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NASA THESAURUS SUPPLEMENT

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

January 2000
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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/thesfrlnl.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.

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.

antenna gain
(added June 1998)
GS amplification
USE . antenna gain
RT antennas automatic gain control directional antennas effectiveness high gain signal reception

antiphase boundaries
(added March 1998)
GS boundaries
USE . 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

ATM-1 (EOS) spacecraft
USE Terra spacecraft

associate storage
USE associative memory

bevel gears
(added May 1999)
GS gears
USE . bevel gears
RT spiral bevel gears

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.

Blot−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.

Boeing 717 aircraft
(added October 1998)
GS Boeing aircraft
USE . Boeing 717 aircraft
RT . Boeing 717 aircraft

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.

Boeing 717 aircraft
(added October 1998)
GS Boeing aircraft
USE . Boeing 717 aircraft
RT . Boeing 717 aircraft

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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.
bohrium

(adDED May 1998)

GS chemical.s elements
- bohrium

RT hassium

---stabilium

**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

cascode 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

- cascode devices

- electronic equipment

- solid state devices

- semiconductor devices

- casc...a 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 fissi...decom products

- neutrons

**Chandra X Ray Astrophysics Facility**

USE X Ray Astrophysics Facility

coupled-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 to 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

swingby technique

content-addressable memory

USE associative memory

CONTOUR (mission)

USE Comet Nucleus Tour

**Cooper-Harper ratios**

(adDED August 1999)

GS flight characteristics

- pilot ratings

- Cooper-Harper ratings

RT aircraft performance

helicopter performance

corrugated waveguides

(adDED February 1998)

GS waveguides

- corrugated waveguides

RT gratings (spectra)

optical waveguides

waveguide antennas

cosmics

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

superconductivity

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 Millenium 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

defeatable mirrors

(adDED May 1998)

GS mirrors

- defeatable 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

RT launch vehicles

- Delta launch vehicle

- Delta 4 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

more recent

molecular structures are non-superimposable

enantiomers

definitions for determining the

eam (physical chemistry)

embedded atom method

enantiomorphs

enantiomers

enantiomeric compounds

enantiomers

enantiomorphs

environmental cleanup

environmental cleanup

debonding (materials)

destructive tests

field tests

finite difference time domain method

finite difference time domain method

free-space optical communication

free-space optical interconnects

free-space optical interconnects
frequency domain analysis

optical switching
optoelectronic devices
photronics

frequency domain analysis
(added April 1999)

GS analysis (mathematics)
. frequency domain analysis
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
. fullerides
RT ∞ alkali metal compounds
∞ chemical compounds
doped crystals
fullerenes
superconductors (materials)

fuselage-wing stores
USE wing-fuselage stores

fusion propulsion
(added September 1999)

GS propulsion
. nuclear propulsion
. . fusion 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
. Gabor filters
RT computer vision
∞ filters
Gabor transformation
image analysis
image processing
low pass filters
neural nets
spatial filtering
textures

Gabor transformation
(added February 1998)

GS transformations (mathematics)
. Gabor transformation
RT Fourier transformation
Gabor filters
holography
image processing
signal analysis
wavelet analysis

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
. Genesis mission
RT solar system evolution
solar wind

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
. lipids
. . . steroids
. . . . corticosteroids
. . . . . glucocorticoids
secretions
. endocrine secretions
. hormones
. . . corticosteroids
. . . . . glucocorticoids
RT adrenal gland
atrophy
carbohydrate metabolism
hormone metabolisms
hypokinesia
lipid metabolism
muscles
protein metabolism

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)
. numerical analysis
. . finite volume method
. . . Godunov method
procedures
. . finite volume method
. . . Godunov method
RT approximation
Cauchy problem
Cauchy–Riemann equations
computational fluid dynamics
Euler equations of motion
finite difference theory
shift wave interaction
supersonic flow

H-2 control
(added February 1998)

GS automatic control
. optimal control
. . H-2 control
optimization
. . optimal control
. . . H-2 control
RT control systems design
control theory
controllers
feedback control
H-infinity control
linear quadratic Gaussian control

Hale-Bopp comet
(added July 1998)
GS celestial bodies
. comets
. . Hale-Bopp comet
RT Oort cloud

hardware-in-the-loop simulation
(added February 1999)

UF hardware-in-the-loop tests
GS simulation
. hardware-in-the-loop simulation
RT computerized simulation
control simulation
performance tests
systems simulation

hardware-in-the-loop tests
USE hardware-in-the-loop simulation

hassium
(added May 1998)

GS chemical elements
. hassium
RT bohrium
meitnerium

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
. . head up tilt
RT aerospace medicine
bed rest
bioastronautics
cardiovascular system
gravitational physiology
head down tilt
hemodynamic responses
lower body negative pressure
orthostatic tolerance
orthostatic physiological responses
supine position
weightlessness simulation

heavy fermion superconductors
(added April 1999)

GS conductors
. superconductors (materials)
. . heavy fermion superconductors
. intermetallics
. heavy fermion systems
. . heavy fermion superconductors

heavy fermion systems
(added April 1999)

GS intermetallics
. heavy fermion systems
. heavy fermion superconductors
RT fermions
superconductors (materials)

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
. heavy metals
RT cadmium
chromium
contaminants
copper
industrial wastes
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
meteorological parameters
nowcasting
oceanographic parameters
weather forecasting

HUT (physiology)
USE head up tilt

hybrid–Trefitz finite element method
USE finite element method
Trefitz method

hypothetical particles
(added November 1999)
GS particles
. . . elementary particles
. . . hypothetical particles
. . . gluons
. . . gravitinos
. . . gravitons
. . . partons
. . . quarks
. . . . tachyons
. . . . . weakly interacting massive particles

hypothetical planets
(added June 1998)
UF Phaethon (hypothetical planet)
planet X
transplutonic planets
GS celestial bodies
. . . planets
. . . hypothetical planets
RT comets
extrasolar planets
planetary orbits

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
biotechnology
conditions
culture techniques
cytology
fertilization
histology
in vivo methods and tests
. . . methodology
. . . 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

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
. . . communication networks
. . . Iridium network
. . . satellite networks
. . . satellite constellations
. . . Iridium network
RT communication satellites
facsimile communication
mobile communication systems
satellite communication
telephony
wireless communication

Iridium satellites
USE communication satellites
Iridium network

Java (programming language)
(added December 1998)
GS languages
. . . programming languages
. . . high level languages
. . . . Java (programming language)
RT C++ (programming language)
client server systems
internet
object-oriented programming
World Wide Web

Josephson effect
(added April 1999)
UF Josephson tunneling
RT electron tunneling
Josephson junctions
SIS (superconductors)
superconducting devices
superconductors (materials)

Josephson tunneling
USE Josephson effect

kink bands
(added March 1998)
RT buckling
compression loads
edge dislocations
failure modes
fiber composites
microstructure
plastic deformation
reinforcing fibers
single crystals

kinking
(added April 1998)
RT bending
buckling
compression loads
cracking (fracturing)
deformation
displacement
fiber composites
folding
heaving
twisting
wrinkling

Leaves phases
(added August 1998)
GS solid phases
. . . Leaves phases
RT alloys
crystal lattices
crystal structure
cubic lattices
interstitials
microstructure
phase transformations

leaders (meteorology)
(added August 1999)
GS 
ed electric current
. electric discharges
. lightning
. leaders (meteorology)
. stepped leaders

lithium batteries
(added December 1999)
GS 
electrochemical cells
. electric batteries
. lithium batteries
. lithium sulfur batteries
RT 
storage batteries

Long March launch vehicles
(added January 1999)
GS 
launch vehicles
. Long March launch vehicles
RT 
Chinese space program
Chinese heavy lift launch vehicles

Lunar Prospector
(added February 1998)
GS 
artificial satellites
. lunar satellites
. Lunar Prospector
lunar spacecraft
. lunar satellites
. Lunar Prospector
RT 
lunar composition
lunar exploration
lunar programs
lunar resources
lunar surface

MACHOs (astronomy)
USE 
massive compact halo objects

magnetic nozzles
(added September 1999)
DEF 
Nozzle devices used in some nuclear and plasma propulsion systems that utilize magnetic fields to direct and accelerate plasma flows, thereby providing thrust for propulsion.
RT 
coaxial plasma accelerators
electric rocket engines
∞ nozzles
nuclear propulsion
nuclear rocket engines
plasma acceleration
plasma engines
plasma propulsion
rocket nozzles
spacecraft propulsion

magnetostratigraphy
(added April 1999)
GS 
stratigraphy
. magnetostratigraphy
RT 
geochronology
palaeomagnetism

Mars Climate Orbiter
(added March 1999)
DEF 
One of two spacecraft comprising the Mars Surveyor 98 program; launched December 1998. After obtaining a polar, nearly circular orbit around Mars, the Orbiter will serve as a radio relay during the Lander surface mission, then begin monitoring the atmosphere, surface, and polar caps for a complete Martian year. The Orbiter carries two science instruments: the Pressure Modulated Infrared Radiometer and the Mars Color Imager.
UF 
Mars Surveyor 98 Orbiter
GS 
interplanetary spacecraft
Mars probes
. Mars Climate Orbiter
unmanned spacecraft
. space probes
. Mars probes
. Mars Climate Orbiter
RT 
Mars atmosphere
Mars missions
Mars Polar Lander
Mars surface
Mars Surveyor 98 Program

Mars Global Surveyor
(added March 1999)
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.
UF 
MGS (spacecraft)
GS 
interplanetary spacecraft
. Mars probes
. Mars Global Surveyor
unmanned spacecraft
. space probes
. Mars probes
. Mars Global Surveyor
RT 
Mars atmosphere
Mars missions
Mars Observer
Mars surface

Mars missions
(added February 1999)
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
(added March 1999)
DEF 
One of two spacecraft comprising the Mars Surveyor 98 program; launched January 1999. 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
. Mars probes
. Mars Polar Lander
unmanned spacecraft
. space probes
. Mars probes
. Mars Polar Lander
RT 
Mars atmosphere
Mars Climate Orbiter
Mars missions
Mars surface
Mars Surveyor 98 Program

Mars Surveyor 98 Lander
USE 
Mars Polar Lander

Mars Surveyor 98 Orbiter
USE 
Mars Climate Orbiter

Mars Surveyor 98 Program
(added March 1999)
DEF 
Mars exploration program consisting of two mission spacecraft—the Mars Climate Orbiter and the Mars Polar Lander. Two surface penetrating microprobes (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 programs
. . . Mars Surveyor 98 Program
RT 
Mars atmosphere
Mars Climate Orbiter
Mars missions
Mars Polar Lander
Mars surface

Mars Surveyor 2001 Mission
(added July 1999)
GS 
space missions
. Mars missions
. Mars Surveyor 2001 Mission
RT 
Mars environment
Mars surface
Mars surface samples
NASA space programs

Martian meteorites
USE 
SNC meteorites

massive compact halo objects
USE 
MACHOs

meitnerium
USE 
embedded atom method

melantrichium
(added May 1998)
GS 
chemical elements
. meitnerium
RT 
hassium

MEMS (electromechanical devices)
USE 
microelectromechanical systems
nanostructures
(added October 1998)
DEF Satellites with a total mass smaller than
10 kg incorporating miniaturized electronic and
mechanical systems.
UF nanosats
GS artificial satellites
RT microelectromechanical systems
nanosatellites

Next Generation Space Telescope project
(added December 1999)
DEF Project in the NASA Origins program
with the goal of developing a spaceborne
observatory to succeed the Hubble Space
Telescope after 2005. The telescope is foreseen
to have an aperture of 8 meters and be optimized
for near infrared wavelengths (0.6-10 ȝm) in
order to enable the exploration of the most remote
high redshift universe.
UF NGST project
GS programs
RT astronomical observatories
infrared telescopes
NASA space programs
spaceborne telescopes

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 space-
craft 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.
UF Planet-B spacecraft
GS interplanetary spacecraft
. Mars probes
. Nozomi Mars Orbiter
Japanese spacecraft
. Nozomi Mars Orbiter
unmanned spacecraft
. space probes
. Mars probes
. Nozomi Mars Orbiter
RT aeronomy
Deimos
Phobos
planetary atmospheres
solar planetary interactions

optical interconnects
(added June 1998)

NGST project
USE Next Generation Space Telescope project

MGS (spacecraft)
USE Mars Global Surveyor

microelectromechanical systems
(added October 1998)
UF MEMS (electromechanical devices)
GS electromechanical devices
RT microelectromechanical systems
microinstrumentation
microminiaturization
microminiaturized electronic devices
microminiaturized electronic devices
microsatellites

Mindlin plates
(added April 1998)
UF Mindlin plate theory
GS Mindlin plates
RT dynamic structural analysis
finite element method
free vibration
plate theory
Reissner–Mindlin theory
shear strain
structural analysis
structural vibration

miscmetal
(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
. miscmetal
RT alloying
aluminum alloys
cathodic coatings
desorption
electrode materials
intermetallics
steels

modified embedded atom method
USE embedded atom method

nacelle wing configurations
USE wing nacelle configurations

nanosatellites
(added October 1998)
DEF Satellites with a total mass between 10
and 100 kg often incorporating miniaturized
electronic and mechanical systems.
UF nanosats
GS artificial satellites
RT microelectromechanical systems
nanosatellites

orbit determination
(added December 1998)
GS orbit determination
RT Global Positioning System
space navigation
spacecraft control

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.
UF PML (electromagnetism)
GS conditions
. boundary conditions
. perfectly matched layers

phantom (hypothetical planet)
USE hypothetical planets

Phobos spacecraft
(added August 1998)
DEF Two Soviet spacecraft (Phobos 1 and 2,
both launched in July 1989) 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
. space probes
. Mars probes
. Phobos spacecraft
photothermal deflection spectroscopy
(added November 1998)
UF PDS (spectroscopy)
GS spectroscopy
. photothermal deflection spectroscopy
RT optical measurement
. photoscopic spectroscopy
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
. pilot ratings
. . Cooper-Harper ratings
ratings
. . pilot ratings
. . Cooper-Harper ratings
RT aircraft performance assessments
controlability
helicopter 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
. stars
. . Population III stars
RT cosmology
dark matter
relic radiation
eternal evolution
supersmassive stars
primordial stars
USE Population III stars

proportional navigation
(added July 1998)
GS navigation
. proportional navigation
RT homing
interception
line of sight
missile control
proportional control
rendezvous guidance
terminal guidance

proton-antiproton interactions
(added June 1999)
GS particle interactions
. elementary particle interactions
RT annihilation reactions
antiprotons
high energy interactions
matter-antimatter propulsion
pursuit-evasion games
(added October 1998)
GS games
. pursuit-evasion games
RT differential games
. evasive actions
. interception
optimal control
pursuit tracking
trajectory optimization
zero sum games
RBCC engines
USE rocket-based combined-cycle engines
Reissner–Mindlin plates
USE Mindlin plates
renewable energy
(added December 1998)
GS renewable energy
. geothermal energy utilization
. hydroelectricity
. tidalpower
. wave energy
. wind power utilization
RT biocconversion
bimass energy production
clean energy
energy policy
∞ energy sources
. energy technology
. geothermal energy conversion
. hydrogen-based energy
. ocean thermal energy conversion
. solar energy conversion
. waste utilization
water wave energy conversion
Ringleb flow
(added July 1998)
GS fluid flow
. compressible flow
. Ringleb flow
. steady flow
. . Ringleb flow
. two dimensional flow
. . Ringleb flow
RT critical flow
. subsonic flow
transonic flow
rocket-based combined-cycle engines
(added August 1999)
DEF Launch vehicle engines that integrate a high specific impulse, low thrust-to-weight, airbreathing engine with a low–impulse, high thrust-to-weight rocket. The engines are often defined by four modes of operation in a single-stage-to-orbit configuration. In the first mode, the engine functions as a rocket-driven ejector. When the rocket engine is switched off, subsonic combustion (mode 2) is present in the ramjet mode. As the vehicle continues to accelerate, supersonic combustion (mode 3) occurs in the ramjet mode. Finally, as the edge of the atmosphere is approached and the engine inlet is closed off, the rocket is reignited and the final ascent to orbit is undertaken in an all-rocket mode (mode 4).
UF RBCC engines
GS engines
. rocket engines
. . rocket-based combined-cycle engines
RT air breathing boosters
air breathing engines
hybrid propulsion
integral rocket ramjets
ramjet engines
single stage to orbit vehicles
spacecraft propulsion
supersonic combustion ramjet engines
Rossi X Ray Timing Explorer
USE X Ray Timing Explorer
RXTE (satellite)
USE X Ray Timing Explorer
scarf joints
(added March 1998)
DEF A joint in which the overlapping parts are tapered to form a continuous length, with no increase in dimension at the joint.
GS joints (junctions)
. scarf joints
RT bolted joints
bonded joints
lap joints
metal joints
scarring

scene generation
(added July 1998)
GS imaging techniques
. scene generation
simulation
. scene generation
RT computer graphics
flight simulation
image reconstruction
scientific visualization
target simulators

screech tones
(added March 1998)
DEF Discrete acoustic tones produced by imperfectly expanded supersonic jets. The phenomenon is a result of a resonant feedback condition involving downstream traveling shear-layer disturbances and upstream traveling acoustic waves.
GS elastic waves
. sound waves
. . noise (sound)
. . . aerodynamic noise
. . . . screech tones
frequencies
. . . . . acoustic frequencies
. . . . . . screech tones
RT aerospace
feedback
jet aircraft noise
jet mixing flow
nozzle flow
shear layers
supersonic jet flow
supersonic nozzles

seaborgium
(added May 1998)
GS chemical elements
. seaborgium
RT seaborgium
dubium

Sea–viewing Wide Field–of–view Sensor
(added December 1998)
UF SeaWIFS
GS scanners
. ocean color scanner
. . Sea–viewing Wide Field–of–view Sensor
RT chlorophylls
Coastal Zone Color Scanner
ocean surface
phytoplankton
remote sensors
satellite borne instruments
water color

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 modules
. space station modules
. Service Module (ISS)
RT International Space Station life support systems

Shergotty Nakhlia 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
electrothermoelectrochemical fluids
electrostriction
erreloactive materials
erreloactivity
erreloelectric materials
erreloelectricity
ferromagnetic materials
ceramics
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, Nakhlia, and Chassigny.
UF Martian meteorites
Shergotty Nakhlia Chassigny meteorites
GS celestial bodies
. meteorites
. . stony meteorites
. . . achondrites
. . . . SNC meteorites
RT chassignylites

Mars (planet)
Mars surface
nakhites
sherogtites

sonochemistry
USE ultrasonic processing

space station modules
(added November 1998)
GS modules
. space station modules
. . Space Station Multiple Modules
. . . Kvant modules
. . . Priroda module
. . . Service Module (ISS)
. . . Unity connecting module
. . . Zarya control module
RT air locks
compartments
International Space Station
Mir space station
orbital assembly
space station structures
space station structures
spacecraft modules

space tourism
(added April 1999)
GS space industrialization
tourism
travel
. space tourism
. . . space transportation

space weather
(added June 1999)
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 aerospace environments
earth observations (from space)
spacecraft
Earth ionosphere
Earth magnetosphere
Earth orbital environments
geomagnetism
ionospheric disturbances
magnetic disturbances
magnetic storms
radiation hazards
solar activity effects
space plasmas
weather

spiral bevel gears
(added May 1999)
GS gears
. 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 spacecraft missions
. flyby missions
. . . Stardust Mission
. . . comet nuclei
. . . interstellar matter
. . . Wild 2 comet

stepped leaders
(added August 1999)
GS electric current
. . electric discharges
. . . lightning
. . . . leaders (meteorology)
. . . . . . stepped leaders

superhumps (astronomy)
(added October 1998)
RT accretion disks
astronomical photometry
cataclysmic variables
dwarf novae
eclipsing binary stars
dstellar spectrophotometry

Terra spacecraft
(added June 1999)
DEF First in a series of EOS (Earth Observing System) spacecraft developed 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
eos AM-1 spacecraft
GS artificial satellites
. . Terra spacecraft
. . . Earth Observing System (EOS)
. . . Terra spacecraft
RT Earth observations (from space)
remote sensing

thermal lenses
USE thermal lensing

thermal lensing
(added November 1998)
UF thermal lenses
GS thermal lensing
. . thermal blooming
RT atmospheric optics
. . laser beams
. . . photothermal deflection spectroscopy
. . . wavefront 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

- solar observatories
- solar physics
- solar transition region

**translunotic planets**

**USE** hypothetical planets

**transverse momentum**

(added June 1999)

**GS** momentum

**RT** angular momentum
elementary particle interactions

**particle motion**

**transverse acceleration**

**Treffitz method**

(added July 1998)

**DEF** Boundary-type approximation scheme
for the solution of boundary value problems for
partial differential equations.

**UF** hybrid-Treffitz finite element method

**GS** analysis (mathematics)

- numerical analysis
- approximation
- boundary element method
- Trefftiz 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

**RT** atmospheric circulation
Earth radiation budget
equatorial atmosphere
main tropical meteorology

**Tropical Rainfall Measuring Mission sat**

**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

**RT** ultrasonic treatment

**∞** processing

**ultrasonic cleaning**

**ultrasonic treatment**

**USE** ultrasonic processing

**undercooling**

**USE** supercooling

**Unity connecting module**

(added November 1998)

**DEF** Component of the International Space
Station providing six ports that serve as
connecting points for other station modules and
framework elements.

**GS** modules

- space station modules
- Unity connecting module

**RT** International Space Station

**spacecraft docking**

**VentureStar launch vehicle**

(added June 1999)

**DEF** Reusable single-stage-to-orbit launch
vehicle employing linear aerospike engines, and
having a payload capacity roughly equivalent to
that of the Space Shuttle; developed in
coordination with the X-33 advanced technology
demonstrator vehicle.

**GS** aerospace vehicles

- aerospace planes
- VentureStar launch vehicle

**manned spacecraft**

- aerospace planes
- VentureStar launch vehicle

**reentry vehicles**

- recoverable spacecraft
- aerospace planes

**RT** aerospace planes

- VentureStar launch vehicle

**soft landing spacecraft**

- aerospace planes

**very large transport aircraft**

(added November 1998)

**DEF** Aircraft capable of a maximum takeoff
weight greater than 400 metric tons (881,600 Ibs)
or having a seating capacity greater than 660.

**UF** VLTA (aircraft)

**GS** transport aircraft

- very large transport aircraft

**RT** cargo aircraft

**passenger aircraft**

**VLTA (aircraft)**

**USE** very large transport aircraft

**water sampling**

(added March 1998)

**DEF** The process of obtaining a representa-
tive 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**
wave rotors
(added March 1998)
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.

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

UF cosmions
WIMPs (astronomy)
GS particles
. elementary particles
. . hypothetical 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.

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

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

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.

UF ekranoplane
WIG vehicles
GS 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.

GS 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.

GS 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.

GS 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.

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

Zenit launch vehicles
(added January 1999)
GS 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 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

A

ACE satellite
use Advanced Composition Explorer

content-addressable memory
use associative memory

Advanced Composition Explorer

Darkstar unmanned aerial vehicle
use pilotless aircraft
reconnaissance aircraft

aeroshells

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

analysis
analysis
analysis
analyseplanatism
antenna gain
antiphoton boundaries
antiphoton domains
use antiphase boundaries
proton-

photons

antiproton interactions

APB (materials)
use antiphase boundaries
archaeomagnetism
use paleomagnetism
associative memory

associative storage
use associative memory

MACHOs (astronomy)
use massive compact halo objects

superhumps (astronomy)

WIMPs (astronomy)
use weakly interacting massive particles

Chandra X Ray Astrophysics Facility

atom method

embedded atom method

modified embedded atom method

B

Planet-B spacecraft

kink bands

rocket-lithium batteries

Euler-Bernoulli beam theory
use Euler-Bernoulli beams

Euler-Bernoulli beams

Euler-Bernoulli beam theory
use Euler-Bernoulli beams

Euler-Bernoulli beams
bevel gears
spiral bevel gears
biomass burning

Blot-Savart law

wing-body and tail configurations
use body-wing and tail configurations

wing-body configurations
use body-wing configurations

Boeing 717 aircraft

bohrium

Bond number

Hele-antiphase boundaries

biomass 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)
use embedded atom method

MEAM (physical chemistry)
use embedded atom method

clamped structures

cleanup

environmental cleanup

Mars cloud-to-

cloud discharges
rocket-based
Hale-Bopp
Wild 2

cloud-to-ground discharges
combined-cycle engines
comet
Comet Nucleus Tour
communication
compact halo objects
Advanced Composition Explorer
enantiomeric compounds
use enantiomers
nacelle wing configurations
use wing nacelle configurations
wing-body configurations
use body-wing configurations
wing-body and tail configurations
use body-wing and tail configurations
Unity
control
control module
Cooper-Harper ratings
Coronal Explorer
corrugated waveguides

cosmions
use weakly interacting massive particles
critical current
cuprates
cycle engines
cycloaddition

D
Darkstar unmanned aerial vehicle
use pilotless aircraft
reconnaissance aircraft
Deep Space 1 Mission
deflection spectroscopy
deformable mirrors
Delta 3 launch vehicle
Delta 4 launch vehicle
determination
devices
use microelectromechanical systems
dielectric waveguides
difference time domain method
differential games
digital cameras
discharges
discharges
discharges
domain analysis
domain analysis
domain method
domains
use antiphase boundaries
DS1 (space mission)
use Deep Space 1 Mission
dubnium

E
EAM (physical chemistry)
use embedded atom method
effect
rocket-based combined-cycle engines
effect vehicles
ekranoplanes
use wing-in-ground effect vehicles
PML (electromagnetism)
use perfectly matched layers
MEMS (electromechanical devices)
use microelectromechanical systems
element method
use finite element method
Trefitz method
modified embedded atom method
enantiomeric compounds
use enantiomers
enantiomers
epsilon
enantiomorphs
use enantiomers
renewable energy
engines
use rocket-based combined-cycle engines
rocket-based combined-cycle engines
environmental cleanup
AM-1 (EOS) spacecraft
use Terra spacecraft
EOS AM-1 spacecraft
use Terra spacecraft
Euler-Bernoulli beam theory
use Euler-Bernoulli beams
Euler-Bernoulli beams
evanescent waves
pursuit
Advanced Composition Explorer
Rossi X Ray Timing Explorer
Transition Region and Coronal Explorer
use X Ray Timing Explorer

F
Chandra X Ray Astrophysics
Facility
use X Ray Astrophysics Facility
FDTD (mathematics)
use finite difference time domain method
fermion superconductors
fermion systems
ferroelastic materials
ferroelasticity
fiber pushout
Sea-viewing Wide Field-of-view Sensor
field tests
Gabor filters
finite difference time domain method
finite element method
Trefitz method
in-flight simulation
flow
free-space optical communication
free-space optical interconnects
frequency domain analysis

Ringleb
FSOI (integrated optics)
use free-space optical interconnects
fullerides
fuselage-wing stores
use wing-fuselage stores
fusion propulsion

G
Gabor filters
Gabor transformation
antenna
gain
games
games
games
gears
gears
gears
generation
Next
Generation Space Telescope project
Genesis mission
Mars Global Surveyor
glucocorticoids
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
hypothetical 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

J
Java (programming language)
scarf
Josephson effect
Josephson tunneling
use Josephson effect

K
kink bands
kinking

L
Mars Polar Lander
Mars Surveyor 98
Java (programming language)
language
use Mars Polar Lander
very large transport aircraft
launch vehicle
Delta 3
Delta 4
Titan 4B
VentureStar
Long March
Zenit
Laves phases
Biot-Savart law
perfectly matched stepped
layers
leaders
leaders (meteorology)
thermal lenses
thermal lensing
lithium batteries
Long March launch vehicles
hardware-in-the-loop simulation
loop tests
hardware-in-the-loop
Lunar Prospector

M
MACHOs (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
Mars Surveyor 98 Orbiter
use Mars Polar Lander
use Mars Climate Orbiter
Mars Surveyor 98 Program
Mars Surveyor 2001
Mission Martian meteorites
use SNC meteorites
massive compact halo objects
weakly interacting perfectly matched layers
massive particles
use antiphase boundaries
PDS (spectroscopy) use photothermal deflection spectroscopy
spectroscopy
photothermal deflection spiral bevel gears
Stardust Mission Population III stars
primordial space station modules stepped leaders
associative storage use associative memory
celage-wing stores
use wing-fuselage stores
electronic structure
clamped 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 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 hardware-in-the-loop tests
use hardware-in-the-loop simulation
in vitro methods and tests
in vivo methods and tests
Euler-Bernoulli beam theory
use Euler-Bernoulli beams
Mindlin plate theory
use Mindlin plates
thermal lenses
use thermal lensing
thermal lensing
thermocapillary migration
tilt
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

(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
TREFFTZ finite element method
TREFFTZ 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
undercooking
use supercooling
Unity connecting module
Darkstar unmanned aerial vehicle
use pilotless aircraft
reconnaissance aircraft
head up

V
Darkstar unmanned aerial vehicle
use pilotless aircraft
reconnaissance aircraft
Delta 3 launch
Delta 4 launch
Titan 4B launch
VentureStar launch
X-43
Long March launch
WIG
wing-in-ground effect vehicles
use wing-in-ground effect vehicles
Vehicles
VentureStar launch vehicle
very large transport aircraft
Sea-viewing Wide Field-of-Sea-viewing Wide Field-of-view Sensor
tro methods and tests
in vivo methods and tests
VLTA (aircraft)
use very large transport aircraft

W
water sampling
wave rotors
corrugated 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-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
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.