

# SPACE

# CALENDAR

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## Travel Into Future At NIAC Meeting Studying Advanced Space Exploration

- 6th annual **NASA Institute for Advanced Concepts (NIAC)** meeting takes place **19-20 Oct** in **Seattle WA**. Free and open to public. Glimpse future possibilities of space exploration with presentations on innovations like **sail driven by antimatter** for deep-space exploration, use of tailored force fields to build massive structures in space and use of biological molecules to create **nano-scale robots**.

Keynote speakers include lunar expert **Paul Spudis** and **Robert Hoyt** of Tethers Unlimited. Spudis will talk about "The New Presidential Space Vision," and Hoyt will discuss "Space Tethers: Lessons for Developing 'Revolutionary' Technologies."

Following investigators have received NIAC grants under **Phase 1 Concepts** (US\$75,000 for 6-month study) for **lunar science** and have poster at this meeting: **Roger Angel** (Univ of AZ), 'A Deep-Field Infrared Observatory Near Lunar Pole,' **Charles Buhler** (ASRC), 'Analysis of Lunar Base Electrostatic Radiation Shield Concept' and **Jerome Pearson** (Star Technology & Research), 'Lunar Space Elevators for Cislunar Space Development.'

NIAC was created in **1998** to solicit revolutionary concepts that push limits of known science and technology, and are not expected to be realized for at least a decade or more.

Info, <http://www.niac.usra.edu>.



**UN OOSA Exhibit To Highlight Use Of Space Technology For Human Development.** United Nations Office for Outer Space Affairs will hold exhibit in **UN General Assembly Visitor's Lobby in New York City 11-22 Oct.** Will feature uses of space tech for **refugee operations, disaster management, aviation and marine navigation, environmental monitoring, agriculture and water resources management and other areas such as tech applications. Microlasers (upper right) are one of many commercial spin-offs.**

## Toward 2010

- Russia To Launch Algeria Comm, Navigation, R/S Sats, Moscow:** Seven microsats intended to be put into orbit with purpose of Earth monitoring in order to prevent possible damages caused by floods, forest fires, earthquakes, volcano eruptions and other natural calamities; to sign agreement on peaceful exploitation of space.

- China Expedition To Establish Antarctic Research Station, Beijing:** 13-member group leaves 25 Oct to establish temporary obs station to eventually become country's 3rd Antarctic station.

- X Prize Founder Advancing Space Tourism With New Project, St Louis MO:** Peter Diamandis developing new prize scheme with World Technology Network; prizes in space tech development and other hi-tech fields that will be awarded in 5-10 years to be decided in next 6 months.

- India-USA Space Co-op Effort Continues, New Delhi:** US Undersecretary of State for Commerce visiting India officials to further ease restrictions, continue 'Next Steps in Strategic Partnership.'

- Brazil Expanding Space Cooperation, Brasilia:** Alcantara almost clear of debris; once accomplished, USA, China, Ukraine and Russia will participate in a new series of launches that use Brazil Satellite-Launching Vehicle; reaches MoU with Russia for space mission; 3rd CBERS launches 2007-08; Brazil enlisting public support.

- Iran To Launch Its Own Satellite Next Year, Tehran:** Small sat to orbit Earth at low altitudes varying between 100-400 km during next Persian year, which starts in March; Iran believes on threshold of entering international space club of 10 countries possessing satellites.

- Sea Launch Zenit 3SL To Return To Flight Later This Year, Long Beach CA:** Review Board has concluded investigation of Telstar-18 mission, which released sat short of its intended target apogee and adjustments made; next launch (#15) targeted for early Dec when Intelsat Americas-8 communications satellite flies into space.

- Astronomers Discover 'Cowboy Cluster' Using Spitzer, 9,000 Light-Years Away:** Globular cluster, one of about 150 known to exist, considered one of "fossils" dating back to early history of galaxy, at least 10 billion years ago.

- 1,908 Days** until 1 Jan 2010; 11,624 days since humans last on Moon.

## Monday / October 18

- ★ **International Space Station / Progress M50 / Soyuz TMA-5, LEO:** E9 and E10 crew in process of changing places after successful 13 Oct Soyuz launch and 15 Oct docking.
- ★ **Spitzer Space InfraRed Telescope, Solar Orbit:** Media briefing on new findings about planet formation at JPL; 13:00 PDT.
- ★ **Chandra X-Ray Observatory, Highly Elliptical Orbit:** Instrument into its 6th year of providing outstanding science.
- ★ **Hubble Space Telescope, LEO:** Hubble nearly size of large school bus—but it can fit inside a space shuttle cargo bay.
- ★ **SMART-1, Lunar Trajectory:** Between 1 Oct and arrival at Moon, EP engine will be fired for only little over 200 hours.
- ★ **Mars Global Surveyor, Polar Orbit:** MOC records 'Wave Clouds off Korolev' and Zephyria Outflow Features.'
- ★ **Mars Odyssey, Polar Orbit:** THEMIS captures 'Candor Chasma,' all systems report functioning nominally.
- ★ **Mars Express, Red Planet Orbit:** High Resolution Stereo Camera reveals eastern part of Claritas Fossae.
- ★ **MER-1 'Spirit,' Gusev Crater:** Rover climbing higher into 'Columbia Hills,' drove over 3 km across plain to reach them.
- ★ **MER-2 'Opportunity,' Meridiani Planum:** New findings raise possibility work area was soaked in water long ago.
- ★ **Stardust, Earth Trajectory:** Spacecraft at aphelion; all systems in good working order according to telemetry data.
- ★ **AMC-15, Geotransfer Orbit:** Telecommunications spacecraft for operator SES AMERICOM on orbit if 14 Oct launch Proton from Baikonur successful and on time.
- **NATO, Washington DC:** 'Radar Polarimetry and Interferometry,' lecture series to redress problem of collating respective specialist material tailored to newcomers; thru 19 Oct.
- **United Nations, Munich, Germany:** 'UN Intl Workshop on Use of Space Tech For Disaster Management,' info and comm needs of disaster community; oosa.unvienna.org; thru 22 Oct.
- **National Solar Observatory, Sunspot NM:** 'Large Scale Structures and Their Role in Solar Activity,' review current state of theory and observations; www.nso.edu; thru 22 Oct.
- **United Nations / ESA, Kathmandu, Nepal:** 'UN/ESA/Austria/Switzerland WS on Remote Sensing in Sustainable Development in Mountain Areas,' oosa.unvienna.org; thru 22 Oct.
- **Istituto di Astrofisica Spaziale e Fisica Cosmica, Rome, Italy:** 'Gamma-Ray Bursts In Afterglow Era,' bridge current research with expectations from Swift; www.rm.iasf.cnr.it; thru 22 Oct.
- ★ **Asteroid 1999 LF6:** Near-Earth Flyby (0.071 AU).

## Tuesday / October 19

- **University Of Toronto Astronomy And Space Exploration Society, Canada:** 'Science & Technology for Space Exploration: Moon, Mars and Beyond;' <http://asx.sa.utoronto.ca/fo2.html>.
- **NASA Institute for Advanced Concepts, Seattle WA:** 6th annual NIAC meeting; go 40 years into future and explore revolutionary space travel concepts; pasa01.tripod.com; thru 20 Oct.
- **The Space Show, Cyberspace:** Jim Benson, CEO SpaceDev, to be interviewed by David Livingston; Live365.com; 19:00 PDT.
- **Société de l'Electricité, de l'Electronique, et des Technologies de l'Information et de la Communication Society, Toulouse, France:** 'RADAR 2004,' radar2004.org; thru 21 Oct.
- **Philadelphia Area Space Alliance, Philadelphia PA:** Regular meeting scheduled for today; <http://pasa01.tripod.com>.

## Wednesday / October 20

- **China Institute of Communications, Beijing:** '6th China Satellite Conference,' to explore new aspects of its application and probe into hot spots of industry; www.chinasatellite.org.
- **ISAS / JAXA, Sagami-hara, Kanagawa:** '1st HAYABUSA Symposium: Intl Science Symposium on Sample Returns From Solar System Minor Bodies,' planetb.sci.isas.jaxa.jp; thru 22 Oct.
- **NASA JSC, Houston TX:** Deadline for student team proposals for Reduced Gravity Student Flight Opportunities Program; selections announced 6 Dec; flights beginning in spring 2005.
- **Keio University, Yokohama, Japan:** 'Space Tourism 2,' lecture series focuses this week on 'Space Tourism Market Simulation;' www.Robert-Goehlich.de; Wednesdays; 14:45 JST.
- **NASA JPL, Pasadena CA:** 'InSAR Workshop,' to form community-led Working Group dedicated to advancement of radar remote sensing research; solidearth.jpl.nasa.gov/insar; thru 22 Oct.
- ★ **Moon:** At first quarter; 11:59 HST.

## Thursday / October 21

- **Canada Space Agency, Ontario / Key Largo FL:** NEEMO 7 mission to demonstrate new medical care in remote environments; takes place off of Florida coast; ends today.
- ★ **Moon:** Moves 3.7° SSE of Uranus; 01:00.

## Friday / October 22

- ★ **Cassini-Huygens OTM-4, Saturn Orbit:** Spacecraft performs Orbital Trim Maneuver #4 today.

## Saturday / October 23

- ★ **Moon:** Moves 5.1° SSE of Neptune; 13:00.

## Sunday / October 24

- **Institute For Astronomy, Waikoloa HI:** 'Protostars and Planets 5,' to develop interdisciplinary research in these areas within University of Hawaii; www.2.ifa.hawaii.edu; thru 28 Oct.
- **American Institute Of Aeronautics And Astronautics / IEEE, Salt Lake City UT:** '23rd Digital Avionics Systems Conference;' www.aiaa.org; thru 28 Oct.
- ★ **Asteroid 2002 VS14:** Near-Earth Flyby (0.127 AU).

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31													

- All times for terrestrial events in local time unless noted.
- All times for international terrestrial events in local time unless noted.
- ★ All times for space events, and ...
- ☆ All times for international space / astro events in Hawaii Standard Time unless noted. Add 10 hours to obtain UT ('Universal Time'; Greenwich, England).

## Downrange ...

### October

- ★ **Oct 26 — Cassini-Huygens, Interplanetary Trajectory:** Spacecraft conducts flyby of Titan.
- ★ **Oct 25 — Launch Boeing Delta 2 / GPS-2R13, CCAS FL:** Next NAVSTAR Global Positioning System sat flies today; 02:27 EDT.
- ★ **Oct 26 — Launch Pegasus XL / DART, Vandenberg AFB CA:** OSC to launch NASA's Demonstration for Autonomous Rendezvous Technology spacecraft into orbit; 11:13 PDT.
- ☆ **Oct 28 — Total Lunar Eclipse, Hawaii, America, Africa, West Asia:** Best lunar eclipse of year; 03:04 UT.
- ☆ **Oct 29 — Launch Russia Soyuz 2-1A / Oblik, Plesetsk:** First launch of new carrier rocket takes place today; carrying demonstration payload; time TBD.
- ☆ **Oct 30 — Launch Proton / Express AM-1, Baikonur:** Comms sat will provide digital TV and other services; TBA.

### November

- **Nov 1 — CAS, San Francisco CA:** 'Lord of Rings: Cassini Mission to Saturn,' Dr Kevin Grazier; www.calacademy.org.
- **Nov 1-3 — Lunar & Planetary Institute, et al, Golden CO:** 'Space Resources Roundtable #6;' www.aiaa.org.
- **Nov 1-5 — AIAA, Monterey CA:** 'CANEUS 2004 Conference on Micro-Nano-Technologies for Aerospace Applications;' www.aiaa.org.
- ☆ **Nov 3 — Launch Ariane 5 / XTAR-EUR, Kourou, Fr Guiana:** X-band military comms sat flies in demonstration flight; TBA.
- ★ **Nov 4 — MESSENGER, Mercury Trajectory:** Passes Venus on its way to intended destination.
- **Nov 6 — Onizuka Center For Intl Astronomy, Mauna Kea HI:** 'Universe Tonight Program,' rep from Univ of Hawaii Institute for Astronomy; 808-961-2180; 18:00 HST.
- ★ **Nov 8 — Launch Delta 2 / Swift, CCAS FL:** NASA's Swift gamma-ray burst research spacecraft orbits today; 12:04 EST.
- **Nov 8-10 — AIAA, Colorado Springs CO:** '2004 Core Tech for Space Systems Conference;' www.spacecoretech.org.
- ☆ **Nov 15 — SMART-1, Lunar Trajectory:** Probe enters polar elliptical orbit lunar orbit for science operations today; operational duration 2-2.5 years; <http://sci.esa.int>.



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