS
AROD-4120-2 N66-15326

TELEMETRY

SURVEYOR PROJECT
J PL PUBLICATIONS BIBLIOGRAPHY WITH ABSTRACTS - REPORTS ON OSIF, MARINER PROGRAM, RANGER PROJECT, SURVEYOR MISSIONS, AND OTHER SPACE PROGRAMS, AND SPACE SCIENCES
NASA-CR-69354 N66-15386

SURVEY OF COMPUTER PROGRAMMING METHODS - ANNOTATED BIBLIOGRAPHY ON SYSTEMS ENGINEERING

SYSTEMS ENGINEERING
ANNOTATED BIBLIOGRAPHY ON AUTOMOTIVE TECHNOLOGY, AMPHIBIOUS VEHICLES, TRUCKS, AND STUDIES ON BRAKING, IGNITION, ENGINE, SUSPENSION, AND ELECTRICAL SYSTEMS
N66-15780

SYNCHROTRON
LINEAR ACCELERATOR, PARTICLE PHYSICS, SYNCHROTRON, LOW TEMPERATURE PHYSICS, MAGNETISM, AND ELECTRONICS RESEARCH ACTIVITIES AND BIBLIOGRAPHY
LNF-65/41 N66-19723

SYSTEN EFFECTIVENESS - BIBLIOGRAPHY
RH-3398-J N66-20726

SURVEY OF COMPUTER PROGRAMMING METHODS ADAPTABLE TO SYSTEM ANALYSIS FOR RELIABILITY, SYSTEM EFFECTIVENESS, MAINTAINABILITY, SIMULATION, AND CIRCUIT AND FAILURE MODE ANALYSIS - BIBLIOGRAPHY
OSH-11752

SYSTEMS ENGINEERING
BIBLIOGRAPHY ON SYSTEMS ENGINEERING, PHYSICAL ANTHROPOLOGY, HUMAN ENGINEERING, INSTRUMENTATION AND SIMULATION, AND TRAINING AND LEARNING
AD-664531 N66-35343

TABLE
SURVEY IN FORM OF TABLES AND GRAPHS OF SURFACE BRIGHTNESS AND DEGREE OF POLARIZATION OF ZODIACAL LIGHT AS FUNCTION OF ECLIPSE IN PLANE OF ELLIPTIC - RELATED BIBLIOGRAPHY
NASA-CR-58323 N66-15052

TELECOMMUNICATION
LITERATURE SURVEY OF RESEARCH DEALING WITH TELECOMMUNICATIONS, ELECTRONICS, INFORMATION PROCESSING, COMPUTER DESIGN, AND RELATED SUBJECTS - ANNOTATED BIBLIOGRAPHY
N66-15748

ABSTRACTS AND BIBLIOGRAPHY ON TELECOMMUNICATIONS, RADAR, ELECTROMAGNETIC RADIATION, INFORMATION PROCESSING, COMPUTERS, MICROELECTRONICS, AND OSCILLATORS AND MAGNIFIERS
N66-19399

ABSTRACTS AND BIBLIOGRAPHIC NOTES INFORMATION PROCESSING, TELECOMMUNICATIONS, ELECTRONICS, QUALITY CONTROL AND RELIABILITY OF ELECTRONIC PARTS, INTEGRATED CIRCUITS, AND MICROELECTRONICS
N66-20740

TELEMETRY
CONFERENCE ON SATELLITE TRACKING, TELEMETRY, AND DYNAMICS, SPACE RESEARCH BIBLIOGRAPHY, SATELLITE RADIO SIGNALS FOR STUDYING IONOSPHERE, AND SATELLITE OBSERVATIONS
N66-24650

TEMPERATURE MEASUREMENT
ANNOTATED BIBLIOGRAPHY ON FALLING SPHERE METHOD FOR MEASURING UPPER ATMOSPHERE DENSITY, WIND, AND TEMPERATURE
N65-33107

TEST EQUIPMENT
BIBLIOGRAPHY OF NONDESTRUCTIVE TESTING THEORY AND APPLICATION FOR COMPOSITE MATERIAL
NASA-CR-68604 N66-13338

TEST FACILITY
BIBLIOGRAPHY OF PLASMA PHYSICS - ATMOSPHERIC REENTRY OF SPACE VEHICLES, ELECTROMAGNETIC WAVE PROPAGATION, ANTENNA BREAKDOWN, GROUND-BASED REENTRY TEST FACILITIES, AND PLASMA DIAGNOSTICS
CAL-ER/KIS-3 N65-24842

TELEGRAPHY
LITERATURE SURVEY AND ANNOTATED BIBLIOGRAPHY ON CHLOROPHYLL MODIFICATIONS, TRIPLET STATES OF TETRAPYRROL PIGMENTS, OXYGEN EVOLUTION IN PHOTOSYNTHESIS, AND STRUCTURE OF TETRAPYRROL
ATD-65-107 N66-14651

THEORETICAL PHYSICS
ABSTRACTS OF PHYSICS RESEARCH ACTIVITIES AND STYLES AND METHODS FOR PRESENTATION OF PHYSICS MATERIALS
AD-613057 N65-26074

THERMAL DEGRADATION
PYROLYSIS OF POLYMERS AND CARBOHYDRATES - BIBLIOGRAPHY
PLR-1271 N66-36214

THERMOCHEMISTRY
ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES, THERMOCHEMISTRY, AND THERMODYNAMICS
ATD-8-65-95 N66-19399

THERMOCOUP MENTIVITY
THERMOCOUP MENTIVITY OF TEN CRYOGENIC FLUIDS - BIBLIOGRAPHY
NASA-CR-50292 N65-17283

THERMODYNAMICS
SURVEY OF LITERATURE ON THERMODYNAMICS FROM BIBLIOGRAPHIES IN JOURNALS ON HEAT AND MASS TRANSFER AND ASME SYMPOSIA
A66-10178

BIBLIOGRAPHY ON SPECTROSCOPY RELATED TO HIGH TEMPERATURE CHEMISTRY, REACTIONS BETWEEN GASES AND CONDENSED PHASES, AND PLASMA THERMODYNAMICS
REPT.-17 N66-19086

ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES, THERMOCHEMISTRY, AND THERMODYNAMICS
ATD-8-65-95 N66-19399

THERMOLUMINESCENCE
THERMOLUMINESCENCE BIBLIOGRAPHY
TID-3911, REV. 2 N65-17417

THERMONUCLEAR REACTION
BIBLIOGRAPHY ON PLASMA PHYSICS FROM 1955-1961 INCLUDING PLASMA KINETICS, GAS DISCHARGES, ION ENGINES, SHOCK WAVES, ETC, COVERING ALSO SYMPOSIA AND BOCKS
A65-32642

ANNOTATED BIBLIOGRAPHY ON CONTAINED THERMONUCLEAR REACTIONS - HOT AND COLD PLASMA, CROSS SECTIONS, VACUUM AND WALL STUDIES, DIAGNOSTIC TECHNIQUES, AND CRYOGENICS
TID-4005/PT. 5/ N65-21621

THERMOPHYSICAL PROPERTY
BIBLIOGRAPHY ON THERMOPHYSICAL PROPERTIES OF FLUORINE FROM 0 TO 300 DEG K
NASA-CR-50285 N66-17316

THERMOPHYSICS
ANNOTATED BIBLIOGRAPHY ON LUNAR THERMOPHYSICS AND RELATED INFORMATION
RSIC-419 N65-33675
THERMORECEPTOR

BIBLIOGRAPHY ON BIOSENSORS - MECHANORECEPTORS, PHOTORECEPTORS, CHEMORECEPTORS, THERMORECEPTORS, AND ELECTRIC AND MAGNETIC FIELD SENSORS

NASA-CR-63145

N65-25270

THICKENER

ALUMINUM SALTS OF SUBSTITUTED BENZIC ACIDS FOR USE AS HIGH TEMPERATURE GREASE THICKENERS - BIBLIOGRAPHY WITH ABSTRACTS

AFML-TR-64-324

N65-31634

TIN TELLURIDE

BIBLIOGRAPHY ON BISMUTH TELLURIDES, LEAD TELLURIDES, AND TIN TELLURIDES

TID-3963

N65-29058

TIROS SATELLITE

LITERATURE SURVEY OF SELECTED ARTICLES DEALING WITH TIROS AND NIMBUS SATELLITE OBSERVATIONS - ANNOTATED BIBLIOGRAPHY

TOCK-42600

N66-15514

TISSUE

BIBLIOGRAPHY ON RADIATION EFFECTS ON LIVING TISSUES AND ORGANISMS

AEC-C-04-16

N65-22844

BIBLIOGRAPHY ON RADIATION EFFECTS ON LIVING TISSUES AND ORGANISMS

AEC-C-04-18

N66-20512

TRACER

BIBLIOGRAPHY RADIOACTIVE TRACER DIFFUSION IN METALS - IMPURITY DIFFUSION

ORNL-3795, PT. II

N66-13244

TRACKING

ABSTRACTS ON TRACKING OF MISSILES AND SPACE VEHICLES FROM SOVIET OPEN LITERATURE - ION CLOUDS AND IONOSPHERE PERTURBATIONS, REFLECTION OF ELECTROMAGNETIC WAVES, AND RADIO ASTRONOMY

ATD-P-65-40

N65-31097

EFFECTS OF SYSTEM NONLINEARITIES ON HUMAN OPERATOR TRACKING PERFORMANCE - LITERATURE SURVEY AND BIBLIOGRAPHY

AMRL-TR-65-158

N66-18582

TRACKING STATION

BIBLIOGRAPHY AND ABSTRACTS ON ORBIT DETERMINATION, PROGRAMS AND SATELLITE SYSTEMS, TRACKING STATIONS, SPACE DYNAMICS, PARAMETER OF ORBITS, AND MATHEMATICS OF ORBITS

RSIC-415

N65-33499

TRAINING

ANNOTATED BIBLIOGRAPHY ON MANAGEMENT, COST ESTIMATION, ECONOMICS, LOGISTICS, AND PERSONNEL SELECTION AND TRAINING TECHNIQUES IN MILITARY, INDUSTRIAL, AND RESEARCH FACILITIES

N66-15783

TRANSUCER

ANNOTATED BIBLIOGRAPHY ON TRANSUCER RESEARCH, DEVELOPMENT, AND TESTING CONTRACTS

N65-31929

ANNOTATED BIBLIOGRAPHY ON APPLICATIONS OF ELECTROMECHANICAL TRANSUCERS - WITH INDEXES

NASA-SP-5036

N66-17359

FLUID AMPLIFICATION BIBLIOGRAPHY WITH ABSTRACTS - LOGIC CIRCUITS, TRANSUCERS, FLOW VISUALIZATION, SENSORS, INSTRUMENTATION, AND TECHNOLOGY

TR-1304

N66-18565

TRANSISTOR CIRCUIT

ESAKI DIODE BIBLIOGRAPHY FROM JANUARY 1958 TO NOVEMBER 1963, ESPECIALLY AMPLIFIERS AND LOGIC CIRCUITS

A65-34873

TRANSIT SATELLITE

GEODETIC AND TRANSIT SATELLITE NAVIGATION, TRAJECTORY STABILITY AND CONTROL, TELEMETRY, VISUAL OBSERVATION AND TRACKING EQUIPMENT - BIBLIOGRAPHY AND ABSTRACTS

TOCK-43209

N66-19181

TRANSITION ELEMENT

ANNOTATED BIBLIOGRAPHY ON TRANSITION METALS OF GROUPS IV, V, AND VI

ORNL-RMIC-3 /REV./

N65-22985

TRANSLATION

ANNOTATED BIBLIOGRAPHIES ON FOREIGN LIBRARY TRANSLATIONS

RAE-LIB-BIBL-254

N65-21922

TRANSMISSION

BIBLIOGRAPHY OF PAPERS DEALING WITH REFLECTION AND TRANSMISSION OF IR MATERIALS

N66-20825

TRANSPORTATION

ANNOTATED BIBLIOGRAPHY ON TRANSPORTATION AND STORAGE

N65-21200

TRIPLET STATE

LITERATURE SURVEY AND ANNOTATED BIBLIOGRAPHY ON CHLOROPHYLL MODIFICATIONS, TRIPLET STATES OF TETRAPYRROL PIGMENTS, OXYGEN EVOLUTION IN PHOTOSYNTHESIS, AND STRUCTURE OF TETRAPYRROL

ATD-65-107

N66-14651

TUMOR

EFFECT OF OLIGONUCLEOTIDES ON ACTIVITY OF TUMOR DEOXYPYRIDINUCLEIC ACID POLYMERASE, POSBAUER EFFECT IN RARE GASES AND INCLUSION COMPOUNDS, SILVER HALIDES LUMINESCENCE AND PHOTOCONDUCTIVITY

ISS-65/29

N66-19804

TUNNEL DIODE

ESAKI DIODE BIBLIOGRAPHY FROM JANUARY 1958 TO NOVEMBER 1963, ESPECIALLY AMPLIFIERS AND LOGIC CIRCUITS

A65-34873

U.S.S.R.

HEAT TRANSFER BIBLIOGRAPHY OF RUSSIAN WORKS INCLUDING THERMODYNAMICS, CONVECTION, MASS TRANSFER, PHASE CHANGE, COMBUSTION, ETIC

A65-26364

ANNOTATED BIBLIOGRAPHY OF SOVIET AEROSPACE INSTRUMENTATION RESEARCH

ATD-P-65-46

N65-29703
WEAR
ANNOTATED BIBLIOGRAPHY OF ABSTRACTS ON LUBRICATION, CORROSION, AND WEAR NASA-SP-720 N65-29845

WEATHER CONDITION
ANNOTATED BIBLIOGRAPHY ON MICROMETEOROLOGY - STAGNANT WEATHER CONDITIONS, BOUNDARY LAYER TURBULENCE, AEROSOLS, AND AIR POLLUTION ATO-P-65-18 N65-22778

WEATHER FORECASTING
METEOROLOGY, HYDROLOGY, WEATHER FORECASTING, AND HYDROMETEOROLOGY - STRATOSPHERICAL CYCLONES AND ANTICYCLONES, WEATHER NAVIGATION AID FOR SHIPS, PRECIPITATION, AND BIBLIOGRAPHY JPRS-29481 N65-23439

WEIGHTLESSNESS
LIQUID ROCKET PROPELLANTS IN ZERO GRAVITY - BIBLIOGRAPHY LS-B18-64-2 N65-15838

WELDING
WELDING METHODS BIBLIOGRAPHY WITH ABSTRACTS, AND SUBJECT AND AUTHOR INDICES NASA-SP-5024 N66-17277

WHALE
BIBLIOGRAPHY OF CETACEA LITERATURE NAVWPS-8645 N65-22386

WIDEBAND COMMUNICATION
ANNOTATED BIBLIOGRAPHY ON MODULATION AND CHANNELS WITH REGARD TO SPACE APPLICATIONS - DIGITAL, SAMPLING, WIDEBAND, MULTIPLEX, AND PULSE CODE MODULATION NASA-SP-7022/01, VOL. 1 N65-27821

WIND
ABSTRACTS ON METEOROLOGY - ATMOSPHERICS, DYNAMICS, INSTABILITIES, SPECTRAL ANALYSIS, HEAT BALANCE, ICE FORMATION, IGNITION, WINDS, RADIATION, AND CIRCULATION E-TC-CH-64-25 N65-29841

WIND CIRCULATION
ANNOTATED BIBLIOGRAPHY ON LAND AND SEA BREEZE - WIND CIRCULATION N65-31374

WIND MEASUREMENT
ANNOTATED BIBLIOGRAPHY ON FALLING SPHERE METHOD FOR MEASURING UPPER ATOMSPHERE DENSITY, WIND, AND TEMPERATURE N65-33107

WORK CAPACITY
WORK CAPACITY, PHYSICAL REACTIONS OF MAN, AND NOISE NORMALIZATION IN LIFE SUPPORT SYSTEMS DURING SPACE FLIGHTS, AND CHLORELLA CULTURES AS LINK IN ECOSSSTEM - ABSTRACTS NASA-TI-F-9536 N65-32876

X
X-RAY DIFFRACTION
LOW TEMPERATURE X-RAY DIFFRACTION - ANNOTATED BIBLIOGRAPHY N65-23724

ANNOTATED BIBLIOGRAPHY ON HIGH TEMPERATURE X-RAY DIFFRACTION TECHNIQUES - PHOTOGRAPHY AND DIFFRACTIONORY FOR CRYSTALLOGRAPHY N65-25304

ANNOTATED BIBLIOGRAPHY ON LIQUID METALS, PHYSICAL PROPERTIES OF ALLOYS, X-RAY DIFFRACTION STUDIES, THEROCHEMISTRY, AND THERMODYNAMICS ATO-B-65-95 N66-19399

X-5 AIRCRAFT
X-15 AIRCRAFT DEVELOPMENT CONCEPT, FLIGHT RESEARCH, AERODYNAMIC CHARACTERISTICS OF SUPERSONIC-HYPERSONIC FLIGHT, HYPERSONIC STRUCTURE, FLYING LABORATORY, AND BIBLIOGRAPHY NASA-SP-60 N65-20162

Y
YTMIRUM-IRON GARNET /YIG/ CRYSTAL
CONTROLLED STEERING OF MICROWAVE ACOUSTIC BEAM IN
### Listing of Personal Authors of Reports

<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Accession Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>AKULINICHEV, I. T.</strong>&lt;br&gt;Work Capacity, Physical Reactions of Man, and Noise Normalization in Life Support Systems During Space Flights, and Chlorella Cultures as Link in Ecosystem - Abstracts</td>
<td>N65-32876</td>
</tr>
<tr>
<td></td>
<td><strong>ALLEN, M. E.</strong>&lt;br&gt;Annotated Bibliography of Aviation Medicine Translations</td>
<td>N65-26955</td>
</tr>
<tr>
<td></td>
<td><strong>AMMONS, C. H.</strong>&lt;br&gt;Perception Bibliography Selected From Psychological Index, No. 14, 1967</td>
<td>A65-80144</td>
</tr>
<tr>
<td></td>
<td><strong>AMMONS, C. H.</strong>&lt;br&gt;List of References on Perception From Psychological Index, No. 15, 1968</td>
<td>A65-801660</td>
</tr>
<tr>
<td></td>
<td><strong>AMMONS, R. B.</strong>&lt;br&gt;Selection of 116 Items on Perception From Psychological Index 1909</td>
<td>A65-802342</td>
</tr>
<tr>
<td></td>
<td><strong>AMMONS, R. B.</strong>&lt;br&gt;Motor Skills Bibliography</td>
<td>A65-802344</td>
</tr>
<tr>
<td></td>
<td><strong>AMMONS, R. B.</strong>&lt;br&gt;Selected List of References on Motor Skills</td>
<td>A66-80140</td>
</tr>
<tr>
<td></td>
<td><strong>AMMONS, R. B.</strong>&lt;br&gt;Selected Bibliography on Perception</td>
<td>A66-80183</td>
</tr>
<tr>
<td></td>
<td><strong>AMMONS, R. B.</strong>&lt;br&gt;Selected Bibliography on Studies in Perception</td>
<td>A66-80512</td>
</tr>
<tr>
<td></td>
<td><strong>ANDERSON, J. E.</strong>&lt;br&gt;Positron-Effect Data Index - Experimental Data on Nuclear Transition, Source Material, and Absorber Material - Bibliography</td>
<td>N65-36424</td>
</tr>
<tr>
<td></td>
<td><strong>ANGINO, E. E.</strong>&lt;br&gt;Thermoluminescence Bibliography</td>
<td>N65-17417</td>
</tr>
<tr>
<td></td>
<td><strong>ARMSTRONG, J. C., Jr.</strong>&lt;br&gt;Radiochemistry of R-907 - Isotopes, Analytical and Separations Chemistry, Activation, Biological Aspects, and Bibliography</td>
<td>N65-27920</td>
</tr>
<tr>
<td></td>
<td><strong>ASHBURN, E. V.</strong>&lt;br&gt;Bibliography on Lasers</td>
<td>N65-28545</td>
</tr>
<tr>
<td></td>
<td><strong>ASHMORE, R. B.</strong>&lt;br&gt;Survey of Papers on Elementary Combustion Reactions</td>
<td>A65-32497</td>
</tr>
<tr>
<td></td>
<td><strong>ASKEW, J.</strong>&lt;br&gt;Bibliography Radioactive Tracer Diffusion in Metals - Impurity Diffusion</td>
<td>N66-13244</td>
</tr>
<tr>
<td></td>
<td><strong>ATKINS, M.</strong>&lt;br&gt;Bibliography of Contact Heat Transfer Measurements and Theories, and Thermal Metallic Contact Conductance</td>
<td>N65-24564</td>
</tr>
<tr>
<td></td>
<td><strong>AUSTIN, L. G.</strong>&lt;br&gt;Bibliography of Fuel Cell Contracts Rept. - 8</td>
<td>N65-27866</td>
</tr>
<tr>
<td></td>
<td><strong>AVANT, L.</strong>&lt;br&gt;Literature Review of Human Reactions to Structureless Visual Field Exposure TR-34</td>
<td>N66-16508</td>
</tr>
<tr>
<td></td>
<td><strong>avery, L.</strong>&lt;br&gt;Short-Wave and Particle Radiation Effect on Glasses - Annotated Bibliography</td>
<td>N65-15819</td>
</tr>
<tr>
<td></td>
<td><strong>BARALT, C. L.</strong>&lt;br&gt;Annotated Bibliography on Land and Sea Breeze - Wind Circulation</td>
<td>N65-31374</td>
</tr>
<tr>
<td></td>
<td><strong>BARNETT, C. F.</strong>&lt;br&gt;Annotated Bibliography on Atomic and Molecular Processes, Particle Interactions, Interactions of Electric and Magnetic Field, and Gas</td>
<td>N65-31374</td>
</tr>
</tbody>
</table>

---

**Personal Author Index**

**BIBLIOGRAPHIES ON AEROSPACE SCIENCE / a continuing bibliography**

**WITH INDEXES**

JUNE 1966
TRANSPORT
ORNL-AMPE-1
N65-30652

BAYER, L.
BIBLIOGRAPHY ON SENSORY DEPRIVATION, SENSORY ISOLATION, AND INHIBITION. STIMULUS DEPRIVATION, PATTERNED STIMULATION, CONFINEMENT, SOCIAL ISOLATION, MONOTONY, AND BRAINWASHING
N66-15552

BEIN, G. P.
BIBLIOGRAPHY OF PLASMA PHYSICS - ATMOSPHERIC REENTRY OF SPACE VEHICLES, ELECTROMAGNETIC WAVE PROPAGATION, ANTENNA BREAKDOWN, GROUND-BASED REENTRY TEST FACILITIES, AND PLASMA DIAGNOSTICS
CAL-ER/RI-5-3
N65-24842

BEKASOV, N. I.
POLYMER COMPOUNDS OF BORON - LITERATURE REVIEW
JPRS-28683
N65-16205

BELL, T. T.
ANNOTATED BIBLIOGRAPHY OF SONIC BOOM THEORY AND PREDICTION MODELS WITH PARTICLE ACCELERATORS
CEA-B1O-50
N65-30172

BERTONE, C. M.
MANUAL CONTROL SYSTEMS, HUMAN ENGINEERING, AND MAN IN SPACE - BIBLIOGRAPHY OF RUSSIAN LITERATURE ON MAN-MACHINE SYSTEMS
NASA-CR-199
N65-21226

BESSON, T.
ESKI DIOE BIBLIOGRAPHY FROM JANUARY 1958 TO NOVEMBER 1963, ESPECIALLY AMPLIFIERS AND LOGIC CIRCUITS
A65-34873

BEVAN, W.
ENVIRONMENT CONCEPT AS A PSYCHOLOGICAL FACTOR, AND PERTINENT LITERATURE REVIEW
TR-33
N66-16507

BICKFORD, L. C.
ANNOTATED BIBLIOGRAPHY ON MODULATION AND CHANNELS, WITH REGARD TO SPACE APPLICATIONS - DIGITAL, SAMPLING, WIDEBAND, MULTIPLEX, AND PULSE CODE MODULATION
NASA-SP-7022701/1, VOL. 1
N65-27821

ABSTRACT LISTING AND BIBLIOGRAPHY ON SPACE COMMUNICATIONS THEORY AND APPLICATIONS
NASA-SP-7022702
N65-29846

ANNOTATED BIBLIOGRAPHY ON INFORMATION PROCESSING AND ADVANCED COMMUNICATION TECHNIQUES - THEORY AND APPLICATIONS OF SPACE COMMUNICATIONS
NASA-SP-7022703
N65-31136

ANNOTATED BIBLIOGRAPHY ON SATELLITE AND DEEP SPACE COMMUNICATIONS
NASA-SP-7022704/, VOL. 4
N65-32187

BIGGERSTAFF, J. A.
ANNOTATED BIBLIOGRAPHY ON NEUTRON PHYSICS - REACTOR PHYSICS, RADIATION SHIELDING, COMPUTER PROGRAMS, AND RADIATION DETECTION
ORNL-3056, VOL. 1
N66-12297

BLOOM, P.
BIBLIOGRAPHY ON MARAGING STEEL
UCRL-12223
N66-19336

BORESI, A. P.
ANNOTATED BIBLIOGRAPHY ON ELASTIC PLATES
TR-10
N65-22374

BOREVA, L. I.
BIBLIOGRAPHY OF SOVIET PAPERS ON SPACE MEDICINE AND BIOSPACECRAFTICS PUBLISHED IN 1964 AND 1965
N66-15910

EBIBLIOGRAPHIC INDEX TO LITERATURE ON AEROSPACE MEDICINE AND BIOASTRONAUTICS PUBLISHED IN U.S.S.R., 1962-1964
NASA-TT-F-270
N65-22968

BOS, M. J.
GEODETIC AND TRANSIT SATELLITE NAVIGATION, TRAJECTORY STABILITY AND CONTROL, TELEMETRY, VISUAL OBSERVATION AND TRACKING EQUIPMENT - BIBLIOGRAPHY AND ABSTRACTS
TOCK-43209
N66-19181

BOGNJAKOVIC, F.
SURVEY OF LITERATURE ON THERMODYNAMICS FROM EMBLIOGRAPHIES IN JOURNALS ON HEAT AND MASS TRANSFER AND ASME SYMPOSIUM
A66-10178

BOST, W. E.
ANNOTATED BIBLIOGRAPHY ON DESIGN, EQUIPMENT, AND OPERATION OF LABORATORIES FOR WORK WITH RADIOACTIVE MATERIALS
N66-12484

BOULGER, F. W.
SURVEY OF DEFORMATION CHARACTERISTICS OF METALS AND PROCESS OPERATIONS - ANNOTATED BIBLIOGRAPHY
EMIC-208
N65-16024

BOWDEN, F. P.
ANNOTATED BIBLIOGRAPHY ON SURFACE PHYSICS, STRENGTH PROPERTIES OF SOLIDS, SOLID STATE PHYSICS, AND DECOMPOSITION IN SOLID STATE
N65-24651

BOXER, A. S.
PHYSICS OF FERRIMAGNETIC MATERIALS, CARNETS, SPINEL FERRITES, AND HEXAGONAL FERRITES FOR MICROWAVE APPARATUS - BIBLIOGRAPHIES
ML-TDR-64-224
N65-20070

BRAHAN, R. R., JR.
AERIAL OBSERVATIONS OF RAIN AND SNOW CLOUDS - SELECTED BIBLIOGRAPHY ON INSTRUMENTS AND OBSERVING TECHNIQUES USED IN CLOUD PHYSICS
N65-33094

BREWER, L.
HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS - BIBLIOGRAPHY
REPT.-13
N65-16663

BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES, GAS-CONDENSED PHASE REACTIONS, AND HIGH TEMPERATURE CHEMISTRY SPECTROSCOPY
N65-23772

BIBLIOGRAPHY OF SPECTROSCOPY IN HIGH TEMPERATURE CHEMISTRY, AND OF REACTION STUDIES BETWEEN GASES AND CONDENSED PHASES
N65-32763

BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND PHYSICS OF GASES AND GAS-CONDENSED PHASE REACTIONS
REPT.-16
N66-14262

BIBLIOGRAPHY ON SPECTROSCOPY RELATED TO HIGH TEMPERATURE CHEMISTRY, AND OF REACTION STUDIES BETWEEN GASES AND CONDENSED PHASES, AND PLASMA THERMODYNAMICS
REPT.-17
N66-19086

BROCK, T. E.
REFERENCES AND ILLUSTRATIONS DEALING WITH HYDRAULIC GATES - BIBLIOGRAPHY INCLUDING ABSTRACTS
B18-20
N66-20984

BIBLIOGRAPHY ON HOT-WIRE ANEMOMETRY WHICH INCLUDES ABSTRACTS
B18-18
N66-20985

BROOKINS, M. D.
ABSTRACTS OF SCIENTIFIC AND TECHNICAL REPORTS IN
BROWN, R. A.
ANONATEB BIBLIOGRAPHY ON LANC AND SEA BREEZE - WIND CIRCULATION
N66-31374

BULLER, R. L.
LUNAR, PLANETARY, AND SPACE ENVIRONMENT PARAMETERS AFFECTING SPACE VEHICLE DESIGN AND FLIGHT MECHANICS - ANNOTATED BIBLIOGRAPHY
NASA-CR-61037 N66-17610

BUSSEY, H. E.
DIELECTRIC CONSTANTS, DIPOLE MOMENTS, RELAXATION TIMES, CONDUCTION PHENOMENA, INSULATING FILMS, BREAKDOWN, MATERIALS, AND APPLICATIONS OF DIELECTRICS - ANNOTATED BIBLIOGRAPHY
NASA-CR-69880 N66-16184

BUSTAD, L. K.
BIBLIOGRAPHY ON USE OF SINE IN BIOLOGICAL AND MEDICAL RESEARCH
BNW-115 N66-34703

CAMBEIS, L.
INFORMATION RETRIEVAL SYSTEM USING BIBLIOGRAPHY DEALING WITH POSTCRASH AIRCRAFT FIRE, RESCUE, AND EVALUATION
ADS-16 N66-17396

CARAS, G. J.
SINGLE CRYSTAL HIGH PURITY SILICON CARBIDE FOR SEMICONDUCTORS - BIBLIOGRAPHY AND TECHNICAL SURVEY
RSIC-381 N66-26989

CHACE, W. G.
ANNOTATED BIBLIOGRAPHY ON ELECTRICALLY EXPLODING CONDUCTOR PHENOMENON
AFCR-65-384 N66-35939

CHAMBERLAIN, J. W.
PLANETARY UPPER ATMOSPHERES - PRIORITY RATINGS FOR EXPERIMENTS, TYPES OF MEASUREMENTS FOR RECOMMENDED PROGRAM, AND ANNOTATED BIBLIOGRAPHY
N66-14331

CHOPPIN, G. R.
RADIOCHEMISTRY OF RHODIUM - ISOTOPES, ANALYTICAL AND SEPARATIONS CHEMISTRY, ACTIVATION, BIOLOGICAL ASPECTS, AND BIBLIOGRAPHY
NAS-NS-3008/REV./ N66-27920

CHRISTENSEN, O.
BIBLIOGRAPHY OF DOCUMENTS ON LUNAR, PLANETARY, AND SPACE ENVIRONMENTS IN RELATION TO FLIGHT MECHANICS AND AERODYNAMICS OF SPACE TRAVEL
NASA-CR-60469 N66-16086

CHURCH, P. E.
RADIATION, ATMOSPHERIC CHEMISTRY, AND SEA ICE STUDIES IN ARCTIC AREAS - ANNOTATED BIBLIOGRAPHY
AD-624294 N66-17603

CICHOWICZ, L.
CONFERENCE ON SATELLITE TRACKING, TELEMETRY, AND DYNAMICS, SPACE RESEARCH BIBLIOGRAPHY, SATELLITE RADIO SIGNALS FOR STUDYING IONOSPHERE, AND SATELLITE OBSERVATIONS
N66-24650

CLAASSEN, H. A.
BIBLIOGRAPHY ON MAGNETOHYDRODYNAMIC EXPERIMENTS WITH LIQUID METALS AND ELECTROLYTES
JUL-BIBL-6 N66-24012

CLARKE, R. W.
ANNOTATED BIBLIOGRAPHY OF UNCLASSIFIED LITERATURE ON PLUTONIUM ELEMENTS - AMERICIUM, BERKELIUM, CALIFORNIUM, CURIUM, EINSTEINIUM, FERMUM, LAWRENCIUM, MENDELEIUM AND NOBELIUM
AERE-R-4761 N66-25183

ANNOTATED BIBLIOGRAPHY ON NEPTUNIUM LITERATURE FOR PERIOD COVERING 1957-1964 - CHEMISTRY, PHYSICS, METALLURGY AND NUCLEAR PROPERTIES OF NEPTUNIUM
AERE-R-4792 N66-25105

CLAUER, A. H.
ANNOTATED BIBLIOGRAPHY ON SYMBOLIC CHARACTERISTICS OF METALS AND PROCESS OPERATIONS - ANNOTATED BIBLIOGRAPHY
EPIC-208 N65-16024

COLLINS, W. E.
ANNOTATED BIBLIOGRAPHY OF AVIATION MEDICINE TRANSLATIONS
AM-65-17 N66-26955

COTTRELL, R. A.
ANNOTATED BIBLIOGRAPHY ON SAFETY IN NUCLEAR POWER REACTOR OPERATION AND RESEARCH
CRNL-NSIC-8 N65-21369

CRETEM, W.
ANNOTATED BIBLIOGRAPHY ON RADIO TRANSMISSIONS, EQUIPMENT AND COMMUNICATIONS FACILITIES AND APPLICATIONS OF RADIATION - ANNOTATED BIBLIOGRAPHY
N66-15110

DALTON, G. C.
ANNOTATED BIBLIOGRAPHY ON PHYSICS OF HYPERVERSICITY IMPACT AND METEORIC HAZARD
N66-25611

DANKS, A. S.
ABSTRACTS OF SCIENTIFIC AND TECHNICAL REPORTS IN PHYSICS, CHEMISTRY, ENGINEERING, LIFE SCIENCES, AND MATHEMATICS - BIBLIOGRAPHY
AFOSR-700-111 N66-16062

DAVIS, P. W.
BIBLIOGRAPHY OF INFRARED REFLECTION, REFRACTION, AND ABSORPTION PROPERTIES OF LIGAND WATER
NRL-BIBL-25 N66-13765

DE CAROLO, V. J.
ANNOTATED BIBLIOGRAPHY ON CHEMISTRY OF COMETS - FUEL MODI, PCITCHEMISTRY, PCITCLYSIS, AND SPECTRAL ANALYSIS
N66-13681

DE VRIES, G.
ANNOTATED BIBLIOGRAPHY ON GROUNDWATER POLLUTION AND WASTE WATER PURIFICATION
TDCK-42563 N66-14522

DEWITT, B. S.
ABSTRACTS ON QUANTUM THEORY, RELATIVISTIC MECHANICS, AND PARTICLE MOTION
AD-619183 N66-35048

DEBERTIN, K.
EISLASHRAPHY ON INSTRUMENTS AND MEASURING
DENHAM, D.

TECHNIQUES IN NUCLEAR PHYSICS
AED-C-06-10 N65-30598

DENHAM, D.
BIBLIOGRAPHY AND ABSTRACTS ON ORBIT DETERMINATION,
PROGRAMS AND SATELLITE SYSTEMS, TRACKING
STATIONS, SPACE DYNAMICS, PARAMETER OF ORBITS,
AND MATHEMATICS OF ORBITS
RSIC-415 N65-33499

DER BOGHOSSIAN, S.
BIBLIOGRAPHY ON GAMMA RADIOTOPHYSICS
AMRA-MS-64-11 N65-33499

DEVLIN, P.
GAS LUBRICATED BEARINGS - ANNOTATED BIBLIOGRAPHY
NASA-CR-69394 N65-15479

DIAMOND, J. J.
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF CONDENSED STATE MATERIALS
N65-17297

DIAMOND, J. J.
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N65-23268

DIAMOND, J. J.
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF MATERIALS IN CONDENSED STATE
N65-32378

DIAMOND, J. J.
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF REFRACTORY AND OTHER MATERIALS
N65-13522

DIAMOND, J. J.
BIBLIOGRAPHY ON HIGH TEMPERATURE CHEMISTRY AND
PHYSICS OF REFRACTORY MATERIALS IN LIQUID AND
SOLID STATE
N65-15417

DIAMOND, J. J.
BIBLIOGRAPHY ON CONDENSED MATERIAL HIGH
TEMPERATURE CHEMISTRY AND PHYSICS
N66-19973

DOBBS, D.
BIBLIOGRAPHY ON SENSORY DEPRIVATION, SENSORY
ISOLATION AND INARIANCE, STIMULUS DEPRIVATION,
PATTERNED STIMULATION, CONFINEMENT, SOCIAL
ISOLATION, MONOTONY, AND BRAINWASHING
N66-15552

DOBRAZ, B. M.
SELECTIVE BIBLIOGRAPHY OF RADIATION EFFECTS ON
NOBLE METALS WITH EMPHASIS ON COPPER, GOLD,
PLATINUM, AND SILVER - 1958-1963
UCL-7810 N65-32339

DOLINSKA, R. A.
BIBLIOGRAPHY ON HEAT AND MASS EXCHANGE
FTU-TT-64-395/1 N65-20016

DORDICK, H.
BIBLIOGRAPHY ON SPACE RESEARCH - ECONOMIC AND
POLITICAL IMPLICATIONS OF SPACE, INTERPLANETARY
FLIGHT, LUNAR FLIGHT, SATELLITES, SPACE SCIENCE,
SPACE APPLICATIONS, AND SPACE TECHNOLOGY
RM-4508 N65-25929

DORMAN, J.
SURFACE WAVE EXCITATION AND RADIATION PATTERNS
FROM EARTHQUAKES AND UNDERGROUND NUCLEAR
EXPLOSIONS - ELASTIC WAVE PROPAGATION STUDY -
ABSTRACTS
ARCO-4120-2 N66-15326

DOWSON, G.
BIBLIOGRAPHY OF THE SYMPOSIUM ON
ELASTOHYDRODYNAMIC LUBRICATION AT LEEDS, ENGLAND
IN SEPTEMBER 1965
A65-33220

DUNNE, J. C.
BIBLIOGRAPHICAL INDEX OF ADVISORY GROUP FOR
AERONAUTICAL RESEARCH AND DEVELOPMENT / AGARD/
PUBLICATIONS
N65-16226
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotated bibliography on information processing and advanced communication techniques</td>
<td>theory and applications of space communications</td>
</tr>
<tr>
<td>Annotated bibliography on satellite and deep space communications</td>
<td></td>
</tr>
<tr>
<td>French, J. C.</td>
<td>Annotated bibliography on measurement of bulk resistivity of semiconductor materials for electron device</td>
</tr>
<tr>
<td>Garssadden, A.</td>
<td>Moving striations in low pressure gaseous discharges - bibliography and brief summary of current research</td>
</tr>
<tr>
<td>Gayle, J. B.</td>
<td>Annotated bibliography on physics of hypervelocity impact and meteoric hazard</td>
</tr>
<tr>
<td>Gelles, E.</td>
<td>Annotated bibliography on ionosphere and electromagnetic wave propagation, cosmic radiation, and radiative belts, telluric current, geomagnetism, and auroras</td>
</tr>
<tr>
<td>Goldschmidt, H. J.</td>
<td>Annotated bibliography on high temperature X-ray diffraction techniques - photography and diffactometry for crystallography</td>
</tr>
<tr>
<td>Goldstein, H.</td>
<td>C IND - bibliography on microscopic neutron cross section data, listed by target nuclei and cross section parameter</td>
</tr>
<tr>
<td>Goldstein, R. J.</td>
<td>Bibliography on heat transfer compiled by mechanical engineering department of University of Minnesota</td>
</tr>
<tr>
<td>Heald, J.</td>
<td>Bibliography on biofluids - biophysics, biochemistry, and biology of the biosphere</td>
</tr>
<tr>
<td>Hess, W. M.</td>
<td>Bibliography on solar wind effect, radiation and artificial radiation belts, aurora, solar energy particles, galactic cosmic rays, geomagnetism</td>
</tr>
<tr>
<td>Goddy, R. M.</td>
<td>Planetary upper atmospheres - priority ratings for experiments, types of measurements for recommended program, and annotated bibliography</td>
</tr>
<tr>
<td>Green, R. W.</td>
<td>Predips in constructing solid state devices for logic systems - annotated bibliography</td>
</tr>
<tr>
<td>Greger, N.</td>
<td>Thermoluminescence bibliography</td>
</tr>
<tr>
<td>Grossmann-Cooper, A.</td>
<td>Bibliography on air pollution - atmosphere, biochemistry, chemistry, physics, control devices, instrumentation, meteorology, physiology, and economics</td>
</tr>
<tr>
<td>Grubinskas, R. C.</td>
<td>Nondestructive testing involving electromagnetic test methods - bibliography</td>
</tr>
<tr>
<td>Habib, L. M.</td>
<td>Filament wound structures, review of recent investigations</td>
</tr>
<tr>
<td>Haley, F. S.</td>
<td>Human factor engineering - bibliography</td>
</tr>
<tr>
<td>Hall, L. A.</td>
<td>Thermoconductivity of ten cryogenic fluids - bibliography</td>
</tr>
<tr>
<td>Hanss, J. L.</td>
<td>Liquid rocket propellants in zero gravity - bibliography</td>
</tr>
<tr>
<td>Hawley, R.</td>
<td>Bibliography of papers dealing with properties of high vacuum as electrical insulator</td>
</tr>
<tr>
<td>Healey, J. D.</td>
<td>Bibliography on biofluids - biophysics, biochemistry, and biology of the biosphere</td>
</tr>
<tr>
<td>Henneberger, H. C. C.</td>
<td>Information retrieval system using bibliography dealing with postcrash aircraft fire, rescue, and evacuation</td>
</tr>
<tr>
<td>Hess, W. M.</td>
<td>Bibliography on solar wind effect, radiation and artificial radiation belts, aurora, solar energy particles, galactic cosmic rays, geomagnetism</td>
</tr>
</tbody>
</table>
Krasner, S.
BIBLIOGRAPHY ON PROPERTIES OF NITRATES, CHLORATES, AND BROMATES OF SODIUM, POTASSIUM, AND RUBIDIUM
PA-TR-3161
N65-19482

Kroostad, R. S.
PROGRAM AND LECTURE ABSTRACTS OF CONFERENCE ON PHYSICS AND NONDESTRUCTIVE TESTING
AD-624582
N66-16734

Laisipen
BIBLIOGRAPHY OF AERONAUTICAL STUDIES FROM 1912 TO 1945
N65-23490

Lanier, S. F.
ANONOTATED BIBLIOGRAPHY ON CONTROLLED FUSION, PLASMA PHYSICS, MAGNETOHYDRODYNAMICS, AND MAGNETIC FIELDS
TID-3557, SUPPL. 2
N65-19595

BIBLIOGRAPHY ON BISMUTH TELLURIDES, LEAD TELLURIDES, AND TIN TELLURIDES
TID-3583
N65-29058

Laughlin, J. S.
BIOLOGICAL EFFECTS OF RADIATION-ANNOTATED
BIBLIOGRAPHY
N66-20502

Lillich, K. H.
SURVEY OF LITERATURE ON THERMODYNAMICS FROM
BIBLIOGRAPHIES IN JOURNALS ON HEAT AND MASS TRANSFER AND ASME SYMPOSIA
A66-10178

Lindquist, J. Y.
SPEECH PRODUCTION, TRANSMISSION, AND ANALYSIS - INSTRUMENTATION, NASAL CAVITY STRUCTURES, ACOUSTICS, SPEECH SPECTRUM, DEAFNESS AIDS, AND BIBLIOGRAPHY ON SPEECH RECODING FOR DEAFNESS
STL-QPSR-4/1964
N65-33238

Little, M. S.
BIBLIOGRAPHY OF GLIA CELL STUDIES
NASA-CR-70631
N66-18316

Lomov, B. F.
ANONOTATED BIBLIOGRAPHY ON PROBLEMS IN ENGINEERING PSYCHOLOGY
NASA-TI-F-312
N65-24380

Lukov, A. V.
BIBLIOGRAPHY OF RUSSIAN BOOKS ON HEAT TRANSFER
A65-18406

HEAT TRANSFER BIBLIOGRAPHY OF RUSSIAN WORKS INCLUDING THERMODYNAMICS, CONVECTION, MASS TRANSFER, PHASE CHANGE, COMBUSTION, ETC
A65-26384

Lyau, C. F. G.
BIBLIOGRAPHY OF DIGITAL MAGNETIC RECORDING HEADS, MATERIALS, AND TECHNIQUES, DISK-DRAIN FILE APPLICATIONS, AND DATA STORAGE SYSTEMS
YS-1585/3111
N66-16490

Lyle, R. G.
ANONOTATED BIBLIOGRAPHY ON PROTECTIVE COATINGS FOR HIGH TEMPERATURE NIOBIUM APPLICATIONS
PDL-50205
N66-12789

Magdaleno, R. E.
EFFECTS OF SYSTEM NONLINEARITIES ON HUMAN OPERATOR TRACKING PERFORMANCE - LITERATURE SURVEY AND
BIBLIOGRAPHY
AMRL-TR-65-158
N66-18582

Magnolia, L. R.
BIBLIOGRAPHY AND ABSTRACTS ON EXISTENCE AND DETECTION OF LIFE OUTSIDE EARTH BPSHERE, ORIGIN OF LIFE, METEORITIC LIFE STUDIES, AND CONTAMINATION PROBLEMS - EXOBIOLOGY
STL-9990-6737-KU-000
N65-19834

REFERENCE BIBLIOGRAPHY AND ABSTRACTS ON MANNED MARS FLYBY AND STOPOVER MISSIONS, UNMANNED PRECURSOR MISSIONS, AND EARTH-BASED STUDIES OF MARS
STL-9990-6903-KU-000
N65-23043

Nuclear power applications for space missions - BIBLIOGRAPHY
STL-9990-6998-KU-000
N65-34447

SELECTED BIBLIOGRAPHY ON METEOROID ENVIRONMENT
STL-9990-7136-KU-000
N66-14539

Martin, M. S.
BIBLIOGRAPHY OF PAPERS DEALING WITH PROPERTIES OF HIGH VACUUM AS ELECTRICAL INSULATOR
N66-11654

Manson, j. N.
BIBLIOGRAPHY ON SPECTROSCOPY RELATEE TO HIGH TEMPERATURE CHEMISTRY, REACTIONS BETWEEN GASES AND CONDENSED PHASES, AND PLASMA THERMODYNAMICS
REPT.-17
N66-19086

Marshall, R. J.
VERTEBRAI INJURIES SUSTAINED FROM AIRCRAFT EJECTION - PROPOSED DESIGN TO DETERMINE DYNAMIC STRENGTH OF ISOLATED VERTEBRA, AND ANNOTATED BIBLIOGRAPHY ON EJECTION-RELATED INJURIES TI-65-041
N65-28352

Marsou, F. M.
BIBLIOGRAPHY ON SNOW, ICE, AND PERMAFROST - LIVING IN POLAR REGIONS AND COLD WEATHER AREAS
CREEL-12
N66-12524

Martin, H. L.
ANONOTATED BIBLIOGRAPHY ON PHYSICS OF HYPERVELOCITY IMPACT AND METEORIC HAZARD
NASA-TR-R-55920
N65-25011

Mathur, J. R.
ANONOTATED BIBLIOGRAPHY OF DEVELOPMENTS IN METEROLOGICAL SENSORS AND MEASURING TECHNIQUES
AO-61696
N65-30007

Mausberg, W.
EIBLIGRAPHIC DATA ON PARTICLE ACCELERATORS
AED-C-18-04
N65-27418

McCabe, R.
THERMOLUMINESCENCE BIBLIOGRAPHY
TIO-39111, REV. 2
N66-17417

McCarty, R. D.
BIBLIOGRAPHY ON THERMOPHYSICAL PROPERTIES OF FLUORINE FROM 0 TO 300 DEG K
NASA-CR-50285
N65-17316

McCure, L.
SELECTED BIBLIOGRAPHY ON RADIO ASTRONOMY
HB-125
N66-10170

McDaniel, E. W.
ANONOTATED BIBLIOGRAPHY ON ATOMIC AND MOLECULAR PROCESSES, PARTICLE INTERACTIONS, INTERACTIONS OF ELECTRIC AND MAGNETIC FIELD, AND GAS TRANSPORT
CRNL-AMPIC-1
N65-30652

McDonald, P. F.
ANONOTATED BIBLIOGRAPHY ON CHARGED PARTICLE MOTION IN MAGNETIC FIELDS AND ON SPACE RADIATION MAGNETIC SHIELDING
NASA-TR-68672
N66-13563

McNutt, W. P.
ANONOTATED BIBLIOGRAPHY ON LUNAR THERMOPHYSICS AND RELATED INFORMATION
RSIC-119
N65-33675
McCarthy, D. E.

BIBLIOGRAPHY OF PAPERS DEALING WITH REFLECTION AND TRANSMISSION OF IR MATERIALS

A65-20825

McIntosh, C. P.

ANNOTATED BIBLIOGRAPHIES ON LIQUID PENETRANTS - NONDESTRUCTIVE TESTING INFORMATION

AMRA-MS-64-12

A65-22229

McKee, C. J.

BIBLIOGRAPHY OF THERMAL TESTING LITERATURE

AMRA-MS-64-14

A65-22230

McLennan, S. I.

HEAT TRANSFER AND HYDRAULICS OF TWO PHASE MEDIA - ANNOTATED BIBLIOGRAPHY

FTG-MT-64-271

A65-16676

Moon, C. J.

BIBLIOGRAPHY ON HOT-WIRE ANEMOMETRY WHICH INCLUDES ABSTRACTS

BID-18

A66-20985

Morel, W. C.

ANNOTATED BIBLIOGRAPHY ON INVESTMENT AND OPERATING COSTS FOR CHEMICAL AND PETROLEUM PLANTS

BM-IC-8265

A66-10624

Morrel, W. B.

ATMOSPHERIC REFRACTION, CLIMATE, AND WEATHER EFFECTS ON RADIO-RADAR WAVE PROPAGATION - BIBLIOGRAPHY

TR-103, VOL. I

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Niiyama, H.

ESAKI DIODE BIBLIOGRAPHY FROM JANUARY 1958 TO NOVEMBER 1963, ESPECIALLY AMPLIFIERS AND LOGIC CIRCUITS

A65-34673

Niklai, R. J.

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TR-10

A65-22374

Noonan, E. F.

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Nungley, V. J.

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Palmer, R. S.

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