INTERNATIONAL ACADEMY OF ASTRONAUTICS

11th IAA Symposium on the Future of Space Exploration: Moon, Mars and Beyond: Becoming and Interplanetary Civilization

Torino, Italy
Politecnico di Torino, Lingotto Campus
Via Nizza 230

June 17-19, 2019

PRELIMINARY PROGRAM

June 17, 2019  The sessions of June 17 will be held at the ALTEC facility, Corso Marche 79. Transportation between the Politecnico and ALTEC will be provided

Buses will leave the Lingotto Campus of Politecnico (Via Nizza 230) at 8.00

8.30-10.00  Registration (at ALTEC)

9.00  Welcome to the participants

V. Giorgio, ALTEC CEO
R. Angelini, Thales Alenia Space
G. Saracco, Rector of Politecnico di Torino
J.-M. Contant, IAA Secretary General
G. Genta, Politecnico di Torino, Local Organizing committee

Session 1  Chairperson: Sabrina Corpino

9.30  Towards the Moon Village Implementation
G. Reibaldi, Moon Village Association and IAA

9.50  Possible synergies between Moon and Mars Exploration

10.10  Deep space exploration in China: Moon, Mars and beyond
Gongling Sun, International Space University

10.30  LOP-G in Support to Lunar Exploration
F. Fenoglio, Thales Alenia Space

10.50  Coffee break

11.20  Round Table: Towards the Moon Village

Moderator: J.-M. Contant, IAA Secretary General
G. Martucci, ALTEC
D. Schmitt, ESA
C. Lobascio, Thales Alenia Space
Gongling Sun, International Space University
ASI

TBD

G. Reibaldi, Moon Village Association, President, IAA

12.20  Lunch

13.45  Visit to Thales Alenia Space and ALTEC facilities

15.00  Return to Politecnico di Torino, Lingotto Campus (by bus)
Session 2
Chairperson: Nicole Viola
15.30 Considerations About Future Missions
C. Bruno, University of Connecticut
15.50 The Economics of Space Mining
A. Sommariva, Leonella Gori, Barbara Chizzolini, Mattia Pianorsi, , Università Bocconi
16.10 International Cooperation as a Key Driver for Emerging Space Nations
C. Iacomino, M. Sacchetti, Università Bocconi
16.30 Moon Farside Spectrum Protection by Negotiations
C. Maccone, IAA
16.50 Coffee break
17.30 Concert by the choir of Politecnico di Torino

June 18, 2019

Session 3: Chairperson: Giuseppe Reibaldi
9.00 Unnoticeable Space Resources - Lunar Sports
A.G. Faddoul, Tony Sky Designs Group
9.20 Minimum number of settlers for survival on another planet
J.M. Salotti, University of Bordeaux
9.40 Extended Space Journeys: Current to G-Zero and G-1 Human Aspects in Crewing and Phasing
A.G. Faddoul, Tony Sky Designs Group
10.00 Human-in-the-loop Related Space Missions: Application of Probabilistic Modeling
E. Suhir, J.M. Salotti, Portland State University, University of Bordeaux
10.20 Coffee break

Session 4: Chairperson: Giancarlo Genta
11.00 Electric sail phasing maneuvers with radial thrust
M. Bassetto, L. Boni, G. Mengali, A.A. Quarta, University of Pisa
11.20 Static structural analysis of an electric sail with Finite Element approach
L. Boni, M. Bassetto, G. Mengali, A.A. Quarta, University of Pisa
11.40 Trajectory and Preliminary Design Integrated Tool for a Reusable Lunar Space Tug
J. Rimani, C.A. Paissoni, N. Viola, G. Saccoccia, J.G. del Amo, Politecnico di Torino, ASI, ESTEC
12.00 Design of Halo Orbit in the Framework of Elliptic Restricted Three Body Problem using Differential Evolution
N. Rithwik, R. V. Ramanan, Indian Institute of Space Science and Technology
12.20 Lunch

Session 5: Chairperson: Gongling Sun
14.00 On Possibilities for Development of the Common-Sense Concept of Habitats Beyond the Earth: Part 1
A. O. Perepichay, V. V. Korotenko, O. A. Volkova, G. G. Osnovvyy, Yu. A. Lysenk1, M. D. Kaliapin,
Yuzhnoye State Design Office, E.O. Paton Electric Welding Institute, National Technical University of Ukraine
14.20 On Possibilities for Development of the Common-Sense Concept of Habitats Beyond the Earth: Part 2
A. O. Perepichay, V. V. Korotenko, O. A. Volkova, G. G. Osnovvyy, Yu. A. Lysenk1, M. D. Kaliapin,
Yuzhnoye State Design Office, E.O. Paton Electric Welding Institute, National Technical University of Ukraine
14.40 Multi-CubeSats Constellation Design for Lunar Global Communication and Positioning Systems
Boqin Hu, Dong Qiao, Xiangyu Li, Yu Cheng, Beijing Institute of Technology, Ministry of Ind. and Inf. Tech.
15.00 Analysis on Artificial Intelligence Applications for Celestial Body Exploration and Operations
D. Carabellese, G. Thirion, I. Adamson, M. Karnal, M. Giuliani, Politecnico di Torino, ISAE Supaero,
Leicester University
15.20 Coffee break
Session 6  
Chairperson: Andrea Sommariva
16.00  
Effects of attitude constraints on solar sail optimal interplanetary trajectories
A. Caruso, A. A. Quarta, G. Mengali, University of Pisa
16.20  
Electric sail active control law for artificial Lagrangian point maintenance
L. Niccolai, A. A. Quarta, G. Mengali, University of Pisa
16.40  
Modelling of Pneumatic Sample Transport Systems for Enceladus Surface Acquisition
D. Riccobono, S. Moreland, P. Backes, G. Genta, Politecnico di Torino, Jet Propulsion Laboratory
17.00  
Road Map to the Stars: Current, Anticipated, and Required Technology Milestones
A.G. Faddoul, Tony Sky Designs Group
19.30  
Official Dinner

June 19, 2019

Session 7:  
Chairperson: Giovanni Mengali
9.00  
Profound Human Metabolic Downregulation For Space-Stress Tolerance: (Preliminary) Experimental Proof-Of-Concept
S. Murat, Jungle Innovations
9.20  
Be cool to be far: exploiting hibernation for space exploration
M. Cerri, University of Bologna
9.40  
Sustainable Design for Extended Space Travel, Technology Apprised
A.G. Faddoul, Tony Sky Designs Group
10.00  
Biosignatures are Based on Their Information Content (EVO-SETI Scale)
C. Maccone, IAA.
10.20  
From spirituality to preservation. Is there a chance of peaceful exploration of the Moon?
R. Rapetti, M. Hanlon, MVA
10.40  
Coffee break
11.00  
Round Table on Future problems in Human Space Exploration
Moderator: Giancarlo Genta
Andrea Sommariva, Università Bocconi
Remo Rapetti, MVA
Giancarlo Genta, Politecnico di Torino
Matteo Cerri, University of Bologna
Stefano Catucci, University of Rome
12.00  
Synthesis of the Symposium
G. Reibaldi, President Moon Village Association, IAA
12.30  
Closing
12.40  
Lunch