19032019

Conference Agenda

10th IAASS Conference - Making Safety Happen

Date: Wednesday, 15/May/2019

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<th>Time</th>
<th>Session/Activity</th>
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<tr>
<td>8:30am - 10:30am</td>
<td>P1: Plenary Session 1</td>
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<tr>
<td>10:30am - 11:00am</td>
<td>Coffee Break</td>
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<tr>
<td>11:00am - 12:30pm</td>
<td>S-01: Re-entry Safety - I</td>
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<tr>
<td>11:00am - 12:30pm</td>
<td>S-02: Human Performance for Safety &amp; Organizational Culture - I</td>
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Effect of Latitude Bias in Entry Angle on Ground Casualty Risk from Naturally Decaying Space Objects
Chris Ostrom
NASA Orbital Debris Program Office / HX5, United States of America

Seasonal- and Beta-Angle-Dependent Latitude Bias Variations in Natural Decays
John Bartlett Bacon
NASA, United States of America

COPERNICUS 2.0 - OPERATIONAL ORBITS PROTECTION AND CONTROLLED REENTRY IMPLEMENTATION
Gianluigi Di Cosimo, Bruno Berruti, Guido Levrini
European Space Agency (ESA) - European Space Research and Technology Centre (ESTEC)

Probabilistic casualty risk assessment and labeling for the re-entry of spacecraft components
Tobias Lips, Patrik Kärräng
HTG GmbH, Germany

Update of the Ariane 5 EPC test case with the Fragmentation and survivability tool suite of ArianeGroup
Célia Finzi, Grégory Pinaud, Charles Bertorello, Jean-Marc Bouilly, Laurent Chevalier
ARIANEGROUP, France

Capability Considerations for Enhancing Safety on Long Duration Manned Missions: Insights from a Technical Interchange Meeting on Autonomous Crew Operations
Shu-Chieh Wu1,2, Alonso H. Vera2
1San Jose State University, United States of America; 2NASA Ames Research Center, United States of America

Addressing Rapid Mobilization and Evacuation During Large-Group Commercial Spaceflight Emergencies
Victor Armando Kitmanyen
University of Houston, USA

Fatigue Management for Risk Reduction
David Fuller
NASA, United States of America

11:00am - 12:30pm  

S-03: Nuclear Space Safety

OVERVIEW OF THE ISSUES RELATED TO THE USE OF RADIOISOTOPE POWER SYSTEMS IN EUROPEAN SPACE MISSIONS  

Christophe Fongarland¹, Cédric Lemarié¹, Laurent Jourdaine², Alessandra Barco³, Richard Ambrosi³, Keith Stephenson⁴  
¹ArianeGroup, France; ²Arianespace, France; ³University of Leicester - Dept. of Physics & Astronomy, United Kingdom; ⁴European Space Agency - ESTEC TEC-EP, The Netherlands

Reliability Considerations for Radioisotope Power Systems  
Christopher Stanley Rutter Matthes  
NASA Jet Propulsion Laboratory, United States of America

Modeling and Simulation of Particle Size Distributions in Plutonium Oxide Due to Mechanical Insult  
Ryan John Terpsma, Stewart Silling  
Sandia National Laboratories, United States of America

An Opinion: RADIOISOTOPE MATERIAL LAUNCH APPROVAL REQUIREMENTS  
Mark Glissman  
USAF, United States of America

Risk Integration and Uncertainty Evaluation Process of the Mars 2020 Launch  
Curtis Smith¹, Kurt Vedros¹, James Knudsen¹, Don Marksberry², Robin Sullivan³, James Rogers⁴  
¹Idaho National Laboratory, United States of America; ²Nuclear Regulatory Commission, United States of America; ³Pacific Northwest National Laboratory, United States of America; ⁴National Aeronautics and Space Administration, United States of America

11:00am - 12:30pm  

S-04: Panel Session

Panel on Space Traffic Management  
Josef Koller  
The Aerospace Corporation, United States of America

2:00pm - 3:30pm  

S-05: Space Debris - I

Lunch Break
A Handbook for Post-Mission Disposal of Satellites Less Than 100 kg

Darren S McKnight
IAI, United States of America

The Analysis and Study on the Sudden-happened Events Correlated with Space Debris

Ronglan Wang
National Space Science Center, Chinese Academy of Sciences, China, People's Republic of

D-Orbit’s decommissioning technologies as an effective mechanism enabling compliance with current and future space debris mitigation requirements and standards

Catherine Doldirina, Stefano Antonetti, Luca Rossettini, Lorenzo Ferrario
D-Orbit SpA, Italy

A Clearer View of Orbital Debris

Joseph Anthony Carroll
PlaneWave Instruments, United States of America

Enhanced Space Safety by Active Removal of Dead LEO Satellites and Debris

Jerome Pearson¹, Joseph A. Carroll², Eugene M. Levin³
¹Star Technology and Research, Inc., United States of America; ²Tether Applications, Inc.; ³Electrodynmamic Technologies

2:00pm - 3:30pm
S-06: Regulations & Standards - I

Outer Space SARPs: A Mechanism for Implementation of Space Safety Standards

Gilles Doucet
Spectrum Space Security Inc., Canada

Governance for Safety : Binding and Secondary Norm Creation

Lucien A. Rapp
University Toulouse-Capitole, France

Space Safety Law and the Guardians of the Galaxy: the UK Perspective

Thomas Alexander Walker
Blake Morgan LLP (law firm), United Kingdom

Application of the French Space Operation Act on the future European Launcher Ariane 6

Nathalie Dias
ArianeGroup, France

2:00pm - 3:30pm
S-07: Designing Safety - I
Safety Considerations for SPIcDER: Spacesuit Integrated Carbon Nanotube Dust Ejection/Removal System
Kavya Manyapu1, Leora Peltz2, Pablo De Leon3
1The Boeing Company, United States of America; 2The Boeing Company, United States of America; 3University of North Dakota

Development of a New Method for Evaluation of Materials Flammability in Space by FLARE Project
Masao Kikuchi1, Yasuyuki Hanaki1, Tomoyuki Nukui1, Makiko Fukuda2, Yuji Kan1, Yasuhiro Nakamura1, Tetsuya Sakashita1, Shuhei Takahashi1, Osamu Fujita4
1Japan Aerospace Exploration Agency, Japan; 2Intec Co., Ltd., Japan; 3Gifu University, Japan; 4Hokkaido University, Japan

Investigation of broom-straw fracture behavior of aluminum alloy 2024 debris recovered from Space Shuttle _Columbia_.
Ngozi C. Ubani Ochoa, Darren M. Cone, Stephen W. Stafford, John D. Olivas
Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR), The University of Texas at El Paso, United States of America

DLR SpaceLiner Safety Review
Gedi Minster, Khooshboo Dani, Swapnil Surdi, Cameron Lorek, Michael Kezirian
University of Southern California, United States of America

2:00pm - 3:30pm S-08: International Cooperation
Part 1: ID160, + Panel Discussion (ID166) Part 2: ID 216

The Need to Cooperate with China on Space Emergencies Capabilities
Tommaso Sgobba
IAASS, Netherlands, The

Panel on International Space Flight Safety Cooperation
Josef Koller
The Aerospace Corporation, United States of America

3:30pm - 4:00pm Coffee Break

4:00pm - 6:00pm S-09: Risk Assessment & Management

A Method for Tracking and Communicating Aggregate Risk Through the Use of Model-Based Systems Engineering (MBSE)/Model-Based Mission Assurance (MBMA) Tools
Scott Darpel1, Tim Ferlin1, Sean Beckman1, Maria Havenhill1, Edith Parot1, Kathy Harcula2 1NASA, United States of America; 2Bastion Technologies

“MAKING SAFETY HAPPEN” THROUGH PROBABILISTIC RISK ASSESSMENT AT NASA
Roger L. Boyer1, Teri L. Hamlin1, Warren C. Grant1, Michael A. Stewart1, Robert B. Cross1, James H. Rogers2, Alfred S. Berrios3
1NASA - Johnson Space Center, United States of America; 2NASA - Marshall Space Flight Center, United States of America; 3NASA - KennedySpace Center, United States of America
Dynamic Probabilistic Risk Modeling for Optimizing Human Safety for Lunar Surface Systems
Jacqueline Machesky, Chris Mattenberger, Donovan Mathias
1Science and Technology Corporation, NASA Ames Research Center, United States; 2NASA Ames Research Center, United States; 3Stanford University, Stanford, CA 94305, USA

MBSE methodology to support a Safety and Reliability Assessment of a Thermal Control System of a Hypersonic Transportation Vehicle
Roberta Fusaro, Nicole Viola, Laura Babetto
Politecnico di Torino, Italy.

Main Challenges and Goals of the H2020 STRATOFLY Project
Roberta Fusaro, Nicole Viola
Politecnico di Torino, Italy.

4:00pm - 6:00pm  S-10: Launch Safety - I

Rafael's TRSAT development update
Ronen Ingbir, Nave Ben-Yakov, Dima Kanevsky, Meir Cohen, Mark (Moty) Harmats, Noga Tzviel
Rafael, Israel

Safety Challenges for Commercial Launch Operators
Jerry Mark Haber
Acta LLC, United States of America

Trajectory Innovative Real-time Equipment for Space Intelligent Anomalies Surveillance using Supervised Machine Learning (TIRESIAS)
Victoria Da-Poian, Gérard Grucker
1ISAE Supaero, Toulouse, France; 2CNES CSG Kourou, Guyane Française

Levels of Rigor for Launch and Reentry Safety Analysis
Erik W F Larson, Angela M. Linn-Nelson, Jerry Haber
ACTA, LLC, United States of America

Improved Correlation of Uncertainty within Trajectory Sets
Tyler Johannes Gras, Erik W.F. Larson, Elliot James Porterfield
ACTA LLC, United States of America

4:00pm - 6:00pm  S-11A: Panel Session
Case Study Discussion: Hypothetical Commercial Space Accident in the UK Chairs: Tom Walker, Lucien Rapp

4:00pm - 6:00pm  S-11: Space Traffic Control
### The Global Risk Continuum (GRC) - What Should Keep You Up at Night
*Darren S McKnight¹, John A Macdonald¹, Joseph Pelton¹, Rohit Arora¹, Peter Martinez³, Chris Kunstader²*

¹IAI; ²Independent Consultant; ³Secure World Foundation; ⁴AXA

### RISK, SAFETY AND RELIABILITY IN SATELLITE OPERATIONS: THE INTELLECTUAL STRUCTURE OF A RESEARCH FIELD
*Riccardo Patriarca, Francesco Costantino, Giulio Di Gravio* Sapienza University of Rome, Italy

### Improvement of Formation Flying System based on a bottom-up approach RAMS analysis
*Marta Fernández Campo, Isabel Bachiller Martínez, Juan Antonio Béjar Romero* GMV Aerospace and Defense S.A, Spain

### The First On-Orbit Demonstration of an ELROI Satellite License Plate
*David M. Palmer, Rebecca M. Holmes, Charles T. Weaver* Los Alamos National Laboratory, United States of America

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**Date:** Thursday, 16/May/2019

**8:30am - 10:30am**

**S-12: Design of Systems for Safe Launch Operations**

- **Design of systems for safe launch operations**
  *Hugh Charles Dischinger, Jr*
  NASA/MSFC, United States of America

- **Human Factors Design of Ground Launch Systems** *(Abstract TBD)*
  *Damon Stambolian*
  NASA Kennedy Space Center, United States

- **Human Factors in Ground Processing: Lessons from Aircraft Maintenance**
  *Alan Neville Hobbs*
  SJSU Foundation at NASA Ames Research Center, United States of America

  *Tanya Cole Andrews*
  NASA Marshall Space Flight Center, United States of America

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**8:30am - 10:30am**

**S-13: Re-entry Safety – II**
Demisability of Various Reinforced Polymer Components of Reentering Orbital Debris: Phase I Test Results
Benton Robb Greene¹, Christopher M Sanchez²
¹Jacobs JETS Contract, NASA Johnson Space Center, United States of America

Investigation of material response to atmospheric re-entry exposure of sub-structural Ti-6Al-4V components recovered from Space Shuttle _Columbia_
Ngozi C. Ubani Ochoa, Arlene C. Smith, Darren M. Cone, Stephen W. Stafford, John D. Olivas
Center for the Advancement of Space Safety and Mission Assurance Research (CASSMAR), The University of Texas at El Paso, United States of America

DEBRISK V3 : CNES Tool evolutions for re-entry risk analysis
Pierre Omaly
CNES, France

HAZARDS OF REENTRY DISPOSAL OF SATELLITES FROM LARGE CONSTELLATIONS
William H Ailor
The Aerospace Corporation, United States of America

8:30am - 10:30am

S-14A: Designing Safety II

A Risk-Based Approach for Implementing Safety and Mission Assurance when Using Commercial Heritage in Human-Rated Systems
Timothy Joseph Ferlin, Scott Darpel, Maria Havenhill
NASA, United States of America

Evolution of crew safety criteria for future manned space transportation systems
Aline Decadi
HE Space at European Space Agency, France

Human error analysis (HEA) for human-rated space systems. What is it, and how can it be done?
John O’Hara¹, Alan Hobbs², Cynthia Null³, Charles Dischinger⁴
¹Brookhaven National Laboratory; ²SJSU Foundation at NASA Ames Research Center; ³National Aeronautics and Space Administration

NASA Marshall Space Flight Center Human Factors Engineering Analysis of Various Hatch Sizes
Tanya Cole Andrews, Rebecca Stewart, Walter Deitzler
NASA Marshall Space Flight Center, United States of America

Challenges and Opportunities of International Cooperation for Safety & Mission Assurance (SMA) on the European Service Module (ESM) of the Orion Program
Michael Ciancone¹, Richard Chase², Horst Tjaden³, Brian VanGenderen⁴, Mark Hyatt¹
¹NASA, United States of America; ²European Space Research and Technology Centre, The Netherlands; ³Airbus Defence and Space, Germany; ⁴Lockheed Martin, United States of America

8:30am - 10:30am

S-14: Space Traffic Control – II
Space Traffic and Frequency Management and Control in the New Space Environment
Joseph N. Pelton
IAASS, Executive Board

The launch collision avoidance analysis (LCOLA) in JAXA
Shinichiro Wada, Ryoataro Kaneko, Hajime Taguchi, Kazutoshi Ishihara
Japan Aerospace Exploration Agency, Japan

Launch Collision Avoidance Analysis for Korea Space Launch Vehicle
Chang Su Park
Korea Aerospace Research Institute, Republic of Korea

Regulation Reform in Air Traffic Management for Large-Scale Incorporation of Atmospheric Balloon Flight
Nazareth Ashkharian
University of Southern California

10:30am - 11:00am Coffee Break

11:00am - 1:00pm S-15: Designing Safety III

Trends in Human Spaceflight: Failure Tolerance, High Reliability and Correlated Failure History
Carrie L. Green¹, Maria A. Havenhill², John O. Bobanga³, Deboshri Sadhukhan⁴
¹NASA, United States of America; ²NASA, United States of America; ³NASA, United States of America; ⁴NASA, United States of America

Safety Assessment of Suborbital Vehicles
Marcel Lariviere
ISSF Graduate Student Fellowship

Hypersonic Reusable Transportation Systems: a way to reduce risk to access Low Earth Orbits
Roberta Fusaro, Nicole Viola, Valeria Vercella
Politecnico di Torino, Italy

E-Nose: Measuring Surface Microbial Contamination and Oxidative Stress of Cosmonauts - Results and Future Applications
Jan Grosser¹, Joachim Lenic¹, Sergey Kharin², Dmitry Tsarkov², Yuri Smirnov², Natalia Novikova², Lana Moukhamedieva², Michael Dolch³, Andrei Kornienko⁴, Robin Nitzer⁴, Peter Roth⁴, Ulrich Reidt⁴, Andreas Helwig⁴, Viktor Fetter⁴, Thomas Hummel⁴
¹German Aerospace Center (DLR), Germany; ²Institute of Biomedical Problems (IBMP), Russian Academy of Sciences (RAS), Russia; ³Hospital of the Ludwig-Maximilians-University, Germany; ⁴Airbus Defence and Space, Germany

11:00am - 1:00pm S-16: Launch Safety-II

STRATOFLY Academy: Inspire Young Professionals and Get Inspired by New Ideas
Roberta Fusaro, Nicole Viola
Politecnico di Torino, Italy.
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<tr>
<td>11:00am - 1:00pm</td>
<td><strong>Launch Approval Using the Safety Case Approach</strong>&lt;br&gt;Tom Pfitzer, Katie Byers, Megan Stroud&lt;br&gt;APT Research, Inc., United States of America</td>
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<td>11:00am - 1:00pm</td>
<td><strong>S-17: Re-entry Safety - III</strong>&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;<strong>Rebuilding of destructive hypersonic tests on honeycomb sandwich panels with PAMPERO</strong>&lt;br&gt;Julien Annaloro¹, Vincent Rivola², Martin Speit², Sergey Drozdov³, Stéphane Galera⁴, Pierre Omalv⁵&lt;br&gt;¹CNES, France; ²RTECH, France; ³TSAGI, Russia; ⁴ALTRAN, France</td>
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<td>11:00am - 1:00pm</td>
<td><strong>An Engineering Model of the Consequences of Debris Collisions on Structures</strong>&lt;br&gt;Paul D. Wilde, Sean Stapf&lt;br&gt;Federal Aviation Administration, United States of America</td>
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<tr>
<td>11:00am - 1:00pm</td>
<td><strong>High-fidelity Spacecraft-oriented Re-entry Safety Analysis Code of JAXA : LS-DARC</strong>&lt;br&gt;Keiichiro Fujimoto, Hideyo Negishi, Toshiaki Daibo, Nobuyuki Iizuka, Ryuzo Shimizu, Koichi Okita&lt;br&gt;Japan Aerospace Exploration Agency, Japan</td>
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<td>11:00am - 1:00pm</td>
<td><strong>On the re-entry of large artificial space objects and resulting footprint estimation</strong>&lt;br&gt;Stijn Jan Jo Lemmens, Silvia Sanvido&lt;br&gt;European Space Agency</td>
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<td>11:00am - 1:00pm</td>
<td><strong>S-18: Laws, Regulations &amp; Standards – II</strong>&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;&lt;br&gt;<strong>The new safety review system about launching rocket in Japan</strong>&lt;br&gt;Hiroaki Sakai&lt;br&gt;JAXA, Japan</td>
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<tr>
<td>1:00pm - 2:30pm</td>
<td><strong>Lunch Break</strong></td>
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<td><strong>P2: Plenary Session - Keynote Addresses</strong></td>
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<td>4:30pm - 6:00pm</td>
<td>S-19: Space Debris – II</td>
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**A study on safety requirement for on-orbit servicing missions**  
**Hiroki Onodera**  
JAXA, Japan

**Modular Damage Detection for Expandable and Inflatable Structures**  
**Mark E Lewis¹, Tracy L Gibson², Pedro J Medelius³**  
¹NASA Kennedy Space Center, United States of America; ²Southeastern Universities Research Association; ³ASRC Federal Space and Defense

**Characterization of Aerospace Materials Related to Orbital Debris Using Reflectance Spectroscopy**  
**Jacqueline Andrea Reyes, Darren Cone**  
The University of Texas at El Paso, United States of America

**Reusability and GreenSpace Scenarios for Launcher industry**  
**Stephane Heinrich**  
ALTRAN, France

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<td>S-20: Launch Safety III</td>
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**A Safe Cost effective approach for testing Ariane 6 Flight Software**  
**Philippe Gast, Cyrille Pierre**  
Ariane Group, France

**The development of Improved Flight Safety Analysis System for NURI Test Vehicle**  
**Kyusung Choi¹, Hyungseok Sim², Sangyeon Cho³**  
¹KARI, Korea, Republic of (South Korea); ²KARI, Korea, Republic of (South Korea); ³KARI, Korea, Republic of (South Korea)

**INNOVATIVE FLIGHT SAFETY STRATEGIES FOR NEW LAUNCHER VEHICLES**  
**Alexandra Martinez Torio**  
CNES, France

**Flight Abort Criteria to Ensure Public Safety during Commercial Launch and Reentry Operations in the US**  
**Paul D. Wilde, Tom Ricketson**  
Federal Aviation Administration, United States of America

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<td>4:30pm - 6:00pm</td>
<td>S-21: Designing Safety – IV</td>
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In-situ meso-scopic modeling and analysis of composite overwrap in COPVs
Jiakun Liu
Cornell University, United States of America

Next Generation Methods for Non-Destructive Testing of Spaceflight Hardware
Michael T. Kezirian
Global Innovations, Inc, United States of America

Safety Considerations Unique to Composite LOX Tanks
Scott Christopher Forth¹, Eric Wostenberg², Michael Holt³
¹The Spaceship Company, United States of America; ²Virgin Orbit, United States of America; ³Virgin Orbit, United States of America

Integrated Safety Tools for NASA Human Space Flight Programs
Holly L. Brosnahan², Matt R. Guibert¹, Kevin McMillin¹, Christian D. Ratterman¹, Matthew D. Sharpe¹, Elizabeth Wagstaff¹
¹NASA Ames Research Center, United States of America; ²San Jose State University Foundation, United States of America

Failure Modes and Effects Analysis (FMEA) and the Design Influence of Space Launch Vehicle Avionics Systems
Mohammad Izeddin Al Hassan, Paul Thomas Britton, Robert Wayne Patlovany NASA, United States of America

4:30pm - 6:00pm S-22: Space Traffic Control - III

Trending Analysis of Historical Conjunction Data Messages
Daniel Moomey, Austin Potter, John Chris Mattchet
Air Force Safety Center, United States of America

Solution of Long-Coast Re-entry COLA Problems with COLA Gap Methods
Alan B. Jenkin, John P. McVey, Glenn E. Peterson
The Aerospace Corporation, United States of America

Integrating Air and Space Traffic Management: Some Safety and Regulatory Issues
Sanat Kaul
International Foundation for Aviation, Aerospace & Development, India

Space Data Integrator
Ryan Frodge¹, Daniel Murray²
¹Virginia Polytechnic Institute and State University, United States of America; ²Federal Aviation Administration, United States of America

Date: Friday, 17/May/2019
9:00am - 10:30am S-23: Space Traffic Control-IV
Kiran Krishnan Nair
McGill University, Canada

Prioritizing and Establishing Mechanisms for the Establishment of Space Traffic Management Standards, Guidelines and Best Practices
Michael Gleason
The Aerospace Corp, United States of America

Probability Evaluation by Unscented Transform in Launch Collision Avoidance Analysis between Launcher and manned spacecraft and operation results
Ryotaro Kaneko, Shinich Wada, Hajime Taguchi, Kazutomi Ishihara Japan Aerospace Exploration Agency, Japan

Flight Safety Concepts for EOLE
Vincent Jean Marc Bertrand-Noel
CNES - Guiana Space Centre, French Guiana

9:00am - 10:30am S-24: Re-entry Safety – IV

SecSWIM – Where safety meets security
Frank Morlang
German Aerospace Center (DLR), Germany

Development of new analytical models for pressure and heat flux distribution on space debris afterbodies
Vincent Drouet1,2, Ysolde Prévreaud1, Jean-Marc Moschetta1,2, Julien Annaloro1,2 ONERA, France; 1ISAE, France; 2CNES, France

MONITORING THE ORBITAL DECAY OF THE CHINESE SPACE STATION TIANGONG-1 FROM THE LOSS OF CONTROL UNTIL THE RE-ENTRY INTO THE EARTH’S ATMOSPHERE
Carmen Pardini, Luciano Anselmo
Space Flight Dynamics Laboratory, ISTI-CNR

9:00am - 10:30am S-25A: Panel

- Design-Based Safe Operable Metrics for Earth Regime RPO
- Global Risk Factors--Comparing Space Threats with Earthquakes, Pandemics and other Earth-based Threats

9:00am - 10:30am S-25: Designing Safety – V

Defining a Safe Reusable Cislunar Transportation Architecture
Dallas Bienhoff
Cislunar Space Development Company, LLC, United States of America
### Overcoming challenges of using COTS Electrical Devices in Space

**James Allen Runnells**  
HX5, United States of America

### Flat-H Redundant Frangible Joint Design Evolution 2018: Feasibility Study Conclusions

**Jacob French**, **Chris Brown**, **Andrew Benjamin**, **Todd Hinkel**, **Thomas Diegelman**  
NASA - JSC, United States of America

### Application and Evaluation of IAASS-SSI-1700 Standards for a Liquid Rocket Laboratory

**Cameron Lorek**¹, **Eric Perry**², **Michael Kezirian**²  
¹University of Southern California, United States of America; ²International Space Safety Foundation

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<td>10:30am - 11:00am</td>
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<td>S-26: Space Hazards</td>
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<tr>
<th>Time</th>
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| 11:00am - 1:00pm  | Should Lack of Imminence Affect Planetary Defense Policy?  
**Nahum Melamed**¹, **Avishai Melamed**²  
¹The Aerospace Corporation, United States of America; ²University of California, Sun Diego, California

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| 11:00am - 1:00pm  | International Space Station Spacecraft Charging Hazards: Hazard identification, management, and control methodologies, with possible applications to human spaceflight beyond LEO  
**Steven Koontz**¹, **Terri Castillo**¹, **William Hartman**³, **Schmidt William**³, **Megan Haught**¹, **Gary Duncan**¹, **Benjamin Gingras**², **Jerry Vera**²  
¹NASA Johnson Space Center/ES4, United States of America; ²The Boeing Company, Houston, Texas, United States of America

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| 11:00am - 1:00pm  | Roadmaps for Space Environment Engineering and Science Applications  
**Josef Koller**  
The Aerospace Corporation, United States of America

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| 11:00am - 1:00pm  | Space Weather: Big & Small - A Continuous Risk  
**Scott William McIntosh**  
National Center for Atmospheric Research, United States of America

### SAFETY REGULATIONS AND STANDARDS FOR THE ERGONOMICS OF COMMERCIAL NEARSPACE AND SUBORBITAL AIRCRAFTS REFERRING TO PRIVATE TRANSPORTATION MODELS

**Norul Ridzuan Zakaria**¹, **Anass Hanafi**², **Ivan Cuzzi**², **Khairyul Azman Hasran**², **Mohd Khairul Ikram Shukri**³, **Ahmadzaidi Karim**³, **Mohd Amzari Abas**³, **Muhammad Zaidi Mohtar**³, **Abdul Rashid Ahmad**³, **Kamarul Azhar Mohd Yatim**³, **Jalaludin Abu**³, **Saharudin Zakaria**³, **Airon Shah Najmudin**³  
¹SOLVES, Italy; ²Al-Biruni International Space School, Italy; ³SkyE, Malaysia; ⁴REMPIT, Malaysia; ⁵FINAS, Malaysia; ⁶SOLVES, Malaysia
Effect of Space Environment on Human Performance and Safety
Diana L. DeMott
SAIC, United States of America

TIME PERCEPTION AND DESYCHRONIZATION OF BIOLOGICAL CLOCK DURING ANALOG MISSIONS IN LUNARES HABITAT IN POLAND
Agata Maria Kołodziejczyk
Analog Astronaut Training Center, Poland

‘THE FINE MOTOR SKILLS AND COGNITION TEST BATTERIES: NORMATIVE DATA AND INTERDEPENDENCIES’
Bettina L. Beard¹, Kritina L. Holden², Albert J. Ahumada¹
¹NASA, United States of America; ²Leidos

Risk Management of a Guided Rocket Launch
Ronen Ingbir, Evgeny Protopopov, Asaf Schuldenfrei
Rafael, Israel

Developing and Using Comprehensive Hazard Databases for Unique Space Launch Systems
Christopher Moyer, Zachary Krevor
Stratolaunch, United States of America

GUIANA SPACE CENTRE GENERAL SHORT AND LONG TERM LANDSCAPE
Jan Droz¹, Nathalie Costedoat²
¹CNES, Headquarters, France; ²CNES Guiana Space Centre, French Guiana

Improvement of safety requirement for launch vehicle payload safety about depressurization and offloading propellant in case of propellant leakage after assembling payload to the vehicle
Kenichi Sato
Japan Aerospace Exploration Agency, Japan

Launcher Mission Analysis Preparation with regard to Ariane’s Deviated Trajectory Anomaly
Isabelle Rongier
Ariane Group, France

A COMPARATIVE ASSESSMENT OF COMMERCIALLY-DEVELOPED SPACE VEHICLE TECHNICAL STANDARDS
Ronald Barry Walden¹, Michael Kezirian²
¹University of Southern California; ²International Space Safety Foundation
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<tbody>
<tr>
<td>1:00pm - 2:30pm</td>
<td>Lunch Break</td>
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<td>1:00pm - 2:30pm</td>
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<td>2:30pm - 2:50pm</td>
<td>P3: Plenary Closing Session Part I</td>
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<td>2:50pm - 3:15pm</td>
<td>P4: Plenary Closing Session Part II</td>
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<td>3:15pm - 4:00pm</td>
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<td>4:00pm - 4:30pm</td>
<td>P6: Conference Wrap-Up &amp; Announcements</td>
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### Providing Assurance in 21st Century Space Transportation - Does Commercialization, Innovation, and Agility Necessarily Equate to a New Paradigm in Safety Assurance?

**Timothy Grant Riley**  
Sandia National Laboratories, United States of America

### Safety of Spaceflight Participants Aboard Suborbital Reusable Launch Vehicles

**Robert William Seibold**¹, **Ronald nnm Young**², **Nickolas M. Demidovich**³  
¹The Aerospace Corporation, United States of America; ²NASA Armstrong Flight Research Center, United States of America; ³FAA Office of Commercial Space Transportation, USA

### ISS Safety Sustainability

**Edward Mango**¹, **Daine Howard**²  
¹Consultant/Professor, United States of America; ²Professor, PhD

### NEW APPLICATIONS FOR NEARSPACE AIRSHIPS AND THEIR OPERATIONAL SAFETY

**Norul Ridzuan Zakaria**¹, **Muhammad Nurazmi Abas**², **Shaflee Mahat**³, **Mohd Nazri Nazarudin**⁴, **Mohd Haizad Hussain**⁵, **Rasila Hamzah**⁶, **Norhaizat Zainal Abidin**⁷, **Francesco Santoro**⁸, **Md Sayuti Ishak**⁹, **Norul Rafidi Zakaria**¹⁰  
¹SOLVES, Italy; ²Tijan Galaxy Aerospace Consortium, Malaysia; ³ALTEC, Italy; ⁴University Science Malaysia, Malaysia; ⁵AMC-Spaceport Malaysia, Malaysia

### Space Explorations in the Byurakan Astrophysical Observatory

**Areg Martin Mickaelian**  
Byurakan Astrophysical Observatory (BAO), Armenia

### Results of the IAASS Space Traffic Management Working Group

**Mark Andrew Skinner**¹, **Moriba K Jah**², **Darren McKnight**³, **Diane Howard**⁴  
¹The Aerospace Corp., United States of America; ²University of Texas-Austin; ³Integrity Applications, Inc.; ⁴Embry-Riddle Aeronautical University