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**THIRD IAA SYMPOSIUM ON  
REALISTIC NEAR-TERM ADVANCED SCIENTIFIC SPACE MISSIONS**

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**MISSIONS TO THE OUTER SOLAR  
SYSTEM AND BEYOND**

**July 3-5, 2000**

**Aosta, Italy**

Organized by

International Academy of Astronautics (IAA)

Politecnico di Torino

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**SYMPOSIUM DATES AND LOCATION**

After the success of the First and Second I.A.A. Symposium on Realistic Near-term Advanced Scientific Space Missions, which were held in Torino in June 1996 and in Aosta in July 1998, ISEC hosted a three-day International Symposium on Outer- and Extra-Solar Missions. Local supporting organization was the Department of Mechanics of the Politecnico (Engineering School) of Turin.

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**SYMPOSIUM GOALS**

The Interstellar Space Exploration Committee (ISEC) of the International Academy of Astronautics (IAA) aims at exploiting the results of the previous symposiums about space missions beyond the Solar System and within 1000 Astronomical Units from the Sun.

Results from this third symposium are intended to be submitted to the leading Space Agencies as Proposals for space missions to the outer Solar System and beyond which are feasible within near term technology.

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**AREAS OF INTEREST**

Scientific Objectives and Payload Requirements  
Power and Propulsion Systems Trajectory Optimization, Mission Profiles  
Attitude Dynamics  
Navigation, Guidance and Control  
Very Deep Space Telecommunications  
Sensors, Detectors and Lens Systems  
Nanotechnology and Robotics  
Mission beyond 1000 A .U.: Perspectives & New Concepts

## Forms of International Cooperation

Suggestions and proposals about space missions beyond the solar system will be particularly welcome about the following two targets regarded as basic:

- 1) Near Heliopause Missions (about 100 A.U. from the Sun).
  - 2) Solar Gravitational Lens missions to take advantage of the Focus located at 550 A.U. from the Sun and beyond.
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**Interstellar Space Exploration: What's Going on?**

G. Genta, Politecnico di Torino, Torino, Italy

**Approach to Artificial Control of Hybernation**

N. Kondo, Mitsubishi Kasei Institute of Life Sciences, Tokyo, Japan

**The Trojan Asteroids as Bases to Monitor Other Asteroids Potentially Dangerous for Earth**

C. Maccone, L. Bussolino, Alenia Spazio, Torino, Italy

**NEP for a Kuiper Belt Object Sample Return Mission**

R. X. Lenard, NASA, Marshall Spaceflight Center, Huntsville, USA

**Space Transportation Systems and Space Propulsion for Future Missions**

L. Bussolino, C. Tomatis, Alenia Spazio, Torino, Italy

**Cost Performance Evaluation of Rocket Propulsion**

V. Prisniakov, IGTM, Dnipropetrovsk, Ukraine

**A Proposal for a Space Mission to Vesta**

L. Bussolino, C. Maccone, Alenia Spazio, Torino, Italy

**Some Considerations on Missions to the Solar Gravitational Lens**

G. Genta, G. Vulpetti, Politecnico di Torino, Torino, Italy, Telespazio, Rome, Italy

**Sunlensing the Cosmic Microwave Background from 763 A.U. by Virtue of NASA's Interstellar Probe**

C. Maccone, G. Colombo Center for Astrodynamics, Torino, Italy

**Cosmic Genesis and Interstellar Exploration**

A. Hanson, QED Ltd, London, United Kingdom

**High-Speed Sailcraft as Hyperincursive Computing Automata**

S. Santoli, INT – International Nanobiological Testbed Ltd., Rome, Italy

**Basic Considerations on the Free Vibrational Dynamics of Circular Solar Sails**

G. Genta, E. Brusa, Politecnico di Torino, Torino, Italy

**The Laser Light Sail and Interstellar Colonization**

G: L. Matloff, New York University, New York, N.Y., USA

**RAM Augmented Magnetic, Self-Consuming Triod Sail Imagers for Interstellar Exploration**

A. Meszaros, ATKI, Budapest, Hungary

**A 'Lab-on-chip' Design for Miniature Autonomous Bio-Chemoprospecting Planetary Rovers**

**CO-CHAIRMEN**

Dr. Giovanni Vulpetti, Chairman of ISEC

Dr. Leslie Shepherd, Former Chairman of ISEC