A three-part cumulative update of the 1998 edition of the NASA Thesaurus
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NASA THESAURUS SUPPLEMENT

A three-part cumulative update of the 1998 edition of the NASA Thesaurus

National Aeronautics and Space Administration

January 2000
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Introduction


Part 1 (Hierarchical Listing) contains the full hierarchical structure for each new term along with all new cross references and term definitions.

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For a fuller explanation, see the Introduction (pages viii–xi) in the printed version of the 1998 NASA Thesaurus, Volume 1.

Part 2 (Rotated Term Display) is a ready reference tool which provides additional ‘access points’ to the thesaurus terminology. It contains the postable terms and nonpostable cross references found in the Hierarchical Listing (Part 1) arranged in a KWIC (key-word-in-context) index.

Part 3 (Changes) is a listing of deletions or changes to postable terms or USE references made since the 1998 edition of the NASA Thesaurus. To control the size of the Supplement, only significant changes in term hierarchies and related term lists are presented.

NOTE: Other resources and products related to the NASA Thesaurus can be found at the following URL: http://www.sti.nasa.gov/thesfrm1.htm.

In addition to the above mentioned resources, a thesaurus listserv has been set up for submitting candidate terms and discussion of related lexicographical issues. A listing of candidate and accepted new terms is posted monthly. To subscribe to this listserv, send an e–mail message to listserv@sti.nasa.gov. Leave the subject line blank and in the message section, type SUBSCRIBE THESAURUS–L <Your name>. (Should you wish to cancel your subscription, send a message to the same address with UNSUBSCRIBE in the message section.)

Comments and suggestions regarding the NASA Thesaurus should be directed to:

Lexicographer
NASA Center for AeroSpace Information
7121 Standard Drive
Hanover, MD 21076–1320
E–mail: help@sti.nasa.gov
Fax: (301) 621–0134
Telephone: (301) 621–0114
ACE satellite

**USE** Advanced Composition Explorer

**Advanced Composition Explorer**
*added December 1999*

**DEF** Explorer spacecraft (launched August 25, 1997) carrying six high-resolution sensors and three monitoring instruments for sampling low-energy particles of solar origin and high-energy galactic particles. From a vantage point approximately 1/100 of the distance from the Earth to the Sun, the Advanced Composition Explorer (ACE) can perform measurements over a wide range of energy and nuclear mass, under all solar wind flow conditions and during both large and small particle events including solar flares. When reporting space weather ACE can provide an advance warning of geomagnetic storms.

**UF** ACE satellite

**GS** artificial satellites
- scientific satellites
- Explorer satellites
- Advanced Composition Explorer

**RT** energetic particles
- galactic cosmic rays
- interplanetary medium
- solar corotational radiation
- solar cosmic rays
- solar wind
- space weather

**aeroshells**
*added May 1999*

**DEF** Aerodynamic structural shells that attach to, or comprise a portion of, the exterior of an aerospace vehicle or space probe; especially such structures that support atmospheric entry, aerobraking, aerostated, or hypersonic flight.

**GS** aerodynamic configurations
- aeroshells

**RT** aeromaneuvering
- nose cones
- reentry vehicles
- spacecraft design
- spacecraft shielding
- spacecraft structures

**Alpha Magnetic Spectrometer**
*added June 1998*

**UF** AMS (spectrometer)

**GS** measuring instruments
- spectrometers
- Alpha Magnetic Spectrometer

**RT** antimatter
- Cerenkov counters
- cosmic rays
- dark matter
- International Space Station
- interstellar matter
- magnetic spectroscopy
- space station payloads
- spaceborne astronomy

**AM–1 (EOS) spacecraft**

**USE** Terra spacecraft

**AMS** (spectrometer)

**USE** Alpha Magnetic Spectrometer

**anisoplanatism**
*added May 1999*

**DEF** In adaptive optics (AO) systems, a performance-degrading effect that arises whenever light from the wave-front sensor beacon and light from the target object sample different volumes of optical turbulence. This effect results in an increased value of the aperture-averaged residual phase variance after AO compensation, which causes an exponential decrease in system performance.

**RT** aberration
- adaptive optics
- atmospheric correction
- atmospheric optics
- image resolution
- optical correction procedure
- phase error
- telescopes

**antenna gain**
*added June 1998*

**GS** amplification
- antenna gain

**RT** antennas
- automatic gain control
- directional antennas
- effectiveness
- high gain
- signal reception

**antiphase boundaries**
*added March 1998*

**GS** boundaries
- antiphase boundaries

**RT** binary alloys
- crystal dislocations
- crystal lattices
- crystal structure
- grain boundaries
- interfacial energy
- intermetallics
- microstructure
- order–disorder transformations
- solid solutions
- solid–solid interfaces
- superlattices
- ternary alloys

**antiphase domains**

**USE** antiphase boundaries

**APB** (materials)

**RT** binary alloys
- crystal dislocations
- crystal lattices
- crystal structure
- grain boundaries
- interfacial energy
- intermetallics
- microstructure
- order–disorder transformations
- solid solutions
- solid–solid interfaces
- superlattices
- ternary alloys

**associative memory**
*added December 1999*

**DEF** A method or device for data storage in which data is identified by a part or properties of its content, rather than by an address or relative position.

**UF** associative storage

**GS** memory
- associative memory

**RT** associative processing (computers)
- computer storage devices
- neural nets
- optical memory (data storage)

**biomass burning**
*added December 1999*

**DEF** Burning of vegetation in forests, grasslands, and agricultural lands usually carried out to clear the land and change its use; a significant contributor to the global budgets of many radiatively and chemically active gases and particulates in the atmosphere.

**GS** combustion
- biomass burning

**RT** air pollution
- climate change
- combustion products
- contaminants
- deforestation
- environment pollution
- forest fires
- man environment interactions
- smoke

**Biot–Savart law**
*added August 1998*

**DEF** Law describing the intensity of a magnetic field produced by a current carrying wire. Also applied in fluid dynamics to describe the flow–velocity field induced by a vortex.

**GS** laws
- Biot–Savart law

**RT** electromagnetism
- flow velocity
- magnetic fields
- Maxwell equation
- vortices

**Boeing 717 aircraft**
*added October 1998*

**GS** Boeing aircraft
- Boeing 717 aircraft
- commercial aircraft
- Boeing 717 aircraft
- jet aircraft
- turbofan aircraft
- Boeing 717 aircraft
- monoplane
- Boeing 717 aircraft
- passenger aircraft
- Boeing 717 aircraft
- transport aircraft
- Boeing 717 aircraft

**RT** aircraft
bohrium

(adDED May 1998)

GS chemical elements
. bohrium
RT hassium
staborgium

Bond number

(adDED December 1999)

DEF Dimensionless number representing the ratio between gravitational force and the surface tension of a bubble, drop, or meniscus.
GS dimensionless numbers
. Bond number
RT drops (liquids)
gravitational effects
interfacial tension
menisci

cascade devices

(adDED August 1998)

DEF Amplifier devices consisting of a common grounded-emitter (cathode) or source stage that drives a grounded-base output stage, resulting in high-impedance, high-gain, and low-noise.
GS amplifiers
. cascade devices
electronic equipment
. solid state devices
. semiconductor devices
. cascade devices
RT CMOS
field effect transistors
high electron mobility transistors
switching circuits
transistor amplifiers
transistor circuits
transistors

chain reactions (chemistry)

(adDED May 1999)

GS chemical reactions
. chain reactions (chemistry)
RT chemical lasers
combustion chemistry

chain reactions (nuclear physics)

(adDED May 1999)

GS nuclear reactions
. nuclear fission
. chain reactions (nuclear physics)
RT fission products
neutrons

Chandra X Ray Astrophysics Facility
USE X Ray Astrophysics Facility

clamped structures

(adDED February 1998)

RT beams (supports)
clamps
composite structures
joints (junctions)
laminates
plates (structural members)
shells (structural forms)
structural members
structural vibration

cloud-to-cloud discharges

(adDED August 1998)

GS electric current
. electric discharges
. lightning
. . cloud-to-cloud discharges

cloud-to-ground discharges

(adDED August 1999)

GS electric current
. electric discharges
. lightning
. . cloud-to-ground discharges

Comet Nucleus Tour

(adDED February 1999)

DEF A NASA Discovery-class mission to acquire imagery and comparative spectral maps of comet nuclei and analyze comet dust flows. The mission spacecraft will fly within 100 kilometers of at least three near-Earth comets including Comet Encke, Comet Schwassmann-Wachmann, and Comet d'Arrest.
UF CONTOUR (mission)
GS space missions
. flyby missions
. . Comet Nucleus Tour
RT comet nuclei
Encke comet
Schwassmann-Wachmann comet
swinging by technique
content-addressable memory
USE associative memory

CONTOUR (mission)
USE Comet Nucleus Tour

Cooper-Harper ratings

(adDED August 1999)

GS flight characteristics
. pilot ratings
. . Cooper-Harper ratings
ratings
. pilot ratings
RT aircraft performance
helicopter performance

corrugated waveguides

(adDED February 1998)

GS waveguides
. corrugated waveguides
RT gratings (spectra)
optical waveguides
waveguide antennas

cosmic rays
USE weakly interacting massive particles

critical current

(adDED December 1999)

DEF A current value in a superconductive material, at a particular constant temperature and in the absence of a magnetic field, below which the material is superconducting and above which the material behaves normally.
GS electric current
. critical current
RT critical temperature
current density
supercconductivity
superconductors (materials)

cuprates

(adDED April 1999)

GS copper compounds
. cuprates
RT BSCCO superconductors
copper oxides
YBCO superconductors

cycloaddition

(adDED June 1998)

DEF Pericyclic chemical reaction in which unsaturated molecules combine to form a cyclic compound under the influence of heat or light.
GS chemical reactions
. cycloaddition
. . Diels–Alder reactions
RT cyclic compounds
photochemical reactions
polymerization
synthesis (chemistry)

Darkstar unmanned aerial vehicle
USE pilotless aircraft
reconnaissance aircraft

Deep Space 1 Mission

(adDED October 1998)

DEF First of several technology demonstration missions supporting the NASA New Millennium Program. Advanced technologies include an ion propulsion system, solar concentrator arrays, autonomous navigation and control systems; an integrated camera and imaging spectrometer, and several telecommunications and microelectronics devices. The mission plan includes a flyby of Asteroid 1992 KD.
UF DS1 (space mission)
GS space missions
. Deep Space 1 Mission
RT asteroid missions
autonomous navigation
flyby missions
interplanetary spacecraft
ion propulsion
NASA space programs
solar electric propulsion
deformable mirrors

(adDED May 1999)

GS mirrors
. deformable mirrors
RT adaptive optics
light modulation
phase modulation
segmented mirrors

Delta 3 launch vehicle

(adDED October 1998)

GS launch vehicles
. Delta launch vehicle
. . Delta 3 launch vehicle
dielectric waveguides

(adDED February 1998)

GS waveguides
. dielectric waveguides
RT dielectrics
microwave transmission
optical waveguides
waveguide antennas
waveguide filters
differential games

(adDED October 1998)

GS games
. differential games
RT minimax technique
optimal control
pursuit-evasion games
stochastic processes
The method to a large number of elements in the tight-packed transition metals. More recent functional theory was intended primarily for mirror images of molecular structures are non-superimposable enantiomers enantiomeric compounds embedded atom method

**digital cameras**

- optical equipment
  - cameras
  - digital cameras
  - photographic equipment
  - television cameras

**DS1 (space mission)**

USE Deep Space 1 Mission
dubium

- chemical elements
- dubium

**EAM (physical chemistry)**

USE embedded atom method ekranoplanes

USE wing-in-ground effect vehicles

**electronic structure**

- (added April 1999)
  - (THE TERM "ATOMIC STRUCTURE" WAS USED FOR THIS CONCEPT PRIOR TO MAY 1999)
  - (added February 1998)
    - DEF A semiempirical calculation method developed by Daw and Baskes for determining the energetics of atoms in a bulk environment. The original form of the method was based on density functional theory and was intended primarily for tight-packed transition metals. More recent modifications have extended the applicability of the method to a large number of elements in the periodic table.
    - UF EAM (physical chemistry)
    - MEAM (physical chemistry)
    - modified embedded atom method

**enantiomeric compounds**

USE enantiomers

**enantiomers**

- (added August 1998)
  - DEF Isomeric pairs whose crystalline forms or molecular structures are non-superimposable mirror images.
  - UF enantiomeric compounds

**enantiomorphs**

GS isomers
  - enantiomers
  - chirality
  - crystal structure
  - isomorphism
  - molecular structure
  - stereochemistry
  - symmetry

**environmental cleanup**

- (added February 1999)
  - USE environmental cleanup

**Euler–Bernoulli beam theory**

USE Euler–Bernoulli beams

**Euler–Bernoulli beams**

- (added April 1998)
  - USE Euler–Bernoulli beam theory
  - GS structural members
  - beams (supports)
  - Euler–Bernoulli beams

**evanescent waves**

- (added March 1998)
  - USE evanescent waves

**ferroelastic materials**

- (added June 1998)
  - USE ferroelastic materials

**free-space optical interconnects**

- smart materials
  - ferroelasticity
  - (added June 1998)
  - GS mechanical properties
  - elastic properties
  - (added September 1999)
  - USE fiber pushout
  - GS releasing

**fiber pushout**

- (added September 1999)
  - USE fiber pushout
  - GS releasing

**finite difference time domain method**

- (added April 1999)
  - USE finite difference time domain method

**field tests**

- (added November 1998)
  - USE field tests

**free–space optical communication**

- (added June 1998)
  - USE free–space optical communication

**free–space optical interconnects**

- (added June 1998)
  - USE free–space optical interconnects

**reinforcing fibers**

- (added April 1999)
  - USE reinforcing fibers
frequency domain analysis

optical switching
optoelectronic devices
photonics

frequency domain analysis
(added April 1999)
GS analysis (mathematics)
RT control systems design
dynamic response
frequency response
parameter identification
signal processing

FSOI (integrated optics)
USE free-space optical interconnects

fullerides
(added February 1998)
GS carbon compounds
RT fullerenes

fuselage-wing stores
USE wing-fuselage stores

fusion propulsion
(added September 1999)
GS propulsion
RT inertial confinement fusion
nuclear electric propulsion
nuclear fusion
nuclear rocket engines
plasma propulsion
spacecraft propulsion

Gabor filters
(added February 1998)
GS image filters
RT computer vision

Gabor transformation
(added February 1998)
GS transformations (mathematics)
RT Fourier transformation

Genes

Games
(added October 1998)
GS games
differential games
pursuit-evasion games
war games
zero sum games
RT game theory

Genesis mission
(added February 1999)
DEF A space mission to collect solar wind samples from a halo orbit about the sun–Earth L1 point for two years, returning those samples to Earth in 2003 for analysis and examination.
Analysis of the samples collected by the mission will contribute to an understanding of the origins of the solar system.
GS space missions

Glucocorticoids
(added December 1999)
DEF Adrenocortical steroid hormones that are involved in the metabolism of fats, proteins, and carbohydrates, and have anti-inflammatory properties.
GS organic compounds
RT adrenal gland

Godunov method
(added February 1998)
DEF Non-oscillatory finite-volume scheme that incorporates the exact or approximate solution to the Riemann initial-value problem, or a generalization of it.
GS analysis (mathematics)
RT approximation

Hale–Bopp comet
(added July 1998)
GS celestial bodies
RT Hale–Bopp comet

Hardware-in-the-loop simulation
(added February 1999)
USE hardware-in-the-loop tests

Hassium
(added May 1998)
GS chemical elements
RT hassium

Head up tilt
(added March 1998)
DEF Body posture while lying on a tilt table with the head higher than the rest of the body.
UF HUT (physiology)
GS posture
RT head up tilt

Heavy fermion superconductors
(added April 1999)
GS superconductors
RT heavy fermion superconductors

Heavy fermion systems
(added April 1999)
GS intermetallics
RT heavy fermion systems

Heavy metals
(added July 1999)
DEF Metals or alloys having a high specific gravity; usually ones with a density greater than 5 grams per cubic centimeter.
GS metals
RT heavy metals
lead (metal)
mercury (metal)
soil pollution
toxic hazards
zinc

hindcasting
(added July 1999)
DEF The process of reconstructing the time and space evolution of an atmospheric or oceanic phenomenon that has occurred in the past, through an analysis of historical data, a mathematical–model simulation of the processes involved, or a combination of data analysis and modeling.

GS predictions
RT forecasting
HUT (physiology)
USE head up tilt

hypothetical particles
(added November 1998)
GS particles
RT elementary particles
RT hypothetical particles
RT gluons
RT gravitinos
RT gravitons
RT leptons
RT quarks
RT tachyons
RT weakly interacting massive particles

hypothetical planets
(added June 1998)
UF Phaethon (hypothetical planet)
GS celestial bodies
RT comets

in vitro methods and tests
(added May 1999)
DEF Tests of, or methods related to, biological or biochemical processes occurring in an artificial environment or outside of a living cell or organism.

RT bioassay
RT biotechnology
RT culture techniques
RT cytology
RT histology
RT in vitro methods and tests
RT intravenous procedures
RT methodology
RT tests

in vitro simulation

in–flight simulation
(added October 1998)
DEF The use of a specialized test aircraft to simulate the flight characteristics of another vehicle. The test aircraft is typically capable of duplicating the computed responses of the simulated vehicle through special aerodynamic and control system features.

UF in-flight simulation
GS simulation
RT aircraft control
RT flight characteristics
RT flight control
RT flight simulators
RT flight tests
RT training simulators

intelligent materials
(added November 1998)
GS materials
GS alloys
GS electronic materials
GS electronics
GS electronics components
GS electronics subsystems
GS fiber optics
GS ion engines
GS ion optics
GS ion propulsion
GS ion engines
GS mass spectrometers
GS methodology
GS tests

in–flight simulation

intercalibration
(added January 1999)
DEF Calibration between two or more data sources, including (1) the comparison of data sets acquired by different types of measurement systems for the purpose of deducing the calibration values for one of the measurement systems; (2) the mutual calibration of data from different measurement systems through the comparison of the data with model calculations; and (3) the calibration of multiple detectors on a single instrument through the comparison of data from each detector.

GS calibrating
RT intercalibration
RT comparison
RT correction
RT multisensor applications
RT standardization

intracloud discharges
(added August 1999)
DEF Tests of, or methods related to, biological or biochemical processes occurring within a living cell or organism.

RT bioassay
RT biotechnology
RT culture techniques
RT cytology
RT histology
RT in vivo methods and tests
RT methodology
RT tests

in vivo methods and tests
(added May 1999)
DEF Tests of, or methods related to, biological or biochemical processes occurring within a living cell or organism.

RT bioassay
RT biotechnology
RT culture techniques
RT cytology
RT histology
RT in vivo methods and tests
RT methodology
RT tests

Iridium network
(added December 1998)
DEF A 66–satellite wireless personal telecommunications network designed to provide world-wide telephone, paging, facsimile and data services to handheld or mobile equipment.

UF Iridium satellites
GS networks
RT communication satellites
RT mobile communication systems

Java (programming language)
(added December 1998)
GS languages
RT virtual machine
RT compilation
RT execution

Josephson effect
(added April 1999)
DEF A quantum mechanical effect that occurs when more than one electron tunnels from one superconductor to another superconductor.

UF Josephson effect
GS Josephson junctions
GS superconducting devices

kinking
(added April 1998)
DEF The process of reconstructing the time and space evolution of an atmospheric or oceanic phenomenon that has occurred in the past, through an analysis of historical data, a mathematical–model simulation of the processes involved, or a combination of data analysis and modeling.

GS predictions
RT forecasting

kinks
(added June 1998)
DEF The process of reconstructing the time and space evolution of an atmospheric or oceanic phenomenon that has occurred in the past, through an analysis of historical data, a mathematical–model simulation of the processes involved, or a combination of data analysis and modeling.

GS predictions
RT forecasting

LabVIEW (software)
(added December 1998)
GS simulation
GS simulations
GS simulations software

Leaves phases
(added August 1998)
GS solid phases
RT crystals
caps for a complete Martian year. The Orbiter carries two science instruments: the Pressure Modulated Infrared Radiometer and the Mars Color Image.

Mars Global Surveyor

DEF Spacecraft and related mission designed to orbit Mars over a two year period and collect data on the surface morphology, topography, composition, gravity, atmospheric dynamics, and magnetic field. Launched November 1996.

GS interplanetary spacecraft
RT Atmosphere
GS Mars probes
. Mars missions
. Mars Polar Lander
RT Mars atmosphere
GS Spacecraft
GS Mars Observer
GS Mars Surveyor 98 Program

Mars missions

GS space missions
. Mars missions
. manned Mars missions
. Mars sample return missions
. Mars Surveyor 2001 Mission
RT Earth/Mars Trajectories
Mars Climate Orbiter
Mars exploration
Mars Global Surveyor
Mars landing
Mars Observer
Mars Pathfinder
Mars Polar Lander
Mars probes
Mars surface samples
Mars Surveyor 98 Program
. missions
return to Earth space flight

Mars Polar Lander

DEF One of two spacecraft comprising the Mars Surveyor 98 program; launched December 1998. After a soft landing near the Martian south pole, the Lander will search for near-surface ice and possible surface records of cyclic climate change, and characterize physical processes key to the seasonal cycles of water, carbon dioxide and dust on Mars. Prior to landing, the Deep Space 2 microprobes will be released as part of a technology-validation mission related to multiple-lander spacecraft.

UF Mars Surveyor 98 Lander
GS interplanetary spacecraft
RT Mars atmosphere
GS Mars probes
. Mars missions
. Mars Polar Lander
RT Mars atmosphere
GS Spacecraft
GS Mars Surveyor 98 Program

Mars Surveyor 98 Lander

USE Mars Polar Lander
USE Mars Climate Orbiter

Mars Surveyor 98 Program

DEF Mars exploration program consisting of two mission spacecraft—the Mars Climate Orbiter and the Mars Polar Lander. Two surface penetrating micropores (part of the associated Deep Space 2 mission) for detecting water ice are also piggybacking on the Lander.

GS programs
. NASA programs
. NASA space programs
. Mars Surveyor 98 Program
. space probes
. Mars missions
. Mars Polar Lander
RT Mars atmosphere
Mars Climate Orbiter
Mars missions
Mars Polar Lander
Mars surface

Mars Surveyor 2001 Mission

GS space missions
. Mars missions
. Mars Surveyor 2001 Mission
RT Mars environment
Mars surface
Mars surface samples
Nasa space programs

Mars missions

USE microelectromechanical systems
nacelle wing configurations

USE wing nacelle configurations

mischmetal

(added June 1998)

DEF An alloy consisting of a natural mixture of rare-earth metals; used in electrode materials and hydrogen-storage alloys, as a general alloy addition, and in the production of some aluminum alloys and steels.

GS alloys
  . rare earth alloys
    . . . mischmetal
  . alloying
    aluminum alloys
cathodic coatings
desorption
electrode materials
titanium
stainless
modified embedded atom method

USE embedded atom method

nanostructures

USE nanostructures

Mindlin plates

(added April 1998)

USE Mindlin plates

MGS (spacecraft)

USE Mars Global Surveyor

microelectromechanical systems

(added October 1998)

UF MEMS (electromechanical devices)

GS electronic mechanical devices
  . microelectromechanical systems
  . microinstrumentation
  . microinstrumentation
  . microinstrumentation
  . microelectromechanical devices
  . microelectronics
nansatellites

microsats

USE microsats

Mindlin plate theory

USE Mindlin plates

Mindlin plates

(added April 1998)

USE Mindlin plates

Mindlin plates

(added April 1998)

USE Mindlin plates

NGST project

USE Next Generation Space Telescope project

nozomi mars orbiter

(added August 1998)

DEF A Japanese Mars mission spacecraft designed to study the Martian upper atmosphere and its interaction with the solar wind, and to develop technologies for use in future planetary missions. Specifically, instruments on the spacecraft enable the measurement of the structure, composition and dynamics of the ionosphere; aeronomy effects of the solar wind; the escape of atmospheric constituents; the intrinsic magnetic field; and dust in the upper atmosphere and in-orbit around Mars.

GS interplanetary spacecraft
  . Mars probes
    . . . Nozomi Mars Orbiter
  . Japanese spacecraft
    . Nozomi Mars Orbiter
  . unmanned spacecraft
    . space probes
  . . . Mars probes
    . . . . Nozomi Mars Orbiter
  . aeronomy
    Deimos
    Phobos
  . planetary atmospheres
  . solar planetary interactions
optical interconnects

(added June 1998)

USE optical interconnects

optical interconnects

USE optical interconnects

orbit determination

(added December 1998)

GS orbit determination
  . airborne range and orbit determination
  . orbit calculation
  . . . minimum variance orbit determination
  . . . . orbital position estimation
RT Global Positioning System position errors
satellite tracking
space navigation
spacecraft control
spacecraft position indicators

PDS (spectroscopy)

USE photothermal deflection spectroscopy

perfectly matched layers

(added July 1998)

DEF In the area of computational electromagnetism, an absorbing boundary condition used for terminating infinite domain calculations in the finite-difference time-domain (FDTD) or finite element methods. The approach has also been extended to the analysis of some problems in acoustics.

GS conditions
  . boundary conditions
  . . perfectly matched layers
RT computational electromagnetics
  . computational grids
  . electromagnetic absorption
  . electromagnetic scattering
  . finite difference theory
  . finite element method
Maxwell equation

Phaethon (hypothetical planet)

USE hypothetical planets

Phobos spacecraft

(added August 1998)

DEF Two Soviet spacecraft (Phobos 1 and 2, both launched in July 1988) designed to study the plasma environment in the Martian vicinity, the surface and atmosphere of Mars, and the surface composition of the Martian satellite Phobos. Other mission objectives included the study of the interplanetary environment and solar observations.

GS interplanetary spacecraft
  . Mars probes
  . . . Phobos spacecraft
  . Soviet spacecraft
  . . . Phobos spacecraft
  . unmanned spacecraft
  . . . . Mars probes
  . . . . . . . . . . Phobos spacecraft
RT Mars atmosphere
  . Mars environment
  . Phobos
photothermal deflection spectroscopy
(added November 1998)

UF PDS (spectroscopy)
GS spectroscopy
RT optical measurement
thermal diffusivity
thermal lensing

pilot opinion ratings
USE pilot ratings

pilot ratings
(added August 1999)
DEF Subjective assessment of the handling and stability characteristics of an aircraft or other flight vehicle.

UF pilot opinion ratings
GS flight characteristics
RT aircraft performance

planet X
USE hypothetical planets

Planet-B spacecraft
USE Nozomi Mars Orbiter

PML (electromagnetism)
USE perfectly matched layers

polyvinylidene
USE vinylidene

Population III stars
(added July 1999)
UF primordial stars
GS celestial bodies
RT dark matter

Population III stars
USE Population III stars

proportional navigation
(added July 1998)
GS navigation
RT homing

proportional navigation
USE Population III stars

proton–antiproton interactions
(added June 1999)
GS particle interactions
RT annihilation reactions

pursuit–evasion games
(added October 1998)
GS games
RT differential games

RJ Bhattacharyya
USE Invar

RJ Bhattacharyya
USE Mindlin plates

renewable energy
(added December 1998)
GS renewable energy
RT biomass energy production

RJ Bhattacharyya
USE Invar

RJ Bhattacharyya
USE Mindlin plates

RJ Bhattacharyya
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RJ Bhattacharyya
USE Mindlin plates

RJ Bhattacharyya
USE Invar

RJ Bhatcha
Coastal Zone Color Scanner
downloading
SeaWiFS
USE
Sea-viewing Wide Field-of-view Sensor

Service Module (ISS)

*(added March 1999)*

DEF
Primary Russian component of the International Space Station providing an early station living quarters and life support system functions to all early elements. Also provides propulsive attitude control and reboost capability for the early station.

GS
- space station modules
- Service Module (ISS)

RT
International Space Station life support systems

Shergotty Nakhla Chassigny meteorites

USE
SNC meteorites

Shuttle Superlightweight Tank

USE
external tanks
propellant tanks

SLWT (propellant tank)

USE
external tanks
propellant tanks

smart materials

*(added March 1998)*

DEF
Engineered materials capable of responding to their environment to a significant degree, by virtue of intrinsic properties and/or built-in sensor/actuator elements. Applications of these materials include vibration suppression/isolation, precision positioning, damage detection, and tunable devices.

UF
intelligent materials

RT actuators
- composite materials
electrochemo-thermo-mechanical
ceramic materials
electrostriction
terrestrial materials
- ferroelastic materials
- ferroelectric materials
- ferromagnetic materials

oo materials
- piezoelectric ceramics

oo sensors
- shape memory alloys
- smart structures
- vibration damping

SNC meteorites

*(added March 1998)*

DEF
Meteorites with petrologic characteristics, isotopic signatures, trapped gas compositions, and relatively young crystallization ages (less than 1.3 billion years), which together point to a Martian origin. The name of these meteorites is derived from first three known examples—Shergotty, Nakhla, and Chassigny.

UF
Martian meteorites
- Shergotty Nakhla Chassigny meteorites

GS
- celestial bodies
- meteorites
- stony meteorites
- achondrites
- SNC meteorites

RT
chassignites

Mars (planet)
Mars surface
nakhites
shergottites

sonochemistry

USE
ultrasonic processing

space station modules

*(added November 1998)*

GS modules
- . space station modules
- . Service Module (ISS)

RT
International Space Station life support systems

space tourism

*(added April 1998)*

GS
- space industrialization
- tourism

RT
- space tourism
- space transportation

space weather

*(added June 1998)*

SN
- (FOR METEOROLOGICAL CONDITIONS RELATED TO THE MIDDLE AND LOWER ATMOSPHERES OF NON-EARTH PLANETS USE "PLANETARY METEOROLOGY")

DEF
The dynamic, highly variable conditions of the geospace environment that encompasses the sun, the interplanetary medium, and the Earth magnetosphere-ionosphere-thermosphere system. Major contributing factors include variations in the solar wind, solar flares, and solar mass ejections. Effects of space weather phenomena include performance degradation of communication, navigation, and power systems on both spacecraft and ground-based systems; and potential health hazards during extravehicular activity.

RT
Advanced Composition Explorer spacecraft
- aerospace environments
- atmosphere
Earth
ionosphere
magnetosphere
orbital environments
ionospheric disturbances
magnetic disturbances
magnetic storms
radiation hazards
solar activity effects
solar terrestrial interactions
space plasmas
weather

spiral bevel gears

*(added May 1998)*

GS
- bevel gears
- spiral bevel gears

Stardust Mission

*(added March 1999)*

DEF
First U.S. mission launched to robotically obtain samples in deep space and return them to Earth. The NASA Discovery-class mission will return dust samples collected from the debris cloud surrounding the nucleus of Comet Wild 2. Interstellar dust will also be collected. The mission spacecraft takes advantage of an Earth gravity-assist maneuver to reach the comet, and uses an aerogel-based dust collector.

GS space missions
- flyby missions
- . Stardust Mission
- comet nuclei
- interstellar matter
- Wild 2 comet

staged leaders

*(added August 1999)*

GS
electric current
- electric discharges
- light
- leaders (meteorology)
- stepped leaders

superhumps (astronomy)

*(added October 1998)*

RT
aerogel
- astronomical photometry
- binary stars
- cataclysmic variables
- dwarf novae
eclipsing binary stars
- stellar spectro photometry

Terra spacecraft

*(added June 1998)*

DEF
First in a series of EOS (Earth Observing System) spacecraft designed to advance the understanding of the ways that the Earth's lands, oceans, air, ice, and life function as a total environmental system. The spacecraft carries five high-resolution instruments: the Advanced Spaceborne Thermal Emission Radiometer (ASTER), the Clouds and the Earth Radiant Energy System (CERES), the Multi-Angle Imaging Spectroradiometer (MISR), the Moderate Resolution Imaging Spectroradiometer (MODIS), and the Measurements of Pollution in the Troposphere (MOPITT) instrument.

UF
AM-1 (EOS) spacecraft
- Earth Observing System (EOS)
- Terra spacecraft
- Earth observations (from space)
- remote sensing

thermal lenses

USE
thermal lenses

thermal lensing

*(added November 1998)*

UF
thermal lenses

GS
thermal lensing
- thermal blooming

RT
atmospheric optics
- focusing
- laser beams
- photothermal deflection spectroscopy
- wave front deformation

thermocapillary migration

*(added September 1999)*

DEF
Phenomenon where droplets (or bubbles) in a host fluid with a uniform temperature gradient migrate to the hot end of the host fluid because of the temperature dependence of the interfacial energy of the droplets.

RT
bubbles
- capillary flow
time domain analysis

- drops (liquids)
- electromigration
- interfacial tension
- Marangoni convection
- microgravity
- space processing
- temperature gradients
- thermomigration

**time domain analysis**

*Added April 1999*

- GS analysis (mathematics)
  - time domain analysis
  - . finite difference time domain method
- RT control systems design
doctoral response
  - parameter identification
  - signal processing
  - time response

**time synchronization**

*Added December 1998*

- GS synchronism
  - time synchronization
- RT clocks
  - frequency standards
  - frequency synchronization
  - Global Positioning System
  - time measurement
  - time signals
  - universal time

**Titan 4B launch vehicle**

*Added October 1998*

- GS launch vehicles
  - . Titan launch vehicles
  - . Titan 4 launch vehicle
  - . . Titan 4B launch vehicle
  - . rocket vehicles
  - . multistage rocket vehicles
  - . Titan launch vehicles
  - . Titan 4 launch vehicle
  - . . Titan 4B launch vehicle
- RT Cassini mission
  - laser gyroscopes

tourism

*Added April 1999*

- GS tourism
  - . space tourism
- RT industries
  - recreation
  - transportation
  - travel

**TRACE satellite**

*Added May 1998*

- USE Transition Region and Coronal Explorer

**Transition Region and Coronal Explorer**

*Added May 1998*

- DEF Small Explorer Mission satellite
  - supporting the investigation of the relationships between fine-scale magnetic fields and their associated plasma structures in the transition region and lower corona of the Sun.
- UF TRACE satellite
- GS artificial satellites
  - scientific satellites
  - . Explorer satellites
  - . . Transition Region and Coronal Explorer
- RT chronotaxes
  - SOHO Mission
  - solar atmosphere
  - solar corona
  - solar magnetic field

**solar observatories**

- solar physics
- solar transition region

**transluminal planets**

- USE hypothetical planets

**transverse momentum**

*Added June 1999*

- GS momentum
  - . transverse momentum
- RT angular momentum
  - elementary particle interactions
  - particle motion
  - transverse acceleration

**Trebitt method**

*Added July 1998*

- DEF Boundary-type approximation scheme
  - for the solution of boundary value problems for partial differential equations.
- UF hybrid-Trebitt finite element method
- GS analysis (mathematics)
  - . numerical analysis
  - . approximation
  - . . boundary element method
  - . . . Trebitt method
- RT bending theory
  - boundary conditions
  - boundary value problems
  - finite element method
  - partial differential equations
  - plate theory
  - structural analysis

**TRMM satellite**

*Added May 1998*

- DEF Satellite supporting the joint US-Japanese Tropical Rainfall Measuring Mission (TRMM) to explore tropical rainfall and its effects on the Earth energy budget, general circulation, and climate. The TRMM satellite represents the first dual deployment of a precipitation radar and passive microwave radiometer on an Earth-viewing satellite.
- UF Tropical Rainfall Measuring Mission sat
- GS artificial satellites
  - . meteorological satellites
  - . TRMM satellite
  - . scientific satellites
  - . . TRMM satellite
- RT atmospheric circulation
  - Earth radiation budget
  - equatorial atmosphere
  - monsoon
  - tropical meteorology

**Tropical Rainfall Measuring Mission sat**

*Added January 1999*

- USE TRMM satellite

**Ukrainian space program**

*Added January 1999*

- GS programs
  - . space programs
  - . . Ukrainian space program
- RT Zenit launch vehicles

**ultrasonic processing**

*Added June 1998*

- DEF The use of ultrasonic radiation to synthesize a compound or material, or alter the structure, properties, or form of a material.
- UF sonochemistry
  - ultrasonic treatment
- RT ultrasonic cleaning

**water sampling**

*Added March 1998*

- DEF The process of obtaining a representative sample of water from any natural or artificial environment.
- GS sampling
  - . water sampling
- RT environmental monitoring
  - ground water
  - pollution monitoring
  - sea water
  - surface water
  - water
DEF Rotor devices that use gasdynamic waves to transfer energy rather than the motion of solid surfaces. Typically, they consist of a series of passages arranged on a drum which rotates about an axis. Through rotation, the ends of the passages are periodically exposed to various circumferentially arranged ports which initiate the traveling expansion or compression waves within the passages. The particular circumferential location of the ports determines the thermodynamic cycle of the working fluid.

GF rotating bodies
. rotors
. wave rotors
RT compression waves
energy transfer
engine parts
gas dynamics
gas generators
gas turbine engines
topping cycle engines
turbomachinery
turboshifts
wave generation

weakly interacting massive particles
(added November 1999)
DEF Hypothetical elementary particles predicted by supersymmetry theories, that interact only through gravity and weak-type interactions; postulated to account for dark matter in the Universe.

GF particles
. . . weakly interacting massive particles
RT dark matter
missing mass (astrophysics)
solar neutrinos

WIG vehicles
USE wing–in–ground effect vehicles

Wild 2 comet
(added March 1999)
DEF Periodic comet, discovered January 1978, relatively new to the inner Solar System due to a shift in its orbit caused by the gravitational influence of Jupiter.

GF celestial bodies
. comets
. . . Wild 2 comet
RT Stardust Mission

WIMP's (astrophysics)
USE weakly interacting massive particles

wing–body and tail configurations
USE body–wing and tail configurations

wing–body configurations
USE body–wing configurations

wing-in-ground effect vehicles
(added December 1999)
DEF Vehicles designed to fly about half their mean chord above the surface, taking advantage of the reduced drag and increased lift caused by ground effect. These vehicles, also known as WIGs or WIGEs, normally operate above a water surface.

GF ekranoplanes
WIG vehicles
ground effect machines
. wing–in–ground effect vehicles
RT ground effect (aerodynamics)
surface effect ships

X–32 aircraft
(added October 1998)
DEF Experimental supersonic strike fighter developed to be configured as a conventional or short takeoff/vertical landing vehicle. Developed as part of the Joint Strike Fighter (JSF) program.

GF Boeing aircraft
. X–32 aircraft
jet aircraft
. X–32 aircraft
research vehicles
. research aircraft
. X–32 aircraft
supersonic aircraft
. X–32 aircraft
V/STOL aircraft
. X–32 aircraft

X–35 aircraft
(added October 1998)
DEF Experimental strike fighter incorporating a vertical lift fan for short takeoff/vertical landing capability. Developed as part of the Joint Strike Fighter (JSF) program.

GF jet aircraft
. X–35 aircraft
Lockheed aircraft
. X–35 aircraft
research vehicles
. research aircraft
. X–35 aircraft
V/STOL aircraft
. X–35 aircraft

X–43 vehicle
(added September 1999)
DEF The experimental research vehicle of the NASA Hyper–X program designed to flight validate key propulsion and related technologies for air-breathing hypersonic aircraft.

GF aerospace vehicles
. X–43 vehicle
hypersonic vehicles
. X–43 vehicle
research vehicles
. X–43 vehicle
RT hypersonic flight
Pegasus air–launched booster
supersonic combustion ramjet engines

Zarya control module
(added November 1998)
DEF Component of the International Space Station providing propulsion, steering, and communications during the early assembly stages of the station; later serving as a docking port and fuel tank. Zarya was built by Russia under contract to the U.S. and is owned by the U.S.

GF modules
. space station modules
. . . Zarya control module
RT International Space Station

Zenit launch vehicles
(added January 1999)
GF launch vehicles
. Zenit launch vehicles
RT sea launching
Ukrainian space program
NASA THESAURUS SUPPLEMENT

PART 2

ROTATED TERM DISPLAY

NUMERALS

AM- 1 (EOS) spacecraft
use Terra spacecraft

Deep Space 1 Mission

EOS AM- 1 spacecraft
use Terra spacecraft

Wild 2 comet

H- 2 control

Delta 3 launch vehicle
Delta 4 launch vehicle

Titan 4B launch vehicle
X- 32 aircraft
X- 35 aircraft
X- 43 vehicle

Mars Surveyor 98 Lander
use Mars Polar Lander

Mars Surveyor 98 Orbiter
use Mars Climate Orbiter

Mars Surveyor 98 Program

Boeing 717 aircraft

Mars Surveyor 2001 Mission

ACE satellite
use Advanced Composition Explorer
content-addressable memory
use associative memory

Advanced Composition Explorer

Darkstar unmanned

Boeing 717 aircraft

very large transport

VLTA (aircraft)
use very large transport aircraft

X-32 aircraft

X-35 aircraft

Alpha Magnetic Spectrometer

AM-1 (EOS) spacecraft
use Terra spacecraft

EOS AM-1 spacecraft
use Terra spacecraft

AMS (spectrometer)
use Alpha Magnetic Spectrometer

frequency domain

time domain

analysis

analysis

analysis

anisoplanatism

antenna gain

antiphase boundaries

antiphase domains
use antiphase boundaries

proton-

antiproton interactions

APB (materials)
use antiphase boundaries

archaeomagnetism
use paleomagnetism

associative memory

associative storage
use associative memory

MACHOs
use massive compact halo objects

superhumps
WIMPs
use weakly interacting massive particles

Chandra X Ray Astrophysics Facility

atom method

modified embedded

atom method

use embedded atom method

B

Planet- B spacecraft
use Nozomi Mars Orbiter

kink

based combined-cycle engines

batteries

Euler-Bernoulli beam theory

use Euler-Bernoulli beams

Euler-Bernoulli beams

Euler-Bernoulli beams

bevel gears

bevel gears

biomass burning

Blot-Savart law

body and tail configurations

use body-wing and tail configurations

wing-body configurations

use body-wing configurations

Boeing 717 aircraft

bohrium

Bond number

Helio-

antiphase boundaries

burning

C

digital

cameras
cascade devices

chain reactions (chemistry)

chain reactions (nuclear physics)

Chandra X Ray Astrophysics Facility
use X Ray Astrophysics Facility

Shergotty Nakhla

Chassigny meteorites

use SNC meteorites

chain reactions (chemistry)

EAM (physical chemistry)

MEAM (physical chemistry)

use embedded atom method

clamped structures

cleanup

environmental

Mars

cloud-to-

cloud discharges

13
cloud

rocket-based
Hale-Bopp
Wild 2
free-space optical
massive
Advanced
enantiomeric
nacelle wing
configurations
wing-body
configurations
wing-body and tail
configurations
Unity
H-2
Zarya
Transition Region and...
FSOI (integrated optics) use free-space optical interconnects
fullerides
fusion stores
use wing-fuselage stores
fusion propulsion
G
Gabor filters
Gabor transformation
antenna
gain
games
differential
pursuit-evasion
zero sum
bevel
spiral bevel
scene
generation
Next
Mars
Global Surveyor
gluocorticoids
Godunov method
ground discharges
ground effect vehicles
H
H-2 control
Hale-Bopp comet
massive compact
halo objects
hardware-in-the-loop simulation
hardware-in-the-loop tests
use hardware-in-the-loop simulation
Cooper
Harper ratings
hasium
head up tilt
heavy fermion superconductors
heavy fermion systems
heavy metals
hindcasting
HUT (physiology)
use head up tilt
hybrid-Trefftz finite element method
use finite element method
Trefftz method
hynahetical particles
(hypothetical planet)
use hypothetical planets
hypothetical planets
I
Population
III stars
inflight simulation
use in-flight simulation
FSOI (integrated optics)
use free-space optical interconnects
intelligent materials
use smart materials
weakly interacting massive particles
interactions
intercalibration
interconnects
intracloud discharges
ion optics
Iridium network
Iridium satellites
use communication satellites
Iridium network
Service Module (ISS)
I
Java (programming language)
scraf
joints
Josephson effect
Josephson tunneling
use Josephson effect
K
kink bands
kinking
L
Mars Polar Lander
Mars Surveyor 98 Lander
use Mars Polar Lander
Java (programming language)
language
very large transport aircraft
Delta 3
Delta 4
Titan 4B
VentureStar
Long March
Zenit
launch vehicles
Laves phases
Biot-Savart law
perfectly matched stepped
leaders
leaders (meteorology)
thermal lenses
use thermal lensing
thermal lensing
lithium batteries
Long March launch vehicles
hardware-in-the-loop simulation
loop simulation
loop tests
Lunar Prospector
M
MACOs (astronomy)
use massive compact halo objects
magnetic nozzles
Alpha Magnetic Spectrometer
magnetostratigraphy
Long March launch vehicles
Mars Climate Orbiter
Mars Global Surveyor
Mars missions
Nozomi
Mars Orbiter
Mars Polar Lander
Mars Surveyor 98 Lander
use Mars Polar Lander
Mars Surveyor 98 Orbit
use Mars Climate Orbiter
Mars Surveyor 98 Program
Mars Surveyor 2001 Mission
Marsian meteorites
use SNC meteorites
massive compact halo objects
weakly interacting
matched layers
(materials)
use antiphase boundaries
materials

ferroelastic materials
intelligent materials
use smart materials
smart materials
FDTD (mathematics)
use finite difference time domain method
MEAM (physical chemistry)
use embedded atom method
Tropical Rainfall Measuring Mission sat
use TRMM satellite
Meitnerium
use TRMM satellite
associative memory
use associative memory
MEMS (electromechanical devices)
use microelectromechanical systems
heavy metals
Martian meteorites
use SNC meteorites
SNC meteorites
(meteorology)
method
methods and tests
MGS (spacecraft)
use Mars Global Surveyor
microelectromechanical systems
microsatellites
microsats
thermocapillary migration
Mindlin plate theory
use Mindlin plates
Mindlin plates
Reissner-Mindlin plate theory
Deformation mirrors
Laves nacelle
Phobos spacecraft
PDS (spectroscopy)
use photothermal deflection spectroscopy
perfectly matched layers
Phaethon (hypothetical planet)
use hypothetical planets
Laves phases
Phobos spacecraft
spectroscopy

N
nacelle wing configurations
use wing nacelle configurations
Shergotty Nakhla Chassigny meteorites
use SNC meteorites
nanosatellites
use nanosatellites
proportional navigation network
NGST project
use Next Generation Space Telescope project
Nozomi Mars Orbiter
nanosatellites
use nanosatellites

O
objects
use pilot ratings
free-space optical communication
free-space optical interconnects
optical interconnects
use free-space optical interconnects
ion optics
use ion optics
orbit determination
Mars Climate Orbiter
Mars Surveyor 98
Nozomi Mars Orbiter

P
particles
particles
use photothermal deflection spectroscopy
perfectly matched layers
Phaethon (hypothetical planet)
use hypothetical planets
Laves phases
Phobos spacecraft
EAM (physical chemistry)
use embedded atom method
MEAM (physical chemistry)
use embedded atom method
chain reactions (nuclear physics)
use head up tilt
HUT (hypothetical planet)
use head up tilt
pilot opinion ratings
use pilot ratings
pilot ratings
Phaethon (hypothetical planet)
use hypothetical planets
Phobos spacecraft
use hypothetical planets

16
planets
use hypothetical planets
Mindlin plate theory
use Mindlin plates
Mindlin plates
use Mindlin plates
PML (electromagnetism)
use perfectly matched layers
Mars Polar Lander
polyvinylidene
use vinylidene
Population III stars
primordial stars
use Population III stars
ultrasonic
Mars Surveyor 98
Ukrainian space
Java
Next Generation Space Telescope
NGST
SLWT (propellant tank)
use external tanks
propellant tanks
proportional navigation
fusion
Lunar Prospector
proton-antiproton interactions
pursuit-evasion games
fiber pushout

TRMM
satellite
use Communication Satellites
Iridium network
Biot- Savart law
scard joints
scene generation
acreech tones
Sea-viewing Wide Field-of-view Sensor
seaborgium
SeaWIFS
use Sea-viewing Wide Field-of-view Sensor

Space 1 Mission
space mission
use Deep Space 1 Mission
space optical communication
space optical interconnects
space program
space station modules
Next Generation Space Telescope project
space tourism
space weather
AM-1 (EOS) spacecraft
use Terra spacecraft
EOS AM-1 spacecraft
use Terra spacecraft
MGS spacecraft
use Mars Global Surveyor
Phobos spacecraft
Planet-B spacecraft
use Nozomi Mars Orbiter
Terra spacecraft
Alpha Magnetic Spectrometer (spectrometer)
use Alpha Magnetic Spectrometer
PDS (spectroscopy) use photothermal deflection spectroscopy
photothermal deflection spectroscopy spiral bevel gears
Stardust Mission
Population III stars use Population III stars
space station modules stepped leaders
associative storage use associative memory
fuselage-wing stores use wing-fuselage stores
electronic structure
clampered structures zero sum games
heavy fermion superconductors superhumps (astronomy)
Shuttle Superlightweight Tank use external tanks propellant tanks
Mars Global Surveyor Mars Surveyor 98 Lander use Mars Polar Lander
Mars Surveyor 98 Orbiter use Mars Climate Orbiter
Mars Surveyor 98 Program Mars Surveyor 2001 Mission
time synchronization
heavy fermion systems
microelectromechanical systems
T wing-body and tail configurations use body-wing and tail configurations
Shuttle Superlightweight Tank use external tanks propellant tanks
SLWT (propellant tank) use external tanks propellant tanks
Next Generation Space Telescope project Terra spacecraft
field tests use hardware-in-the-loop simulation
in vitro methods and in vivo methods and Euler-Bernoulli beam
Mindlin plate theory use Euler-Bernoulli beams
Mindlin plate theory use Mindlin plates thermal lenses use thermal sensing
thermal lensing thermocapillary migration
head up time domain analysis
time domain method
time synchronization
Rossi X Ray Timing Explorer use X-Ray Timing Explorer
Titan 4B launch vehicle
screech tones Comet Nucleus Tour

Tours (spectroscopy)

space tourism
TRACE satellite use Transition Region and Coronal Explorer
gabor transformation Transition Region and Coronal Explorer
transplutonic planets use hypothetical planets
very large transport aircraft transverse momentum
ultrasonic treatment use ultrasonic processing
hybrid-Trefftz finite element method use finite element method
Treatz method
TRMM satellite
Tropical Rainfall Measuring Mission sat use TRMM satellite
tunneling use Josephson effect

U Ukrainian space program
ultrasonic processing ultrasonic treatment use ultrasonic processing
undercooling use supercooling
Unity connecting module
Darkstar unmanned aerial vehicle use pilotless aircraft reconnaissance aircraft
head up tilt

V Darkstar unmanned aerial vehicle use pilotless aircraft reconnaissance aircraft
vehicle Delta 3 launch
vehicle Delta 4 launch
vehicle Titan 4B launch
vehicle VentureStar launch
vehicle X-43
vehicle Long March launch
vehicle WIG
vehicle wing-in-ground effect vehicles
vehicle Zent launch

W water sampling
wave rotors
waveguides
dielectric waveguides
evanescent waves
weakly interacting massive particles
space weather
Sea-viewing Wide Field-of-view Sensor
WIG vehicles
use wing-in-ground effect vehicles
Wild 2 comet
WIMPs (astronomy)
use weakly interacting massive particles
wing-body and tail configurations
use body-wing and tail configurations
wing-body configurations
use body-wing configurations
nacelle wing configurations
use wing nacelle configurations
wing-in-ground effect vehicles
fuselage-wing configurations
use wing-body configurations
fuselage-wing stores
use wing-fuselage stores

X
planet X
use hypothetical planets
X-32 aircraft
X-35 aircraft
X-43 vehicle
Chandra X Ray Astrophysics Facility
use X Ray Astrophysics Facility
Rossi X Ray Timing Explorer
use X Ray Timing Explorer

Z
Zarya control module
Zenit launch vehicles
zero sum games
NASA THESAURUS SUPPLEMENT

PART 3

CHANGES

No term changes or deletions were made during this period.
The NASA Thesaurus Supplement is a cumulative update to the 1998 edition of the NASA Thesaurus (NASA/SP-1998-7501). The Supplement, published every six months, includes all new terms and associated hierarchies added since the cutoff for the 1998 edition (December 1997). Parts 1 and 2 (Hierarchical Listing and Rotated Term Display) correspond to Volumes 1 and 2 of the 1998 printed edition. Definitions are included in Part 1; uppercase/lowercase forms are provided in both Parts 1 and 2. Part 3 is a list of deletions or changes to valid terms.