

53rd International Astronautical Congress,

10-19 October 2002

Houston, Texas, USA

IAA.1 32nd Economics in Space Operations

IAA.2 36th History of Astronautics Symposium

IAA.3 16th International Space Plans and Policies Symposium

IAA.4 15th Interstellar Space Exploration Symposium

IAA.5 Multilingual Astronautical Terminology Symposium

IAA.6 35th Safety, Rescue and Quality Symposium

IAA.8 13th Space Activities and Society Symposium

IAA.9 31st Review Meeting of the SETI

IAA.10 EVA and Space Suits Symposium

IAA.11 Small Satellite Missions Symposium

IAA.12 Nano Materials for Space Applications Symposium

IAA.13 Human Exploration of Moon and Mars Symposium

IAA.G Joint Life Sciences Symposium

IAA.1.	<u>32nd Economics and Commercialization of Space Activities Symposium</u>
Coordinators:	Dietrich E. Koelle (GERMANY)
IAA.1.1.	<u>Launch Vehicles' Cost Engineering Competitiveness, Launch Market</u>
<u>Outlook</u>	
Chairmen:	Allen E. Goldstein (USA) Dietrich E. Koelle (GERMANY)
Rapporteurs:	Eric J. Shaw (USA)
IAC-02-IAA.1.1.01 on to the Space	The Ascent Study - Understanding the Market Environment for the Follow- Shuttle <i>Derek Webber</i> Futron Corporation, Bethesda, MD, USA
IAC-02-IAA.1.1.02	Launcher Systems Development Cost Behaviour Study Update <i>Eric J. Shaw</i> NASA Marshall Space Flight Center, Huntsville, AL, USA
IAC-02-IAA.1.1.03	Specific Space Transportation Costs to GEO - Past, Present and Future <i>Dietrich E. Koelle</i> TCS TranscostSystems, Ottobrun, Germany
IAC-02-IAA.1.1.04	Achieving a Launch on Demand Capability <i>Joel S. Greenberg</i> Princeton Synergetics, Inc., Princeton, USA
IAC-02-IAA.1.1.05	Economic Analysis of a Postulated space Tourism Transportation System <i>Allan S. Hill</i> A&K Enterprises, Kent, WA, USA
IAC-02-IAA.1.1.06	Life Cycle Cost Analysis for HLLV Lunar Transportation <i>Hermann H. Koelle</i> Institute of Aeronautics & Astronautics, Technical University of Berlin, Germany
IAC-02-IAA.1.1.07 Market Prices	Optimization of a Future RLV Business Case using Multiple Strategic <i>A.C. Charania</i> J.R. Olds, SpaceWorks Engineering, Inc. (SEI), Atlanta, USA
IAC-02-IAA.1.1.08 Cycle)	Cost Estimation of the NAL Spaceplane (Modeling of a Vehicle Fleet Life- <i>Robert A. Goehlich</i> H.H. Koelle, Institute of Aero- and Astronautics, Technical University of Berlin, Berlin, Germany, T. Mori, National Aerospace Laboratory, Tokyo, Japan

<p>IAA.1. Coordinators:</p>	<p><u>32nd Economics and Commercialization of Space Activities Symposium</u> Dietrich E. Koelle (GERMANY)</p>
<p>IAA.1.2. <u>Opportunities</u> Chairmen: Rapporteurs:</p>	<p><u>Commercialization of Space Activities/Financing/New Business</u> Patrick Eymar (FRANCE) Joel S. Greenberg (USA) Fabian Eilingsfeld (GERMANY)</p>
<p>IAC-02-IAA.1.2.01 for Space</p>	<p>Institutional Venture Capital for the Space Industry: Providing Risk Capital Companies that Provide Investor Returns <i>Roscoe Moore III</i> Space Vest Venture Capital Funds, Arlington, USA</p>
<p>IAC-02-IAA.1.2.02 Florida, USA, C. Lavitola, Alenia</p>	<p>Industry's Commercial Initiatives on ISS <i>Cathy Shields</i> Boeing Space and Communications, Human Space Flight & Exploration, Kessler, Astrium Orbital Infrastructure & Operations, Bremen, Germany, M.S. Spazio, Torino, Italy</p>
<p>IAC-02-IAA.1.2.03 Germany, A. England</p>	<p>The ESA TTP and Recent Spin-off Successes <i>David Raitt</i> P. Brisson, ESA/ESTEC, Noordwijk, Netherlands, W. Dupont, MST Aerospace, Barbagelata, D'Appolonia, Italy, J. Rootes, JRA Aerospace & Technology,</p>
<p>IAC-02-IAA.1.2.04</p>	<p>Development and Commercialization of the Lunar Solar Power System <i>David R. Criswell</i> Institute for Space Systems Operations, University of Houston, Houston, USA</p>
<p>IAC-02-IAA.1.2.05</p>	<p>Role of the Space Station in Private Development of Space <i>Mark L. Uhran</i> NASA HQ, Washington, USA</p>
<p>IAC-02-IAA.1.2.06 America: a Case for</p>	<p>Potential Opportunities for Investment in Space Technologies in Latin- Mexico <i>German Sanchez</i> International Space University, Illkirch, France</p>
<p>IAC-02-IAA.1.2.07 NASA</p>	<p>The Impact of Space Commercialization on Space Agencies: the Case of <i>Vasilis Zervos</i> The University of Nottingham, Business School, Nottingham, U.K.</p>
<p>IAC-02-IAA.1.2.08</p>	<p>Developing Viable Financing Models for Space Tourism <i>Fabian Eilingsfeld</i> D. Schaetzler, Rocketfinance.com, Berlin, Germany,</p>

IAA.1.	<u>32nd Economics and Commercialization of Space Activities Symposium</u>
Coordinators:	Dietrich E. Koelle (GERMANY)
IAA.1.3.	<u>Space Tourism and Other Novel Space Applications</u>
Chairmen:	Uwe Apel (GERMANY) Ivan Bekey (USA)
Rapporteurs:	Philippe Willekens (FRANCE)
IAC-02-IAA.1.3.01	Fast Access to Space Tourism <i>Paola Favata</i> N. Martineau, International Space University, Illkirch, France
IAC-02-IAA.1.3.02	The Role of Balloons in the Future Development of Space Tourism <i>José Mariano Lopez-Urdiales</i> Collège des Ingénieurs, Paris, France
IAC-02-IAA.1.3.03	Transport System for Delivery of Tourists at Altitude 140 km and Back <i>Alexander Bolonkin</i> R&C Co., Brooklyn, NY, USA
IAC-02-IAA.1.3.04	Space-Hotel Early Bird - Visions for a Commercial Space Hotel <i>Rachid Amekrane</i> C. Holze, DGLR e.V., Syke, U. Apel, Hochschule Bremen, Bremen, Germany
IAC-02-IAA.1.3.05	Space Tourism: Orbital Debris Considerations <i>Nina Mahmoudian</i> S. Shajjee, T. Moghani, M. Bahrami, Aerospace Research Institute, Tehran, Iran
IAC-02-IAA.1.3.06	Analysis of Space Tourism Constraints <i>Christophe Bonnal</i> CNES, Evry, France
IAC-02-IAA.1.3.07	Space Tourism - A Youth Perspective <i>William Marshall</i> SGS Delegates, Space Generation Advisory Council, Houston, USA
IAC-02-IAA.1.3.08	Global Survey on Future Trends in Human Spaceflight: the Implications for Space Tourism <i>Ozgur Gurtuna</i> S. Garneau, Futuraspace LLC, Camarillo, USA
IAC-02-IAA.1.3.09 Activities in the	The Economic, Technical and Legal Feasibility for Commercial Mining Inner Solar System <i>Ricky J. Lee</i> Hunt & Hunt Lawyers, Adelaide, Australia, University of Western Sydney, Australia

IAA.1.	<u>32nd Economics and Commercialization of Space Activities Symposium</u>
Coordinators:	Dietrich E. Koelle (GERMANY)
IAA.1.4.	<u>Economics of Space Telecommunications</u>
Chairmen:	Edward W. Ashford (LUXEMBURG) Joseph N. Pelton (USA)
Rapporteurs:	
IAC-02-IAA.1.4.01 Communications	Observations on Complexity and Costs for Over Three Decades of Satellites <i>David A. Bearden</i> The Aerospace Corporation, Los Angeles, CA, USA
IAC-02-IAA.1.4.02	SatCom Systems for Health and Medical Care <i>Hubert Diez</i> CNES, Paris, France
IAC-02-IAA.1.4.03 2020 Time Period	Alternative Visions of Satellite Communication Economics in the 2010-
George	<i>Joseph N. Pelton</i> Netlab, George Washington University, H. Hertzfeld, Space Policy Institute, Washington University, Washington, USA
IAC-02-IAA.1.4.04	GEO vs. LEO Space Telecommunication Systems – Commercial Set Up, Finance & Economics <i>Jörg Kreisel</i> International Consultant, Remscheid, Germany
IAC-02-IAA.1.4.05	Cost Consideration for Future Communications Satellite <i>Takashi Iida</i> Communications Research Laboratory, Tokyo, Japan
IAC-02-IAA.1.4.06	The Global Telecommunications Market in Space <i>Phillip Allister</i> Futron Corporation, Bethesda, MD, USA
IAC-02-IAA.1.4.07	Space Telecom US Ground Substitutes <i>Stéphane Chenard</i> Euroconsult, Paris, France

- IAA.2.**
Coordinators: **36th History of Astronautics Symposium**
George S. James (USA)
Philippe Jung (FRANCE)
- IAA.2.1.**
Chairmen: **Memoirs**
Yasunori Matogawa (JAPAN)
Frederick I. Ordway (USA)
- Rapporteurs: Marsha Freeman (USA)
Théo Pirard (BELGIUM)
- IAC-02-IAA.2.1.01** **Contribution of Albert Ducrocq (1921-2001) to Astronautic**
Christian Lardier
Air&Cosmos, Paris, France
- IAC-02-IAA.2.1.02** **Goddard and Lindbergh: the Role of Charles H. Lindbergh in the Rocketry**
Career of Robert
H. Goddard
Frederick C. Durant III
Raleigh, USA, F.H. Winter, National Air and Space Museum, Washington, USA
- IAC-02-IAA.2.1.03** **The Peak of Rocket Production: The Designer of Ballistic Missiles V.F.**
Utkin (1923-2000)
Vladimir Prisiakov
N. Sitnikova, National Academy of Science of Ukraine, Dnipropetrovsk, Ukraine
- IAC-02-IAA.2.1.04** **Franz Ulinski, an Almost Forgotten Early Pioneer of Rocketry**
B.P. Besser
Space Research Institute, Austrian Academy of Sciences, Graz, Austria
- IAC-02-IAA.2.1.05** **Economical Space Transportation: a Road not yet Traveled or Gleanings**
of a Lifelong
Rocketman
Robert C. Truax
Truax Engineering, Inc., Vista, CA, USA
- IAC-02-IAA.2.1.06** **The two Coissac's novels : l'Envol and Sur la Lune**
Jacques Villain
Snecma, Paris, France
- IAC-02-IAA.2.1.07** **Darrell Romick: America's Space Visionary of the 1950s**
Randy Liebermann
D.C. Romick, History of Technology, Vienna, VA, USA
- IAC-02-IAA.2.1.08** **David Lasser: An American Spaceflight Pioneer**
Michael L. Ciancone
NASA JSC, Houston, USA

- IAA.2.**
Coordinators: **36th History of Astronautics Symposium**
George S. James (USA)
Philippe Jung (FRANCE)
- IAA.2.2.**
Chairmen: **Scientific and Technical Reviews**
John Harlow (U.K.)
Hervé Moulin (FRANCE)
Rapporteurs: Kerrie Dougherty (AUSTRALIA)
Georges Edelby (SYRIA)
- IAC-02-IAA.2.2.01** **OHSUMI, Japans's Leap Orbit in 1970**
Yasunori Matogawa
ISAS, Kanagawa, Japan
- IAC-02-IAA.2.2.02** **A Summary History of Reusable Spaceplane Development in the Soviet Union**
Asif A. Siddiqi
Carnegie Mellon University, Dept of History, Pittsburgh, USA
- IAC-02-IAA.2.2.03** **French Sounding Rockets of the Sixties: Belier-Centaure-Dragon**
Philippe Jung
Grasse, France, J.J. Serra, Odeillo Group, Font Romeu, France
- IAC-02-IAA.2.2.04** **Vega Rocket Series of Multi-Stage Amateur's Rockets Research Program 1965-1968**
Aleksander Kerstein
CMCelje, Zalec, Slovenia, M. Krmelj, Ministry of Education, Science and Sports, Ljubljana, Slovenia
- IAC-02-IAA.2.2.05** **Some Unknown Pages of the Living Organisms' First Orbital Flight**
Dimitri C. Malashenkov
Institute for Biomedical Problems of RAS, Moscow, Russia
- IAC-02-IAA.2.2.06** **Flight Dynamic Characteristics of Ancient Chinese Multi-Stage Rocket: Fire Dragon**
Lai-Chen Chien
Sung, Y. H. Kuo, Institute of Physics, Academia Sinica, Taipei, Taiwan, Ying-Hung Chen, C. C. China
L. J. Chen
Institute of Science Education, National Taichung Teachers College, Taiwan,
- IAC-02-IAA.2.2.07** **Launch Vehicles Reliability for the Years of Space Development**
Sergey R. Lisy
Research Institute, V.A. Menshikov, Yu. L. Klimenko, L.S. Medushevsky, Space Sysytems
Khrunichev Space Center, Jubileiny, Russia
- IAC-02-IAA.2.2.08** **Romanian MRE Rocket Engines Program - An Early Endeavor**
Dragos-Radu-Dan Rugescu
Romania Aerospace Sciences Department, University "Politehnica" of Bucharest,
- IAC-02-IAA.2.2.09** **The CIA and the American Civilian Space Program**
Dwayne A. Day
National Air and Space Museum, Washington, DC, USA

IAA.2.	<u>36th History of Astronautics Symposium</u>
Coordinators:	George S. James (USA) Philippe Jung (FRANCE)
IAA.2.3.	<u>Joint Session with COSPAR on History of Solar System Exploration</u>
Chairmen:	Henry B. Garrett (USA) Otfrid G. Liepack (USA)
Rapporteurs:	Philippe Cosyn (BELGIUM)
IAC-02-IAA.2.3.01 Radioastronomy Facilities	Dishing Up the Data: The Role of Australian Space Tracking and in the Exploration of the Solar System <i>Kerrie Dougherty</i> Power House Museum, Haymarket, Australia, J. Sarkissian, CSIRO, Sydney, Australia
IAC-02-IAA.2.3.02	Galileo's Telescope and the Birth of Space Science <i>A. van Helden</i> University of Utrecht, Utrecht, The Netherlands
IAC-02-IAA.2.3.03	The AEC-NASA Nuclear Rocket Program <i>H. Finger</i> Chevy Chase, MA, USA
IAC-02-IAA.2.3.04	Civil Applications of National Satellites <i>Dudley Killam</i> USAF, El Segundo, USA
IAC-02-IAA.2.3.05	Early Solar System Exploration <i>William Pickering</i> California Institute of Technology, Altadena, CA, USA
IAC-02-IAA.2.3.06	Soviet Planetary Missions in the 20th Century <i>Wesley T. Jr. Huntress</i> Geophysical Laboratory, Carnegie Institution of Washington, USA, V.I. Moroz, Institute of Space Research, Moscow, Russia, I.L. Shevarev, Lavochkin Association in Moscow, Moscow, Russia
IAC-02-IAA.2.3.07	The Legacy of Apollo: a Thirty Year Perspective <i>Harisson. Schmitt</i> University of Wisconsin, Albuquerque, NM, USA
IAC-02-IAA.2.3.08	The Apollo Lunar Module, a Retrospective <i>Joe Gavin</i> Washington, DC, USA

IAA.2.	<u>36th History of Astronautics Symposium</u>
Coordinators:	George S. James (USA) Philippe Jung (FRANCE)
IAA.2.4.	<u>Organizational Histories</u>
Chairmen:	Christophe Rothmund (FRANCE)
Rapporteurs:	Julius Braun (USA)
IAC-02-IAA.2.4.01	Evolving Public Perceptions of Spaceflight in American Culture <i>Roger D. Launius</i> NASA HQ, Washington, USA
IAC-02-IAA.2.4.02 1961)	Prelude to the French Space Activities at the Time of Committees (1955- <i>Hervé Moulin</i> IFHE, Paris, France
IAC-02-IAA.2.4.03	NASDA and the Space Industry in Japan <i>Hideo Takamatsu</i> Mitsubishi Space Software Co., Ltd., Tokyo, Japan
IAC-02-IAA.2.4.04 Satellite Optical Attitude	The Science Museum's Collection of British Sounding Rocket and Sensors, 1964-1974 <i>Douglas Millard</i> The Science Museum, London, U.K.
IAC-02-IAA.2.4.05 Medicine	Space Research in Bulgaria: Achievements in the Space Biology and
Bulgarian	<i>Tania N. Ivanova</i> P. Kostov, S. Sapunova, S. Simeonov, I. Dandolov, Space Research Institute, Academy of Sciences, Sofia, Bulgaria
IAC-02-IAA.2.4.06	The Story of the Nuclear Rocket: Back to the Future <i>James A. Dewar</i> Oxford, USA
IAC-02-IAA.2.4.07 Development at	Non-Conventional Propellants and Propulsion System Research and SNECMA Moteurs, 1946-1975 <i>Christophe Rothmund</i> SNECMA Moteurs, Vernon, France
IAC-02-IAA.2.4.08 Transmissions from the	Houston, We Have A Problem: A History of Air-to-Ground Voice U.S. Manned Space Program <i>Glen E. Swanson</i> NASA Johnson Space Center, Houston, USA

IAA.2.

Coordinators:

36th History of Astronautics Symposium

George S. James (USA)
Philippe Jung (FRANCE)

**IAA.2.P.
Pioneers**

Poster Session on History of Astronautics-Methods and Examples: Space

IAC-02-IAA.2.P.01

Luigi Gussalli: Italian Spaceflight Visionary

Michael L. Ciancone
NASA JSC, Houston, USA

IAC-02-IAA.2.P.02

Academician V.F. Utkin, General Designer of Space Launch Systems

Stanislav Konyukhov
O. Novykov, Yuzhnoye State Design Office, Dnepropetrovsk, Ukraine

IAC-02-IAA.2.P.03

The NASA Johnson Space Center Oral History Project

Rebecca Wright
Signal Corporation, Houston, W.A. Larsen, NASA JSC, Houston, USA

IAC-02-IAA.2.P.04

For All Mankind..., Public Access to Historical Resources

Archives and Records
USA

William A. Larsen
NASA Johnson Space Center, Houston, TX, USA, K.C. Carter, National
Administration, Houston, TX, S.H. Kelly, University of Houston Clear Lake, TX,

IAA.3.	<u>16th International Space Policies and Plans Symposium</u>
Coordinators:	Philippe Couillard (FRANCE) Pamela L. Whitney (USA)
<u>IAA.3.1. Coordination</u>	<u>Joint Session with COSPAR on International Cooperation and</u>
Chairmen:	José Achache (FRANCE) John M. Logsdon (USA) Thomas Zurbuchen (USA)
Rapporteurs:	James Keravala (U.K.)
IAC-02-IAA.3.1.01 Results of the	Emerging Needs for Enhance International Cooperation and Coordination:
Agency, St Hubert,	AIAA Workshops <i>I.W. Pryke</i> ESA Washington Office, Washington, DC, USA, G. Gibbs, Canadian Space Canada
IAC-02-IAA.3.1.02 Private Partnership	Evolutionary Aspects for Technology Policy: the Case of Galileo Public-
	<i>Vasilis Zervos</i> The University of Nottingham, Business School, Nottingham, U.K.
IAC-02-IAA.3.1.03	The Roadmap for Europe in Space <i>Karlheinz Kreuzberg</i> A. Diekmann, ESA HQ, Paris, France
IAC-02-IAA.3.1.04 Cooperation	Tracks for Eastern/Western European Future Launch Vehicles <i>Patrick Eymar</i> EADS Launch Vehicles, Les Mureaux, France, M. Bertschi, ESA HQ, Paris, France
IAC-02-IAA.3.1.05	Space Politics and Policy: An Evolutionary Perspective <i>Eligar Sadeh</i> Odegard School of Aerospace Sciences, University of North Dakota, Grand Forks, USA
IAC-02-IAA.3.1.06	Lessons Learned from ISS Cooperation <i>Claire Jolly</i> Futuraspace LLC, Ivry/Seine, France
IAC-02-IAA.3.1.07 Technology	The European Academia Network on Future Space Exploration <i>Kristian Pauly</i> E. Igenbergs, M. Reimert, Division of Astronautics, Technical University of Munich, Germany, R. Schulze, ESA-ESTEC, Noordwijk, Netherlands
IAC-02-IAA.3.1.08 International Center for Space Initiatives	Innovative Ideas for Coordinating International Space Activities: Space Medicine, International Space Authority, and other Global Youth <i>William Marshall</i> SGS Delegates, Space Generation Advisory Council, Houston, USA

IAA.3.

Coordinators:

16th International Space Policies and Plans Symposium

Philippe Couillard (FRANCE)
Pamela L. Whitney (USA)

**IAA.3.2.
Commercial Issues**

Joint Session with COSPAR on Space in Transition: Workforce and

Chairmen:

Walter Peeters (FRANCE)
Pamela L. Whitney (USA)

Rapporteurs:

Stéphanie Roy (USA)

IAC-02-IAA.3.2.01

Space Commercialization Trends and Consequences for the Workforce

Walter Peeters

International Space University, Illkirch, France

**IAC-02-IAA.3.2.02
Applications**

BEOS: a European Concept for Commercially-Funded and Oriented Space

Claudia Kessler

Astrium, Bremen, Germany

IAC-02-IAA.3.2.03

Lessons Learned from NASA's Recent Experiences in Space Commerce

Beth D. Caplan

NASA JSC, Houston, USA

**IAC-02-IAA.3.2.04
role in the**

The Issues Facing Universities Maintaining and Enhancing their Essential

Providing the Required

Pursuit of Space Research, the Transfer of New Technologies, and

Educated Workforce

Lennard A. Fisk

University of Michigan, Ann Arbor, MI, USA

**IAC-02-IAA.3.2.05
University**

Workforce Development Issues from Perspective of International

Karl H. Doetsch

International Space University, Illkirch, France

IAC-02-IAA.3.2.06

Macro-economic Aspects of the European Navigation System "GALILEO"

René Oosterlinck

ESA Headquarters, Paris, France

IAA.3.

Coordinators:

16th International Space Policies and Plans Symposium

Philippe Couillard (FRANCE)
Pamela L. Whitney (USA)

IAA.3.P.

Poster Session on National Space Policies and Plans

IAC-02-IAA.3.P.01
International

Space Agency

**Latin-American Regional Developments in Space Technology and
Cooperation - Columbian Space Policy: An Approach to Create a National**

Oscar Arenales

University of Tokyo, Dept of Architecture, School of Engineering, Tokyo, Japan

IAC-02-IAA.3.P.02

The Austrian Space Plan

Werner R. Balogh

K. Pseiner, Austrian Space Agency, Vienna, Austria

IAC-02-IAA.3.P.03

Strategies and Policies for Space - Indian Perspective

Mukund Rao

K. Kasturirangan, V. Sundarramiah, Indian Space Research Organisation

Headquarters,

Bangalore, K.R. Sridhara Murthy, Antrix Corporation, Bangalore, India

IAC-02-IAA.3.P.04

China's Space Policy

Wen Yan

International Space University, Illkirch, France

IAA.5.

Coordinators:

Multilingual Astronautical Terminology Symposium

Ivan Almar (HUNGARY)
Jean-Michel Contant (FRANCE)

IAA.5.1.

Chairmen:

Space Science Terminology

Dimitar N. Mishev (BULGARIA)
Keiken Ninomiya (JAPAN)

Rapporteurs:

Jack M. Cherne (USA)

**IAC-02-IAA.5.1.01
Terminology?**

Space Science Terminology - How does it Fit into Astronautical

Ivan Almar
Konkoly Observatory, Budapest, Hungary

IAC-02-IAA.5.1.02

Meets or Exceeds Applicable to Future Space Cooperations

Teresa A.J. Williams
NASA Johnson Space Center, Houston, TX, USA

**IAC-02-IAA.5.1.03
Dictionary with**

IAA Space Terminological Multilingual Data Bank Towards an On-Line

Definitions in French and in English

René Bensaid
CNES, Paris, J.L. Astor, CNES, Toulouse, France

**IAC-02-IAA.5.1.04
System**

Proposal of Network-Based Multilingual Space Dictionary Database

Sagamihara,

Tetsuo Yoshimitsu
K. Ninomiya, T. Hashimoto, The Institute of Space and Astronautical Science,
Japan

IAA.6.	<u>35th Safety, Rescue and Quality Symposium</u>
Coordinators:	C.W.F. Everitt (USA) Walter Flury (GERMANY) MacGregor S. Reid (USA) Manola Romero (FRANCE) Klaus-Peter Wenzel (NETHERLANDS)
IAA.6.1.	<u>Is there a Common Quality Approach for Space Programs?</u>
Chairmen:	Michael A. Greenfield (USA) Max Grimard (FRANCE)
Rapporteurs:	Manola Romero (FRANCE)
IAC-02-IAA.6.1.01	What is Software Quality Assurance <i>Linda H. Rosenberg</i> NASA Goddard Space Flight Center, Greenbelt, MD, USA
IAC-02-IAA.6.1.02 Program Quality	Concept of Draft International Standard for a Unified Approach to Space Assurance <i>Yuriy Stryzhak</i> V. Vasilina, Yuzhnoye State Design Office, Dnepropetrovsk, Ukraine
IAC-02-IAA.6.1.03 Complex Items	TQM-Based Quality Assurance Philosophy for Small-Scale Produced <i>Lutzian S. Medushevsky</i> V.A. Menshikov, Space Systems Research Institute, A.A. Kalinin, Yu. M. Mirosh, Rocket & Space Factory, Khronichev Space Center, Jubileiny, Moscow, Russia
IAC-02-IAA.6.1.04	CBERS - Disclosing a Successful International Space Cooperation <i>Geilson Loureiro</i> C.O. Lino, G.L. Hübscher, B. Vertamatti, Integration and Testing Laboratory – LIT, Brazilian Institute for Space Research, INPE, São José dos Campos, Brazil
IAC-02-IAA.6.1.05 Program and	Safety of International Cargos for ISS Based on NASA/Russian ISS Shuttle/MIR Experience <i>Gary W. Johnson</i> D.W. Totton, N.L. Steisslinger, NASA JSC, Houston, USA
IAC-02-IAA.6.1.06	A Proposal for the Common Safety Approach of Space Programs <i>Max Grimard</i> EADS Launch Vehicles, Les Mureaux Cedex, France

IAA.6.

Coordinators:

35th Safety, Rescue and Quality Symposium

C.W.F. Everitt (USA)
Walter Flury (GERMANY)
MacGregor S. Reid (USA)
Manola Romero (FRANCE)
Klaus-Peter Wenzel (NETHERLANDS)

IAA.6.2.

Chairmen:

System Safety and Risk Management

Jacques Marcoux (FRANCE)
Takeshi Masuda (JAPAN)

Rapporteurs:

IAC-02-IAA.6.2.01

Risk Analysis Methodology for Kistler's K-1 Reusable Launch Vehicle

Paul W. Birkeland

Kistler Aerospace Corporation, Kirkland, USA

IAC-02-IAA.6.2.02

Quantitative Justification for Project Authorization to Proceed

Norikazu Hara

NASDA, Tokyo, Japan

IAC-02-IAA.6.2.03

Risk Management in ETS-8 Project

Masanori Homma

NASDA, Ibaraki, Japan

IAC-02-IAA.6.2.04
Radio

Sustainer Electric Propulsion System as a Risk Factor for Deep Space

Communications with Spacecraft

A.P. Plokhikh

N.A. , Vazhenin, A.S. Volkovsky, G.V. Soganova,
Research Institute of Applied Mechanics and Electrodynamics (RIAME),

Moscow, Russia

IAC-02-IAA.6.2.05

Safety Concept for a Modern Get Away Special Power Supply

Thomas Rieger

H.J. Rath, P. Offterdinger, ZARM, Center of Applied Space Technology and

Microgravity,

University of Bremen, Germany

IAA.6.

Coordinators:

35th Safety, Rescue and Quality Symposium

C.W.F. Everitt (USA)
Walter Flury (GERMANY)
MacGregor S. Reid (USA)
Manola Romero (FRANCE)
Klaus-Peter Wenzel (NETHERLANDS)

**IAA.6.3.
Applications**

Chairmen:

Eamonn J. Daly (NETHERLANDS)
Magdeleine Dinguirard (FRANCE)
Terry Onsager (USA)

Rapporteurs:

Joint Session with COSPAR on Space Weather: Research and

IAC-02-IAA.6.3.01

Analysis Methods of Environmental Induced Anomalies of Spacecraft
Jean-Pierre Catani
CNES, Toulouse, France

IAC-02-IAA.6.3.02

LEO Spacecraft Charging Guidelines
G. Barry Hillard
D.C. Ferguson, NASA GRC, Cleveland, USA

IAC-02-IAA.6.3.03

High Voltage Space Solar Arrays
Dale D. Ferguson
G.B. Hillard, NASA GRC, Cleveland, USA

IAC-02-IAA.6.3.04

Using

**In-Orbit Monitoring of Space Weather and Its Effects on
Commercial-Off-The-Shelf (COTS) Electronics - A Decade of Research**

Micro-Satellites

Craig I. Underwood
M. Sweeting as Main author, Surrey Satellite Technology Ltd, Surrey Space
Centre, University
of Surrey, Guildford UK

IAC-02-IAA.6.3.05

Chinese

Nano-Satellite and its Application in Space Science Research
Lin Yunlong
Cai Jinrong, Tang Yuhua, Center for Space Sciences and Applied Research,
Academy of Science, Beijing, China

IAC-02-IAA.6.3.06

Toulouse, France

A Statistical Study for Solar Protons and Alpha Particles
Bénédicte Escudier
ENSAE / SUPAERO, Toulouse, D. Boscher, S. Bourdarie, ONERA/DESP,

IAA.8.

Coordinators:

13th Space Activities and Society Symposium

Roger Malina (FRANCE)
Géraldine Naja (FRANCE)

IAA.8.1.

Chairmen:

Ethical Issues Arising in Space Activities

Jacques Arnould (FRANCE)
Wendell Mendell (USA)

Rapporteurs:

IAC-02-IAA.8.1.01

Ethics and the Space Explorer

Wendell Mendell
NASA JSC, Houston, USA

**IAC-02-IAA.8.1.02
Activities**

Youth Initiatives and Projects on Human Rights and Ethics in Space

William Marshall
SGS Delegates, Space Generation Advisory Council, Houston, USA

IAC-02-IAA.8.1.03

Space Ethics and Protection of the Space Environment

Mark Williamson
Space Technology Consultant, The Glebe House, Cumbria, U.K.

**IAC-02-IAA.8.1.04
Permanently**

Designating Earth's Moon as a United Nations World Heritage Site -

Protected from Commercial or Military Uses

Richard G. Steiner
University of Alaska, Anchorage, Alaska, USA

IAC-02-IAA.8.1.05

A Code of Ethics and Standards for Outer-Space Commerce

David M. Livingston
Livingston Business Solutions, Tiburon, USA

IAC-02-IAA.8.1.06

Human Being: the Next Space Frontier

Jacques Arnould
CNES, Paris, France

IAC-02-IAA.8.1.07

Commercial Space Travel, Ethics and Society

Nick L.J. Cox
Physics & Astrophysics Faculty, University of Utrecht, Netherlands

- IAA.8.**
Coordinators: **13th Space Activities and Society Symposium**
Roger Malina (FRANCE)
Géraldine Naja (FRANCE)
- IAA.8.2.**
Chairmen: **The Architecture of Space: A Multi-Disciplined Approach**
Richard Clar (FRANCE)
Arthur R. Woods (SWITZERLAND)
Rapporteurs: Jean-Marc Philippe (FRANCE)
- IAC-02-IAA.8.2.01**
Rigid Inflatable
of
Launch and Functional Considerations Guiding the Scaling and Design of
Habitat Modules
Larry Bell
Sasakawa International Center for Space Architecture, Gerald D. Hines College
Architecture, University of Houston, USA
- IAC-02-IAA.8.2.02**
for Long-Term
The Design of Mars on Earth, a Biospheric Closed System Testing Facility
Space Habitation
John Allen
Biosphere Foundation , A. Alling, Biosphere Technologies, Santa Fe, USA
- IAC-02-IAA.8.2.03**
John Frassanito & Associates: Designer for Space Travel
John Zukowsky
The John H. Bryan Curator of Architecture, The Art Institute of Chicago, USA
- IAC-02-IAA.8.2.04**
Designing the Space Station Crew Compartment
Gary H. Kitmacher
NASA JSC, Houston, USA
- IAC-02-IAA.8.2.05**
Habitability Concept Models for Living in Space
Marinella Ferrino
E. Gaia, Alenia Spazio S.p.A., Turin, Italy
- IAC-02-IAA.8.2.06**
Media-Augmented Exercise Machines
Ted Krueger
School of Architecture, Rensselaer Polytechnic Institute, Troy, NY, USA
- IAC-02-IAA.8.2.07**
The Space House™ : Space Technologies in Architectural Design
Fritz Gampe
D. Raitt, ESA/ESTEC, Noordwijk, Netherlands

- IAA.9.** **31st Review Meeting of the Search for Extraterrestrial Intelligence (SETI)**
 Coordinators: F. Raulin (FRANCE)
 Jill Tarter (USA)
 Douglas A. Vakoch (USA)
- IAA.9.1.** **Joint Session with COSPAR on SETI I: New SETI Facilities Enlarge the Search**
 Chairmen: Claudio Maccone (ITALY)
 Jill Tarter (USA)
 Rapporteurs: Allen Tough (CANADA)
- IAC-02-IAA.9.1.01** **PESEK Lecture: Promising New Approaches in the Search for Extraterrestrial Intelligence**
Frank Drake
 SETI Institute, USA
- IAC-02-IAA.9.1.02** **The Very Small Array: Proof-of-Concept for Array 2K**
Paul Shuch
 The SETI League, Inc., Little Ferry, USA
- IAC-02-IAA.9.1.03** **Update on the Square Kilometer Array**
Jill Tarter
 SETI Institute, Mountain View, USA
- IAC-02-IAA.9.1.04** **The Lunar Farside Radio Lab Study of the IAA**
Claudio Maccone
 Alenia Spazio S.p.A., Turin, Italy
- IAC-02-IAA.9.1.05** **Trials of Omni-Directional Sky Survey Telescopes**
Kent Cullers
 SETI Institute, Mountain View, USA
- IAC-02-IAA.9.1.06** **The Rio Scale Applied to Fictional "SETI Detections"**
Seth Shostak
 The SETI Institute, Mountain View, CA, USA
- IAC-02-IAA.9.1.07** **Horowitz/Sagan Signals were not ETI**
Peter Backus
 J. Tarter, The SETI Institute, Mountain View, CA, USA, J. Lazio, Cornell University, Ithaca, NY, USA
- IAC-02-IAA.9.1.08** **Limits from Satellite Gamma-Ray Observations on the Use of Antimatter Propulsion by Extraterrestrial Civilizations**
Michael J. Harris
 University Space Research Association, Greenbelt, USA
- IAC-02-IAA.9.1.09** **Searching for ET with Help from Three Million Volunteers: The SETI@Home, Serendip, Sevendip and Spck SETI Programs**
Dan Werthimer
 D. Anderson, S. Bowyer, J. Cobb, P. Demorest, E. Heien, E. Korpela, S. Fulton, C. Kim, M. Lampton, M. Lebofsky, G. Marcy, University of California, Berkeley, CA, USA

<p>IAA.9. Coordinators:</p>	<p><u>31st Review Meeting of the Search for Extraterrestrial Intelligence (SETI)</u> F. Raulin (FRANCE) Jill Tarter (USA) Douglas A. Vakoch (USA)</p>
<p><u>IAA.9.2.</u> <u>will they Say?</u> Chairmen: Rapporteurs:</p>	<p><u>Joint Session with COSPAR on SETI II: Who will Speak for Earth? What</u> John D. Rummel (USA) Douglas A. Vakoch (USA) Patricia Sterns (USA)</p>
<p>IAC-02-IAA.9.2.01</p>	<p>SETI and Astrobiology: Contact - A Youth Perspective <i>William Marshall</i> SGS Delegates, Space Generation Advisory Council, Houston, USA</p>
<p>IAC-02-IAA.9.2.02 State Univ., Y. California</p>	<p>Educating the Next Generation of SETI Scientists: Voyages Through Time <i>Edna DeVore</i> J.Tarter, J.Fisher, SETI Institute, Mountain View, K. O'Sullivan, San Francisco Pendleton, NASA Ames Research Center, Moffett Field, S. Taylor, M. Burke, Academy of Sciences, San Francisco, USA</p>
<p>IAC-02-IAA.9.2.03</p>	<p>Communicating with ETI: Five Needed Steps <i>Allen Tough</i> University of Toronto, Canada</p>
<p>IAC-02-IAA.9.2.04</p>	<p>Ten Decisions that Could Shake the World <i>Michael A.G. Michaud</i> Vienna, Austria</p>
<p>IAC-02-IAA.9.2.05 Portland, USA</p>	<p>Artificial Exo-Society Modeling: a New Tool for SETI Research <i>James N. Gardner</i> Conference of World Regions (Task Force on Science and Technology),</p>
<p>IAC-02-IAA.9.2.06</p>	<p>Communicating Concepts about Altruism in Interstellar Messages <i>Douglas A. Vakoch</i> SETI Institute, Mountain View, USA</p>
<p>IAC-02-IAA.9.2.07 Possible Application to</p>	<p>Information Theory Applied to Dolphin Whistle Vocalizations with SETI Signals <i>Laurence R. Doyle</i> B. McCowan, S. F. Hanser, SETI Institute, Mountain View, USA</p>
<p>IAC-02-IAA.9.2.08</p>	<p>Corpus Linguistics and the Design of a Response Message <i>Eric Atwell</i> J. Elliott, University of Leeds, School of Computing, Leeds, England</p>
<p>IAC-02-IAA.9.2.09</p>	<p>Young: a Cryptanalytic Toolkit for SETI <i>Yvan Dutil</i> S. Dumas, ABB Bomem Inc., Québec, Canada</p>
<p>IAC-02-IAA.9.2.10 Lingua Ex</p>	<p>The Filtration of Inter-Galactic Objets Trouvés and the Identification of the</p>

School of

Machina Hierarchy

John Elliott

E. Atwell, B. Whyte, Centre for Computer Analysis of Language and Speech,

Computer Studies, University of Leeds, Leeds, U.K.

- IAA.10.** **EVA and Space Suits Symposium**
 Coordinators: Ake Ingemar Skoog (GERMANY)
- IAA.10.1.** **EVA and Robotics for ISS and Lunar/Mars Base**
 Chairmen: Isaak P. Abramov (RUSSIA)
 James W. McBarron II (USA)
 Rapporteurs: Vladimir Pletser (NETHERLANDS)
 Richard C. Wilde (USA)
- IAC-02-IAA.10.1.01** **EVA and the Build-up of ISS, Personal Experiences**
Jerry L. Ross
 NASA Johnson Space Center, Houston, TX, USA
- IAC-02-IAA.10.1.02** **Russian-American Cooperation in EVA Area (from Russian Perspective)**
Oleg S. Tsygankov
 Abramov, "RD&PE Training Center,
 A.P. Alexandrov, A.F. Poleschuk, RSE Energia named after S.P. Korolev, I.P
 Zvezda" JSC, Tomilino, O.D. Pushkar, N.S. Grekov, Gagarin Cosmonauts
 Russia
- IAC-02-IAA.10.1.03** **What's NEXT for EVA**
Richard K. Fullerton
 NASA HQ, Washington, USA
- IAC-02-IAA.10.1.04** **The First Results of the Russian EVA Space Suits Operation in the International Space Station**
Isaak P. Abramov
 E.A. Albats, G.M. Glazov, RD & PE Zvezda, Tomilino, Russia
- IAC-02-IAA.10.1.06** **A Human Machine Interface for EVA**
Leo Hartmann
 Canadian Space Agency, St Hubert, QC, Canada
- IAC-02-IAA.10.1.07** **Simulation of Martian EVA at the Mars Society Arctic Research Station**
Vladimir Pletser
 USA, K. ESA/ESTEC, Noordwijk, Netherlands, R. Zubrin, The Mars Society, Indian Hills,
 Quinn, Massachusetts Institute of Technology, Cambridge, USA
- IAC-02-IAA.10.1.08** **Design and Testing of Improved Spacesuit Shielding Components**
Jody Ware
 Hampton, G. De J. Ferl, ILC Dover, inc., Frederica, J.W. Wilson, M.S. Cloudsley, NASA LaRC,
 National Lab. Angelis, J. Tweed, Old Dominion Univ., Norfolk, C.J. Zeitlin, Lawrence Berkeley
 Berkeley, USA
- IAC-02-IAA.10.1.09** **Advanced Thermal Status Control of Crews in EVA and Escape Suits**
Victor S. Koscheyev
 University of A. Coca, Department of Kinesiology, G.R Leon, Department of Psychology,
 Minnesota, Minneapolis, USA

IAA.11.	<u>Joint Symposium with COSPAR on Small Satellite Missions</u>
Coordinators:	Richard Holdaway (U.K.) Arnoldo Valenzuela (ITALY)
IAA.11.1.	<u>Small Space Science Missions</u>
Chairmen:	Tom Krimigis (USA) Denis J.P. Moura (FRANCE)
Rapporteurs:	Larry Paxton (USA)
IAC-02-IAA.11.1.01	ODIN, 100-600 GHZ Radiometer Design and in Orbit Results <i>Urban Frisk</i> Swedish Space Corporation, Solna, Sweden
IAC-02-IAA.11.1.02 Monitoring Payload -	The AMSAT-OSCAR-40 High Elliptical Orbit Radiation Environment First Flight Results <i>Sir Martin N. Sweeting</i> C. I. Underwood, Surrey Space Centre, University of Surrey, Guildford, UK
IAC-02-IAA.11.1.03	COSMOS 1: the Attempt to Fly the First Solar Sail Mission <i>Louis D. Friedman</i> The Planetary Society, Pasadena, J. Cantrell, Wasatch Engineering, Logan, USA, K. Pichkhadze, V. Kudryashov, G. Rogovsky, Babakin Space ctr, Moscow, V. Linkin, V. Gotlib, A. Lipatov, Space Research Inst., RAS, Moscow, Russia
IAC-02-IAA.11.1.04	GEOSAIL: a Novel Magnetospheric Space Mission Utilizing Solar Sails <i>David Alexander</i> A.W. Sandman, Lockheed Martin Solar & Astrophysics Lab., Palo Alto, V. Angelopoulos, Space Sc. Lab., UC Berkeley, N. Murphy, J. Ayon, JPL, Pasadena, H.T. Li, Lockheed Martin Astr., USA, C.R. McInnes, Univ. of Glasgow, U.K.
IAC-02-IAA.11.1.05	Ongoing Evolution on the Geospace Electrodynamic Connections Mission <i>Joseph M. Grebowsky</i> R.P. Buchanan, NASA GSFC, Greenbelt, USA
IAC-02-IAA.11.1.06	STEREO: The Challenges <i>Ted Mueller</i> H. Maldonado, Applied Physics Laboratory, The John Hopkins University, Laurel, A.S. Driesman, NASA GSFC, Greenbelt, USA
IAC-02-IAA.11.1.07	SMART-1, Platform Design and Project Status <i>Fredrik Sjoberg</i> P. Rathsmann, S. Grahn, S. Persson J. Kugelberg, Swedish Space Corporation (SSC), Space Systems Division, Solna, Sweden
IAC-02-IAA.11.1.08	Small Science Missions in the Planetary Programs: The JHU/APL Model <i>Tom B. Coughlin</i> S.M. Krimigis, Applied Physics Laboratory, The John Hopkins University, Laurel, USA
IAC-02-IAA.11.1.09	Mini-Satellites for Affordable Space Science <i>Andy Phipps</i>

Cropp, Surrey

M. Sweeting as Main author, A. da Silva Curiel, D. Gibbon, G. Richardson, A.
Space Centre , Surrey Satellite Technology Limited, Guildford, UK

IAA.11.	<u>Joint Symposium with COSPAR on Small Satellite Missions</u>
Coordinators:	Richard Holdaway (U.K.) Arnoldo Valenzuela (ITALY)
IAA.11.2.	<u>Small Satellites for Earth Observation: Lessons Learned and New</u>
<u>Generation</u>	
Chairmen:	Rainer Sandau (GERMANY) Sergio Vetrella (ITALY)
Rapporteurs:	Larry Paxton (USA)
IAC-02-IAA.11.2.01	Orbit Experience and First Results of the Bird-Mission <i>Klaus Briess</i> DLR, Berlin, Germany
IAC-02-IAA.11.2.02	A NanoSatellite to Demonstrate GPS Oceanography Reflectometry <i>Sir Martin N. Sweeting</i> M.Meerman, M. Unwin, Surrey Space Centre, Surrey Satellite Technology Limited, University of Surrey, Guildford, UK
IAC-02-IAA.11.2.03	The ODIN Project: Lessons for a Follow-on EO Mission <i>Fredrik Von Scheele</i> Swedish Space Corporation, Solna, Sweden
IAC-02-IAA.11.2.04	Opportunities in Satellite Based Earth Observation for Sustainable
Development in	Southern Africa <i>Sias Mostert</i> A. Schoonwinkel, G.W. Milne, University of Stellenbosch, Stellenbosch, South Africa
IAC-02-IAA.11.2.05	ROCSAT-2, a Small Satellite for Two Remote Sensing Missions <i>Jeng-Shing Chern</i> J. Ling, Y.S. Chang, National Space Program Office, Hsin-Chu, Taiwan, China
IAC-02-IAA.11.2.06	MACSAT - A Near Equatorial Earth Observation Mission <i>Kim Byung Jin</i> S. Park, E.E. Kim, W. Park, H. Chang, J. Seon, SaTReCi, Taejon, Korea, M. Ismail, A.A. Abd. Rasheed, A.S Arshad, ATSB, Kuala Lumpur, Malaysia

<p>IAA.11. Coordinators:</p>	<p><u>Joint Symposium with COSPAR on Small Satellite Missions</u> Richard Holdaway (U.K.) Arnoldo Valenzuela (ITALY)</p>
<p><u>IAA.11.3.</u> <u>Observation of the Earth</u></p>	<p><u>Joint Session with COSPAR on Low Cost Satellite Missions for and the Near-Earth Environment</u></p>
<p>Chairmen:</p>	<p>Larry Paxton (USA) Rainer Sandau (GERMANY) Kent Tobiska (USA)</p>
<p>Rapporteurs:</p>	<p>Jaime Esper (USA)</p>
<p>IAC-02-IAA.11.3.01</p>	<p>Application of New Technologies to Low Cost Geospace Missions <i>Larry Paxton</i> The John Hopkins University, Laurel, MD, USA</p>
<p>IAC-02-IAA.11.3.02</p>	<p>BILSAT-1: a Low-Cost Agile Earth Observation Microsatellite for Turkey <i>Sir Martin N. Sweeting</i> A. Bradford, L.M. Gomes, Surrey Space Centre, University of Surrey, Guildford, UK, U. Murat University, Ankara, Leloglu, G. Yuksel, C. Ozkaptan, Tubitak-Bilten, Middle East Technical Turkey</p>
<p>IAC-02-IAA.11.3.03 Results & Imminent</p>	<p>Low Cost Micro-Mini-Satellite Remote Sensing Capabilities: in-Orbit Missions <i>Sir Martin N. Sweeting</i> P. Stephens, Surrey Space Centre, University of Surrey, Guildford, UK</p>
<p>IAC-02-IAA.11.3.04</p>	<p>Affordable Earth Observatories for Developing Countries <i>Robert Meurer</i> AeroAstro Inc., Herndon, USA</p>
<p>IAC-02-IAA.11.3.05 of Sciences,</p>	<p>Payload Service System for the Small Satellites of Double Star Project <i>Sun Huixian</i> X.M. Chen, Centre for Space Science & Applied Research, Chinese Academy Beijing, China</p>
<p>IAC-02-IAA.11.3.06 Earth Observation</p>	<p>Comprehensive Study on Small and Low Cost Satellite Technology for with Case Study for Indonesia: Projection for 2002-2022 <i>H. Harijono Djodihardjo</i> Institute of Technology, Bandung, Indonesia</p>
<p>IAC-02-IAA.11.3.07 Space Italy</p>	<p>URSA MAIOR: a One Liter Nanosatellite Bus for Low Cost Access to <i>Fabio Santoni</i> "Scuola di Ingegneria Aerospaziale", University of Rome "La Sapienza", Rome,</p>
<p>IAC-02-IAA.11.3.08 Institute of</p>	<p>Magion Satellites <i>Pavel Triska</i> J. Chum, A. Czapek, F. Hruska, J. Simunek, J. Smilauer, V. Truhlik, J. Vojta, Atmospheric Physics, Prague, Czech Republic</p>

- IAA.11.**
Coordinators: **Joint Symposium with COSPAR on Small Satellite Missions**
Richard Holdaway (U.K.)
Arnoldo Valenzuela (ITALY)
- IAA.11.4.**
Chairmen: **Small Satellite Operations**
Richard Holdaway (U.K.)
Rhoda Shaller Hornstein (USA)
- Rapporteurs:
- IAC-02-IAA.11.4.01** **NASA / International Cooperative Small Satellite Program**
Gilbert W. Ousley
TRW, Columbia, USA
- IAC-02-IAA.11.4.02** **Autonomous Operation of the Nanosatellite URSA MAIOR**
Fabio Santoni
"Scuola di Ingegneria Aerospaziale", University of Rome "La Sapienza", Rome,
Italy
- IAC-02-IAA.11.4.03** **Development of a Behavioural Algorithm for Autonomous Spacecraft**
Gianmarco Radice
Department of Aerospace Engineering, University of Glasgow, U.K.
- IAC-02-IAA.11.4.04** **Finding the Balance of Autonomy on-Board Versus Man-Triggered Actions from Ground**
Stefan Lundin
Swedish Space Corporation, Solna, Sweden
- IAC-02-IAA.11.4.05** **FBM Ground Segment and Operations Concept**
Paulo Cardoso
L. Gonçalves, A. Ambrosio, H. Carvalho, INPE, Sao José dos Campos, Brazil
- IAC-02-IAA.11.4.06** **Earth Based Intelligent Software for Failure Detection and Self Repairing of Microsatellites**
by Using Automatic Learning
Enrique A. Sierra
J.J. Quiroga, R. Fernandez, G.E. Monte, O.A. Nolly, Dept. of Electrical
Engineering, National
University of Comahue, Neuquen, Argentina
- IAC-02-IAA.11.4.07** **Novel Upgrades to the Ral Ground Station**
Peter M. Allan
J.S. Wright, Rutherford Appleton Laboratory, Didcot, U.K.
- IAC-02-IAA.11.4.08** **An Improved Satellite Data Collecting System**
Pawel Rozenfeld
V. Orlando, INPE, Sao José dos Campos, Brazil
- IAC-02-IAA.11.4.09** **Multi-target TT&C and Management of Small Satellites**
Yongan Yang
Kaizhong Yang, JiSheng Li, Xi'an Satellite Control Centre
Feng Zuren, Xi'an JiaoTong University, Xi'an, China

<p>IAA.11. Coordinators:</p>	<p><u>Joint Symposium with COSPAR on Small Satellite Missions</u> Richard Holdaway (U.K.) Arnoldo Valenzuela (ITALY)</p>
<p>IAA.11.5./V.7. Small Chairmen: Rapporteurs:</p>	<p><u>Joint Session with Space Transportation Symposium on Space Access for Satellites</u> Karen Poniatowski (USA) Gerry M. Stenovc (USA)</p>
<p>IAC-02-IAA.11.5./V.7.01 Small Satellite</p>	<p>20 Years Experience with using Low Cost Launch Opportunities for 20 Missions <i>Sir Martin N. Sweeting</i> M. Meerman, Surrey Space Centre, University of Surrey, Guildford, UK</p>
<p>IAC-02-IAA.11.5./V.7.02</p>	<p>Space Access for Small Satellites on the K-1 <i>Debra F. Faktor Lepore</i> G. Lai, Kistler Aerospace Corporation, Kirkland, USA</p>
<p>IAC-02-IAA.11.5./V.7.03 Requirements</p>	<p>PEGASUS - A Flexible Launch Solution for Small Satellites with Unique <i>Dale Fenn</i> B.R. Richards, M. Ferguson, Orbital Sciences Corporation, Dulles, USA</p>
<p>IAC-02-IAA.11.5./V.7.04</p>	<p>Affordable Launch Services using the Sport Orbit transfer System <i>David J. Goldstein</i> AeroAstro Inc., Boston, USA</p>
<p>IAC-02-IAA.11.5./V.7.05</p>	<p>RUBIN Microsatellites for Advanced Space Technology Demonstration <i>Indulis Kalnins</i> OHB System AG, Bremen, Germany</p>

IAA.12.	<u>Nano-Materials for Space Applications Symposium</u>
Coordinators:	R. Narayanan (USA) Liya L. Regel (USA)
IAA.12.1.	<u>Joint Session with COSPAR on Nano-Materials for Space</u>
Chairmen:	Meyya Meyyappan (USA)
Rapporteurs:	William R. Wilcox (USA)
IAC-02-IAA.12.1.01	Nanotube Composites and Applications to Human Spaceflight <i>Leonard D. Yowell</i> B. Mayeaux, B. Files, E. Sullivan, NASA JSC, Houston, TX, USA
IAC-02-IAA.12.1.02	Nanocomposites: from Space Suites to Space Ships <i>Enrique V. Barrera</i> Rice University, Houston, TX, USA
IAC-02-IAA.12.1.03	Building Organized Structures using Nanotubes <i>Pulickel M. Ajayan</i> Rensselaer Polytechnic Institutes, Troy, NY, USA
IAC-02-IAA.12.1.04	Fusion of Bio-Nano-Information Technologies <i>Scott Hubbard</i> NASA ARC, Moffet Field, USA
IAC-02-IAA.12.1.05	MUSE, a Lab-On-Chip System for In-Situ Analysis <i>Fir Eckhard</i> Stork Product Engineering, Amsterdam, A. Prak, 3T, Enschede, D. van den Assem, National Aerospace Laboratory NLR, Emmeloord, the Netherlands
IAC-02-IAA.12.1.06	Nanomaterials in Space: is the Future Granted? <i>Chipara Mircea</i> Indiana University Cyclotron Facility, Bloomington, USA

IAA.13.	<u>Human Exploration of Moon & Mars Symposium</u>
Coordinators:	Harald Hoffmann (GERMANY) A.Chantal Levasseur-Regourd (FRANCE) George W. Morgenthaler (USA) William J. O'Neil (USA)
IAA.13.1.	<u>Technologies for Human Exploration and Development of space</u>
Chairmen:	John C. Mankins (USA) Ernesto Vallerani (ITALY)
Rapporteurs:	Benton C. Clark (USA)
IAC-02-IAA.13.1.01	Strategies and Concepts for Future Space Exploration and Development <i>John C. Mankins</i> NASA HQ, Washington, USA, E. Vallerani, ALTEC, Turin, Italy
IAC-02-IAA.13.1.02	A European Industrial Approach to Human Missions to Mars <i>Guy Limouzin</i> Astrium, Toulouse, A.M. Schipper, Alcatel Space Industries, Cannes, France, M.A. Perino, Alenia Spazio, Turin, Italy
IAC-02-IAA.13.1.03 Operational Activitiy	Advanced Earth-Moon Infrastructure for the Long-Term Expansion of in Space <i>Nikolai A. Anfimov</i> TSNIIMASH, Moscow, Russia
IAC-02-IAA.13.1.04	Settlement-Compatible Lunar Transporation <i>George W. Morgenthaler</i> Colorado University at Boulder, Boulder, CO, USA
IAC-02-IAA.13.1.05	Novel Uses of Lunar Regolith <i>Charles Horton</i> A. Freundlich, A. Ignatiev, Space Vacuum Epitaxy Center, University of Houston, Houston, USA
IAC-02-IAA.13.1.06	Mining Lunar Polar Ice <i>Michael B. Duke</i> Colorado School of Mines, Golden, CO, USA
IAC-02-IAA.13.1.07	Mars EVA Suit Airlock (MESA) <i>Stephen Ransom</i> J. Böttcher, F. Steinsiek, Astrium Space Infrastructure, Bremen, Germany, C.J. Reimers, ESA/ESTEC, Noordwijk, Netherlands
IAC-02-IAA.13.1.08 (Limbed Excursion	Small, Agile and Re-Configurable Six-Limbed Robot Called LEMUR Mechanical Utility Rover) <i>Brett A. Kennedy</i> NASA JPL, Pasadena, USA
IAC-02-IAA.13.1.09	Advances in Autonomous Systems for Missions of Space Exploration <i>Anthony R. Gross</i> G.A. Briggs, J. Hieronymus, D.J. Clancy, NASA ARC, Moffett Field, B.D. Smith, NASA JPL,

Pasadena, USA

**IAC-02-IAA.13.1.10
using an Immersive**

Planning, Implementation and Optimization of Future space Missions

Visualization Environment (IVE) Machine

E. Nathan Harris

Lockheed Martin Space Systems, Denver, CO, USA, G. Morgenthaler,

University Colorado at

Boulder, Boulder, CO, USA

<p>IAA.13. Coordinators:</p>	<p><u>Human Exploration of Moon & Mars Symposium</u> Harald Hoffmann (GERMANY) A.Chantal Levasseur-Regourd (FRANCE) George W. Morgenthaler (USA) William J. O'Neil (USA)</p>
<p>IAA.13.2. <u>Neighborhood</u> Chairmen: Rapporteurs:</p>	<p><u>Human Exploration and Development of the Moon and Earth's</u> Uwe Apel (GERMANY) William H. Siegfried (USA) Michael B. Duke (USA) Michael Reichert (GERMANY)</p>
<p>IAC-02-IAA.13.2.01</p>	<p>The Moon and the Future of NASA <i>Paul D. Spudis</i> The Lunar and Planetary Institute, Houston, USA</p>
<p>IAC-02-IAA.13.2.02 Mission</p>	<p>Lunar Precursor Missions for Human Exploration of Mars - II. Studies of Operations <i>Wendell Mendell</i> A.D. Griffith, NASA JSC, Houston, USA</p>
<p>IAC-02-IAA.13.2.03 Laboratory,</p>	<p>Three Alternatives for the Acquisition of an Initial Lunar Installation: Lunar Temporary Lunar Base, Permanent Lunar Base <i>Hermann H. Koelle</i> Institute of Aeronautics & Astronautics, Technical University of Berlin, Germany</p>
<p>IAC-02-IAA.13.2.04</p>	<p>Conceptual Design of a Lunar L1 Gateway Outpost <i>Jim Geffre</i> NASA JSC, Houston, USA</p>
<p>IAC-02-IAA.13.2.05 ESA/ESTEC, Noordwijk,</p>	<p>Manned in Situ Confirmation of Lunar Ice <i>Sam Gerené</i> Delft University of Technology, Delft, R.W.J. Hummeling, W. Ockels, Netherlands</p>
<p>IAC-02-IAA.13.2.06</p>	<p>Orbital Aggregation & Space Infrastructure System (OASIS) <i>Patrick Troutman</i> NASA LaRC, Hampton, USA</p>
<p>IAC-02-IAA.13.2.07 Resource-Rich</p>	<p>Lunar Solar Power System Driven Human Development of the Moon and Exploration of the Inner Solar System <i>David R. Criswell</i> Institute for Space Systems Operations, University of Houston, Houston, Texas</p>
<p>IAC-02-IAA.13.2.08 System?</p>	<p>Terraforming the Moon: a Viable Step in the Colonization of the Solar System? <i>Hatto W. Renn</i> Rocket Finance.Com, Berlin, Germany</p>
<p>IAC-02-IAA.13.2.09 Involved in</p>	<p>Establishing a Biosphere Beyond the Earth: Concepts and Challenges Developing a Large-Scale Habitat on the Moon</p>

John C. Mankins
NASA HQ, Washington, USA

IAC-02-IAA.13.2.10

Human Exploration of the Moon - A Youth Perspective

William Marshall
SGS Delegates, Space Generation Advisory Council, Houston, USA

<p>IAA.13. Coordinators:</p>	<p><u>Human Exploration of Moon & Mars Symposium</u> Harald Hoffmann (GERMANY) A.Chantal Levasseur-Regourd (FRANCE) George W. Morgenthaler (USA) William J. O'Neil (USA)</p>
<p>IAA.13.3. Chairmen: Rapporteurs:</p>	<p><u>Human Exploration and Development of Mars and Beyond</u> Michael Reichert (GERMANY) Christian Sallaberger (CANADA) Marco C. Bernasconi (SWITZERLAND) Luigi Bussolino (ITALY)</p>
<p>IAC-02-IAA.13.3.01 for Robotic and Denver, USA</p>	<p>An Advanced In-Situ Resource Utilization (ISRU) Production Plant Design Human Mars Missions <i>Tom Simon</i> R.S. Baird, J. Trevathan, NASA JSC, Houston, L. Clark, Lockheed Martin,</p>
<p>IAC-02-IAA.13.3.02 Precursor to an Hughes, Inc.,</p>	<p>Drilling for Water on Mars using Commercial Technologies: an Enabling Early, Affordable Human Mars Mission <i>Humbolt C. Mandell</i> B. Derkowski, NASA JSC, Houston, USA, P. Fontana, J. MacFarlane, Baker Houston, USA</p>
<p>IAC-02-IAA.13.3.03 StarGate Research</p>	<p>Use of Robotically Hollowed Out Moon of Mars as a Mars Space Station <i>Austin Albert Mardon</i> Antarctic Institute of Canada, Edmonton, Alberta, Canada, J. Greenspon, Laboratory, Rimforest, USA</p>
<p>IAC-02-IAA.13.3.04 Investigations and International</p>	<p>Supporting Future Human Planetary Exploration with Earth Analog Missions <i>Kelly Snook</i> D. Henninger, T. Tri, NASA JSC, Houston, S. Hoffman, Science Applications Corp. Houston, P.W. Dickerson, Lockheed Martin Corp., Houston, USA</p>
<p>IAC-02-IAA.13.3.05 </p>	<p>Automation and robotics for Human MARS Exploration <i>Andreas von Richter</i> Kayser-Threde, Munich, Germany</p>
<p>IAC-02-IAA.13.3.06 Chemical</p>	<p>Martian Air Separation for In-Situ Resource Utilization Processes <i>J. Douglas Way</i> J.R. MacArthur, R.M. Baldwin, Colorado School of Mines, Department of Engineering, Golden, L.W. Mason, Lockheed Martin Astronautics, Littleton, USA</p>
<p>IAC-02-IAA.13.3.07 Houston, USA</p>	<p>Martian Resource Locations - Identification and Optimization <i>Gregory E. Chamitoff</i> G. James, NASA, Johnson Space Center, Houston, D. Barker, MAXD, Inc.,</p>
<p>IAC-02-IAA.13.3.08</p>	<p>ISRU in the Context of Future European Human Mars Exploration</p>

Adam M. Baker
Farnborough, U.K., C. Tomatis, Alenia Aerospazio, Turin, Italy

IAC-02-IAA.13.3.09

Integrated Consumable Production for Mars Missions

Kristian Pauly
Division of Astronautics, Technical University of Munich, Germany

IAC-02-IAA.13.3.10

Houston, TX,

First MARS Outpost: Development Considerations and Concepts

Larry Bell

G.D. Hines, University of Houston, International Center for Space Architecture,

USA

IAA.13.	<u>Human Exploration of Moon & Mars Symposium</u>
Coordinators:	Harald Hoffmann (GERMANY) A.Chantal Levasseur-Regourd (FRANCE) George W. Morgenthaler (USA) William J. O'Neil (USA)
IAA.13.4./Q.5.1.	<u>Dealing with Earth-Threatening Asteroids and Comets</u>
Chairmen:	Ivan Bekey (USA) Stephan Ulamec (GERMANY)
Rapporteurs:	
IAC-02-IAA.13.4./Q.5.1.01 Concept for	Comet/Asteroid Protection System (CAPS): a Space-Based System Revolutionizing Earth Protection and Utilization of Near Earth-Objects <i>Daniel D. Mazanek</i> NASA LaRC, Hampton, USA
IAC-02-IAA.13.4./Q.5.1.02 by Asteroids	The Psychological and Socio-Cultural Aspects of Major Disasters Caused and Comets Striking the Earth <i>Harvey A. Wichman</i> Professor Emeritus, Claremont-McKenna College, Claremont, USA
IAC-02-IAA.13.4./Q.5.1.03 Using	Development of Conception on Protection of Earth against Asteroids with Ecologically Clean Space Rocket Means of Influence <i>Mykola M. Slyunyayev</i> S. Konyukhov, Yuzhnoye State Design Office, Dniepropetrovsk, Ukraine
IAC-02-IAA.13.4./Q.5.1.04	Planetary Protection - A Youth Initiative <i>William Marshall</i> SGS Delegates, Space Generation Advisory Council, Houston, USA

<p>IAA.13. Coordinators:</p>	<p><u>Human Exploration of Moon & Mars Symposium</u> Harald Hoffmann (GERMANY) A.Chantal Levasseur-Regourd (FRANCE) George W. Morgenthaler (USA) William J. O'Neil (USA)</p>
<p><u>IAA.13.P. Concepts and</u></p>	<p><u>Poster Session on Opportunities and Options for Exploration Mission Technologies</u></p>
<p>IAC-02-IAA.13.P.01</p>	<p>Optical Tracking for Telepresence/TeleoperationSpace Applications <i>Ioannis Kakadiaris</i> G. Martinez, D. Magruder, University of Houston, Houston, USA</p>
<p>IAC-02-IAA.13.P.02 de</p>	<p>Mioelectric Simulator for Robotic Arm Control <i>Laura Escudero</i> R. De la Rosa as main author, Bioengineering & Telemedicine Group. E.T.S.I. Telecomunicación, Valladolid, Spain</p>
<p>IAC-02-IAA.13.P.03 Planetary NASA GSFC,</p>	<p>Autonomous Agents on Expedition: Humans and Progenitor Ants and Exploration <i>Michael L. Rilee</i> L3 Communications, Emergent Technologies, W.F. Truskowski, S.A. Curtis, Greenbelt, P.E. Clark, Catholic University, USA</p>
<p>IAC-02-IAA.13.P.04 Exploration and CA, USA</p>	<p>Self-Reconfigurable Malchinery for Load Management in Planetary Inhabitation <i>Wei-Min Shen</i> N. Marzwelle, P. Will, A. Reyes, California Institute of Technology, Pasadena, CA, USA</p>
<p>IAC-02-IAA.13.P.05 Meteor Burst (MB)</p>	<p>Networks on the Edge of Forever: Examining the Feasibility of using Communication Networks on Mars <i>A.C. Charania</i> SpaceWorks Engineering, Inc. (SEI), Atlanta, USA</p>
<p>IAC-02-IAA.13.P.07 Resources into the Flight Center,</p>	<p>Methods and Trajectory Design for the Placement of Humans and Earth-Moon Region <i>David C. Folta</i> M.A. Mesarch, R.M. Beckman, G.C. Marr, D.S. Cooley, NASA Goddard Space Greenbelt, USA</p>
<p>IAC-02-IAA.13.P.08 of Sciences,</p>	<p>Recent Research on Lunar Exploration <i>Jun Ma</i> Chinese Academy of Space Technology, Y.L. Lin, CSSAR, Chinese Academy Beijing, China</p>

IAC-02-IAA.13.P.09

Hampton, M.S.
University,

A Radiation Analysis of Lunar Surface Habitats

Giovanni De Angelis

Istituto Superiore di Sanita', Rome, Italy, J.W. Wilson, R.K. Tripathi, NASA LRC,
Cloudsley, National Research Council, Washington, J.E. Nealy, Old Dominion
Norfolk, USA

IAC-02-IAA.13.P.10

Shi, China

A New Model for Food Chain

Liu Chung-Chu

Chen Min, Fujian Academy of Agricultural Sciences, Fuzhou, Fujian, Liu Xia-
Helicopter Research Institute, China

IAC-02-IAA.13.P.11

Martin Space

Formulations to Support Automated Satellite Design Synthesis

Michael Yukish

Pennsylvania State University, State College, PA, USA, N. Harris, Lockheed

Systems, Denver, CO, USA

G.

Coordinators:

Life Sciences Symposium

Rupert Gerzer (GERMANY)
Alan Mortimer (CANADA)
F. Raulin (FRANCE)

G.1.

Spaceflight

Chairmen:

Antonio Guell (FRANCE)
Victor S. Schneider (USA)

Rapporteurs:

Joint Session with COSPAR on Physiology, Medicine and Long Term

**IAC-02-G.1.01
Modifies Fluid**

Breathing Assistance by the Iron Lung Increases Sympathetic Tone and

Excretion

Friedhelm Baisch

R. Gerzer, Institute for Aerospace Medicine, DLR, Cologne, Germany

**IAC-02-G.1.02
Space Station**

Estimating the Risk of Serious DCS over the Lifespan of the International

Raj S. Chhikara

L.A. Thompson, Dept. Of Mathematical Sciences, University of Houston Clear

Lake, Houston,

USA

**IAC-02-G.1.03
the International**

Investigations of the Cardiovascular and Respiratory Systems on Board

Space Station: Experiments Puls and Pneumocard

Victor M. Baranov

R.M. Baeovsky, Institute for Biomedical Problems of the Russian Academy of

Sciences,

Moscow, Russia, J. Drescher, German Aerospace Center, J. Tank, Franz

Volhard Clinic,

Charite, Humboldt University, Berlin, Germany

**IAC-02-G.1.04
Rest**

Bone Resorption Increases as Early as the Second Day in Head-Down Bed

Martina Heer

N. Kamps, C. Mika, A. Boese, R. Gerzer, Institute of Aerospace Medicine,

German Aerospace

Center (DLR), Cologne, Germany

**IAC-02-G.1.05
Locomotor Control**

Modifications in Neuromuscular Activation during Bipedal Postural and

Tasks after Long-Duration Spaceflight

Charles S. Layne

University of Houston, Houston, USA

IAC-02-G.1.06

Physiology, Medicine, Long-Duration Space Flight and the NSBRI

Ronald J. White

J.P. Sutton, J.C. McPhee, National Space Biomedical Research Institute,

Houston, USA

IAC-02-G.1.07

The Hematopoietic Stem Cell Therapy for Exploration of Space

Seigo Ohi

Departments of Biochemistry & Molecular Biology, Genetics & Human

Genetics, Pediatrics &

Child Health, and Center for Sickle Cell Disease, College of Medicine and

Graduate School,

Howard University and Hospital, Washington, U

IAC-02-G.1.08

Helicopter

USA

A New Anti Radiation Chinese Medicine - ANDUOLIN Capsule

Liu Chung-Chu

Liu Ren, Fuzhou ADL Pharmaceutical Co., Ltd., Fuzhou, Liu Xia-Shi, China

Research Institute, China, Dong Ke-Wen, Eastern Virginia Medical School,

**IAC-02-G.1.09
Experiment**

Institute, Moscow,

Biochemical and Immunological Modifications in Saliva of SFINCSS

Alexander I. Volozhin

P.A. Kuznetsov, E.M. Kuzmina, T.I. Sashkina, Moscow Medical Stomatology

V.K. Ilyin, Institute for Biomedical Problems, Moscow, Russia

G.

Coordinators:

Life Sciences Symposium

Rupert Gerzer (GERMANY)
Alan Mortimer (CANADA)
F. Raulin (FRANCE)

G.3.

Long Term

Chairmen:

Rapporteurs:

Joint Session with COSPAR on Essential Life Support Technologies for

Missions

Volker Bluem (GERMANY)

IAC-02-G.3.01

K.S.

Puschino,

Study of Methanogenesis while Bioutilisation of Plant Residuals

Viacheslav K. Ilyin

L.V. Starkova, I.N. Korniuschenkova, Institute for Biomedical Problems, Moscow,
Lauriniavichius, Research Institute for Biochemistry and Physiology of Microbs,
Russia

**IAC-02-G.3.02
of a Biological**

Russia, J.B Gros,
Noordwijk,

Synthesis of Biomass and Utilization of Plant Wastes in a Physical Model

Life Support System

Alexander A. Tikhomirov

S.A Ushakova, N.S Manukovsky, Institute of Biophysics, RAS, Krasnoyarsk,
Université B. Pascal, Clermont-Ferrand, France, Ch. Lasseur, ESA/ESTEC,
Netherlands

**IAC-02-G.3.03
Experiments and
Ecosystem**

**The C.E.B.A.S. Mini Module on the STS-107 Mission: Data of Ground
Preliminary Results of the third Spaceflight of an Artificial Aquatic**

Volker Bluem

F. Paris, S. Bungart, Ruhr University of Bochum, Bochum, Germany

IAC-02-G.3.04

Shi, China

**The Equipment of Using AZOLLA for O₂-Supplementation and its Test
*Liu Chung-Chu***

Chen Min, Fujian Academy of Agricultural Sciences, Fuzhou, Fujian, Liu Xia-
Helicopter Research Institute, China

IAC-02-G.3.05

Helicopter

**The Equipment of Using AZOLLA for O₂-Supplementation and its Test
*Liu Chung-Chu***

Fujian Academy of Agricultural Sciences, Fuzhou, Fujian, Liu Xia-Shi, China
Research Institute, China

**IAC-02-G.3.06
Facilities**

BEO-Life, a Test and Refurbishment Support for Biological Research

Detlev Hueser

I. Engeln, C.Reese, R. Schoenfeld, OHB-System AG, Bremen, Germany

**IAC-02-G.3.07
under**

**A Method for Chlorophyll Fluorescence Imaging Control of the Vegetation
Microgravity Conditions**

Vesselin Vassilev

A. Krumov, N. Vassilev, Solar-Terrestrial Influences Laboratory (STIL),

Bulgarian Academy of

Sciences, Sofia, Bulgaria

IAC-02-G.3.08

Mechanobiologic Research in a Microgravity Environment Bioreactor

Andrea Guidi

LaBS -

Universita Degli Studi di Napoli, Federico II, Naples, G. Dubini, M. Raimondi,

Tominetti, Carlo

Laboratory of Biological Structure Mechanics, Politecnico di Milano, Milan, F.

Gavazzi Space s.p.a., Italy

<p>G. Coordinators:</p>	<p><u>Life Sciences Symposium</u> Rupert Gerzer (GERMANY) Alan Mortimer (CANADA) F. Raulin (FRANCE)</p>
<p>G.4. Chairmen: Rapporteurs:</p>	<p><u>Human Factors for Long Duration Spaceflight</u> Nick Kanas (USA) Gro M. Sandal (NORWAY) Vadim I. Gushin (RUSSIA)</p>
<p>IAC-02-G.4.01 Performance Reliability G.F. Isaev, S.V.</p>	<p>Some Aspects of Psychophysiological Support of Crew Member's in Space Flight <i>Albert P. Nechaev</i> V.I. Myasnikov, S.I. Stepanova, Institute for Biomedical Problems, Moscow, Bronnikov, RSC Energiya, Moscow, Russia</p>
<p>IAC-02-G.4.02 Privacy Medical Center, San Biomedical</p>	<p>Psychosocial Research on the International Space Station: Special Considerations <i>Ellen M. Grund</i> N. Kanas, D. Weiss, C. Marmar, University of California, Veterans Affairs Francisco, USA, V. Salnitskiy, V.Gushin, O. Kozerenko, A. Sled, Institute for Problems, Moscow, Russia</p>
<p>IAC-02-G.4.03</p>	<p>Space Analogue Environments: Are the Populations Comparable? <i>Gro M. Sandal</i> Department of Psychosocial Science, University of Bergen, Bergen, Norway</p>
<p>IAC-02-G.4.04</p>	<p>Intergroup Conflict in SFINCSS-99 Space Simulation Study <i>Vadim I. Gushin</i> Institute of Biomedical Problems, Moscow, Russia</p>
<p>IAC-02-G.4.05 Communication and of Berlin, Problems, Moscow,</p>	<p>110 and 240-Day Correlation Between Voice-Pitch of Vocal Outgoing Rating of Subjective Stress Feelings <i>Bernd Johannes</i> J. Petsch, H.C. Gunga, K.A. Kirsch, Center for Space Medicine, Free University Berlin, Germany, V.P. Salnitski, V.V. Karashtin, Institute for Biomedical Russia</p>
<p>IAC-02-G.4.06 University of Berlin,</p>	<p>Operators Proficiency of Space Specific Operations during Isolation Study <i>Vyacheslav Salnitskiy</i> Institute for Biomedical Problems, Moscow, Russia, B. Johannes, Free Germany</p>
<p>IAC-02-G.4.07</p>	<p>Through the Long Night: Stress and Group Dynamics in Antarctica <i>Sheryl L. Bishop</i> L. Primeau, University of Texas Medical Branch, Galveston, USA</p>
<p>IAC-02-G.4.08 Comparisons and Evidence</p>	<p>Personality Testing in Antarctic Expeditioners: Cross Cultural</p>

for Generalizability

Dave Musson

University of Texas at

M.L. Harper, R.L. Helmreich, UT Human Factors Research Project, The

Austin, USA, G.M. Sandal, The University of Bergen, Norway

**IAC-02-G.4.09
Long-Duration**

Women and Couples in Isolated Extreme Environments: Applications for

Missions

Gloria R. Leon

Dept. Of

Dept of Psychology, University of Minnesota, Minneapolis, USA, G.R. Sandal,

Psychosocial Sciences, University of Bergen, Norway

G. Life Sciences Symposium

Coordinators: Rupert Gerzer (GERMANY)
Alan Mortimer (CANADA)
F. Raulin (FRANCE)

G.5. Limitations on Human Space Exploration

Chairmen: Anatoly I. Grigoriev (RUSSIA)
Alan Mortimer (CANADA)

Rapporteurs:

IAC-02-G.5.01

Vital Biomedical Problems of Exploration of the Far Space

Anatoly I. Grigoriev

A.N. Potapov, Institute of Biomedical Problems, Moscow, Russia

**IAC-02-G.5.02
Members**

Onboard System for Radiation Safety Control of Mars Mission Crew

Vladislav Petrov

Problems, Moscow,

V.V. Benghin, A.V. Kolomensky, V.A. Shurshakov, Institute of Biomedical
Russia

**IAC-02-G.5.03
Support**

Application of Telemedicine Technologies to Long Term Spaceflight

Oleg I. Orlov

State Scientific

Space Biomedical Center for Training and Research, Moscow, A.I. Grigoriev,

Russia

Center of the Russian Federation – Institute for Biomedical Problems, Moscow,

IAC-02-G.5.04

Astronaut Performance: Implications for Future Space Suit Design

An L. Frazer

Cambridge,

B.M. Pitts, J.A. Hoffman, D.J. Newman, Massachusetts Institute of Technology,

USA

IAC-02-G.5.05

Biomedical Basis for Long Duration Space Flight

J.B. Charles

NASA Johnson Space Flight Center, Houston, TX, USA

IAC-02-G.5.06

Some Approaches to Medial Support for Martian Expedition

A.D. Egorov

I.B. Kozlovskaya, Institute of Biomedical Problems, Moscow, Russia

**IAC-02-G.5.07
Stimulation**

Enhanced Neuromuscular Activity is Generated by Mechanical Foot

Katharine E. Forth

C.S. Layne, M.F. Baxter, J.J. Houser, University of Houston, Houston, USA

