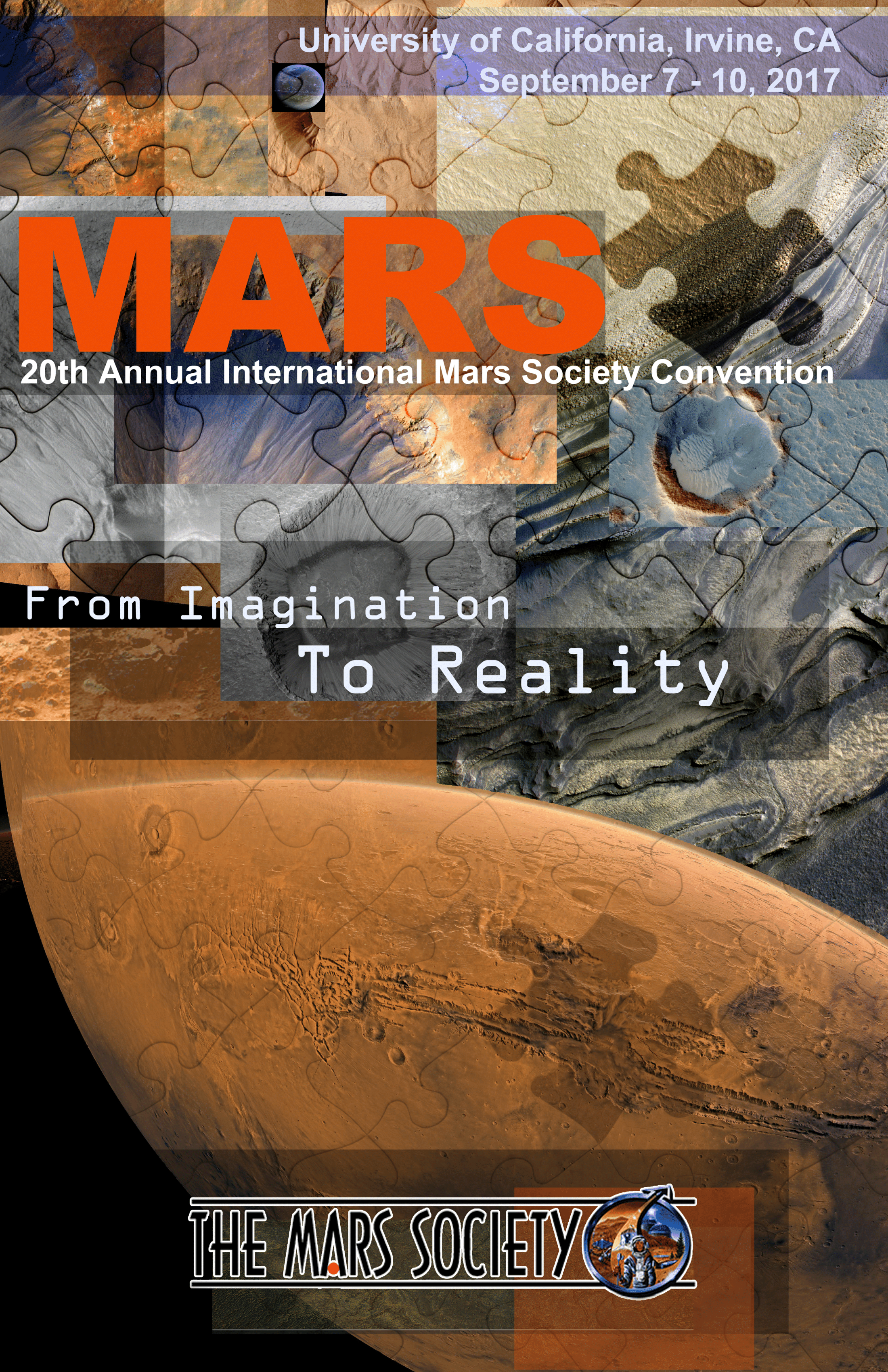
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**FROM IMAGINATION TO REALITY**

**20th Annual International Mars Society Convention**

**University of California, Irvine, CA**

**September 7-10, 2017**

**Rise to Mars**

**Music by Oscar Castellino  
Words by Oscar Castellino and Robert Zubrin  
Arrangement by James Welland**

*The new inspirational anthem “Rise to Mars” will be sung by Oscar Castellino*

*accompanied by James Welland at the Mars Society banquet September 9, 2017*

Here are the words of "Rise to Mars"

**Rise to Mars! Men and women  
Dare to dream! Dare to strive!  
Build a home for our children.  
Make this desert come alive!**

**There are challenges before our eyes  
That nature never knew  
 But the power of human enterprise  
 Shall take us through and through!**

**Rise to Mars! Men and women  
 Dare to dream! Dare to strive  
 Build a home for our children  
Make this desert come alive!**

**Come along raging nations  
Altogether hopeful spirits  
Bring an end to strife  
For our future lies beyond the skies**

**Rise to Mars! Men and women  
Dare to dream! Dare to strive!  
Build a home for our children  
Make this desert come alive!**

**Come along, altogether  
For our future  
Rise to Mars!**

The premier of “Rise to Mars” at the Royal Welsh Symphonia may be viewed on the Mars Society YouTube Channel

**Wednesday, September 6 (Pre-Convention Events)**

**6pm-7pm - Early Registration**

University of California, Irvine

A311 Student Center

Irvine, CA92697

**7pm-10pm - Steering Committee Meeting**

*(The first hour is open to the public)*

University of California, Irvine

A311 Student Center

Woods Cove C

Irvine, CA 92697

**Thursday, September 7**

***Pacific D***

**9:00am - Opening Plenary**Dr. Robert Zubrin - President, The Mars Society

**9:30am - Plenary**  
Greg Benford - Author & Astrophysicist, UC Irvine

**10:00am - Plenary**  
George Whitesides - CEO, Virgin Galactic

**10:30am - Plenary**   
Vera Mulyani - CEO, Mars City Design

**11:00am - Plenary**  
Loretta Hildalgo-Whitesides - Author & Consultant, Virgin Galactic

***11:30pm - 1:00pm - Lunch Break***

***Pacific D***

**1:00pm** - **4:00pm Aerospace Workforce Development Symposium**

**1:00pm**“Opening Space to Change the World for Good” George Whitesides, CEO, Virgin Galactic

**1:30pm   
Panel Discussion** *“Educating the Future Aerospace Workforce”*Landon Taylor, CEO Base 11; Al Bunshaft, SVP Global Affairs, Americas, Dassault Systèmes; Noramay Cadena, Cofounder and Managing Director, Make in LA; Dennis Harkins, President, Orange Coast College; Maria Tirabassi, Engineering Vice President, Northrop Grumman Aerospace Systems; Gregory Washington, Stacey Nicholas Dean of Engineering, UCI; Jason Hatakeyama, Chief Architect & Sr Director Product Lifecycle Management, Boeing

**2:00pm**Continued Panel Discussion “Educating the Future Aerospace Workforce”

**2:30pm**“Caltech/Base 11 Aerospace Mentorship Program: Learning by Experience,”David Huynh, Caltech and “WSU Innovation Campus: Creating Stronger Industry Partnerships through Applied Learning,” John Tomblin, Wichita State University

**3:00pm**  
“To Infinity and Beyond” Jeremy Bout, The Edge Factor

**3:30pm**Aerospace Workforce Development Symposium Q&A and Closing Remarks

***4:00pm - 7:00pm***Aerospace Workforce Development Expo

**1:00pm - 5:00pm - Session Tracks**:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Technology Track 1 PACIFIC B** | **Technology Track 2**  **MOSS COVE A** | **Political/Philosophical Track 1 - MOSS COVE B** |
| 1:00 | **Morgan Irons;** The Deep Space Ecology Three-Zone Model: Results of Recent Experimentation with Ecological and Environmental Mechanisms and Demonstration of Key Concepts of Operation for Quasi-Closed Eco-Agricultural Systems | **Shyam Nair, Allen Frederick I. A., Abhisek Balasubramaniam;**Arachnidan 6 Wheeled All Terrain Explorer Equipped with a 7 DOF Robotic Arm | **Bruce Cordell;**Human Spaceflight to Mars as a Self-Organized Critical System |
| 1:30 | **James French;**Optical Mining - A New Approach to Obtaining Space Resources for Mars | **S. Bahram Sadighian;** Horizontal Takeoff and Landing to Low Earth Orbit | **James Heiser;**The Civilizational Continuity and the Martian Frontier |
| 2:00 | **John E. Parks;**Look to the Sea: Applying Knowledge and Lessons from the Management of Earth's Oceans for Permanent Human Habitation on Mars | **Doug Plata;**The Moon: A Stepping Stone to Mars? | **Marvin Hilton;** Exploring Mars to Civilize Earth |
| 2:30 | **T. Gordon Wasilewski;** Acquisition of Water from Western Utopia Planitia Subsurface: Theoretical Analysis of Sampling and Production Technologies | **Ted Ground;**"Step One", an Auspicious D-Type NEO Multiple Mission: Destination Deimos 2020 | **Craig Davidson;** Why NASA’s Current Direction will Never get us to Mars |
| 3:00 | **Thibault Paris;** Design and Building of a 3D Printed Pressurized Martian Spacesuit | **Kent Nebergall;** Near Term Space Settlement Risk Reduction Missions | **Doug Plata;**What is the Business Case for Mars Settlement? |
| 3:30 | **Matthew Forir;**The Case for the use of Electrical Resistivity on Mars | **Art Harman;** Cis-Lunar? Why a Lunar Surface Base Will Get us to Mars - and a Lunar Orbital Station Won't | **Kent Nebergall;**Rapid Space Development: Grand Challenges and Vast Opportunities |
| 4:00 | **Julian Zea;**A Self-Sufficient Mars Colony | **Craig Davidson;** Improving the SpaceX Mars Colonization Plans | **Art Harman;**A New Hope - President Trump's Space Policy |
| 4:30 | **Ronald Hattie,** The Cost per Pound to Orbit | **Craig Davidson;** The SharkFin Magnetic Sail |  |

***5:00pm - 7:00pm - Dinner Break***

***Pacific D***

**7:00pm - Panel**  
*Sci Fi Greats - The Human Future in Space*

Greg Benford - Author and Astrophysicist  
David Brin  
Larry Niven  
Jerry Pournelle

**Friday, September 8**

***Pacific D***

**9:00am - Plenary**  
Shannon Norrel - Hewlett-Packard, *“Mars 2030: Future Travel to Mars Experienced Today by Virtual Reality”*

**9:30am - Plenary**  
Dava Newman - Former Deputy Administrator, NASA

**10:00am - Plenary**Paul Davies - Director, Beyond Center for Fundamental Concepts in Science, “*Searching for a Shadow Biosphere on Mars and Earth”*

**10:30am - Plenary**  
Joe Carroll - Tether Applications, *“Living Beyond Earth, in Partial Gravity”*

**11:00am - Plenary**  
Robert Pappalardo - Project Scientist, Europa Clipper, JPL

**12:00pm - 12:30pm Special Lunch Plenary**John Grotzinger - Former Project Scientist, MSL, NASA, *“The Curiosity Mission”*

***12:00pm - 1:00pm - Lunch Break***

**1:00pm - 5:00pm - Session Tracks:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Technology Track 3 PACIFIC D** | **Technology Track 4**  **PACIFIC B** | **Medical Track 1**  **MOSS COVE A** | **Outreach Track 1**  **MOSS COVE B** |
| 1:00 | **Afanasenko Ekaterina, David Ture Gustav Wikström**, Space Food Laboratory: Transformations of space food from the beginning of space era to the future Mars colonies | **Eric Robinson, John Hunter;**Green Launch - Cannons to the Planets,  Using Low cost Impulse Launch to access LEO at 1/50th the cost of rocket launch for fuel and supplies needed for a robust Mars Mission. | **Susan Jewell, Matteo Borri, Nicholas Jewell, Matthieu Komorowski, Sheryl Bishop, Emmy Jewell;** Developing Telesurgery-Teleanesthesia Protocols, Integrating 3D Printing of Surgical Tools, and Testing Viability of 3D Virtual Reality Technologies | **Philippe Clermont, Richard Heidmann;** Mars Colonization: from Prospect to Project |
| 1:30 | **Marcus Anzengruber;** How Augmented and Virtual Reality will get us to Mars and help Colonize the Planet | **Thomas E. Markusic, PhD;** An Incremental Strategy for Mars Colonization Part I: Material Supply Fleet | **Dr. Jose Antonio Soto, MD;**MARS: Hikers Wanted | **Adam Lupsha;** Speaking Martian to Earthlings - A Primer on Using PR and Storytelling Principles to Pitch Your Science |
| 2:00 | **Aswath Suresh, Sri Harsha, Vinay Teja, Debrup Laha, Gautam Ranjan, Shivam Bharadwaj, Dhruv Gaba;** Exploration-Probe to Jupiter Moon Europa | **Darrin Taylor;**Free Delivery with Your Order | **Christoph Lahtz;**Space Biology is the Key to Establish Celestial Sustainable Human Settlements | **Mary Turzillo;**Mars: Humanity's Evolving Vision |
| 2:30 | **Aswath Suresh, Sri Harsha, Vinay Teja, Debrup Laha, Gautam Ranjan, Shivam Bharadwaj, Dhruv Gaba;** Innovative Human Mars Mission with Vertical Farming | **Joe Lingren, Kiva Villegas, Wesley Yu;**Low-Mass EDL Designs for Manned Mars Missions | **William Gardiner;**Better Martians, Better Humans: Will Genetic Therapy Allow Better Living on Both Mars and Earth | **Peter Detterline, Gary Becker;** Two New Astronomical Observatories at MDRS |
| 3:00 | **Dr. Joseph Parker;** Advanced Propulsion Systems for the Colonization of Mars | **Abigail Riggs;**The Use of Geophysical Techniques to Locate and Monitor Potential Martian Aquifers |  | **Jan Millsapps, PhD;** How to Get (More of Us) to Mars |
| 3:30 | **George Lordos;** Evaluating the Sustainability of Long Term Manned Mars Campaigns Using a Physical Economics Framework | **Mikolaj Owczarzak;**Augmented Reality and Telepresence Technologies in Future Mars Exploration Missions | **Bill Hargenrader, Jeff Pernell, Ron Sparkman;** Healthy Eating on Mars: Stepwise Local Approach to Whole-Foods (M:SLAW) | **James Melton, PhD;**Top 10 Ways to be a Mars Messenger |
| 4:00 | **Michał Hałon;**Mars Rover Design with SKA Robotics |  | **Dr. Ashish Gothwal;** A Prototype of Full-body Artificial Gravity Harness | **James Burk;** Mars Society Internet Task Force - Conquering Cyberspace for Mars |
|  |  |  | **Dr. Ashish Gothwal;** Hypothesis: A New Era of Space Suits |  |

***5:00pm - 7:00pm - Dinner Break***

**7:00pm - Panel**

*What should be the way ahead for NASA?*

**8:00pm - Panel**  
*Panel - The SpaceX Plan for Mars*

**9:00pm - Special Presentation***Mars in Film*

**Saturday, September 9**

***Pacific D***

**9:00am - Plenary**Carol Stoker - Planetary Scientist, Ames Center, NASA

**9:30am - Plenary**  
Xavier D. Simon - Advanced Space Exploration Configuration Design Lead, Boeing

**10:00am - Plenary**  
Mars 160 Crew Presentation

**10:30am - Skype Session**  
Dr. Mohammed Naser Al-Ahbabi, PhD. - Director-General, UAE Space Agency

**11:00am - Panel**  
*Social & Philosophical Implications*

Jim Pass  
Greg Benford  
Paul Davies  
James Heiser

***12:00pm - 1:00pm - Lunch Break***

**1:00pm - 5:00pm - Session Tracks:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Technology Track 5**  **PACIFIC D** | **Technology Track 6**  **PACIFIC B** | **STEM Track 1**  **MOSS COVE A** | **Political/Philosophical Track 2**  **MOSS COVE B** |
| 1:00 | **Holger Isenberg;** Practical Color Calibration for Mars Surface Images | **Robert Madsen;** Virtual Reality - Simulating the Simulation | **Bob Barboza;**Occupy Mars Learning Adventures Fellowship Programs for Middle and High School Students | **Mohsen Marefat;** Social Implications of Mars Exploration |
| 1:30 | **David Kutas, Alexis Koulidis, Monica Stancu;** Extraterrestrial Drilling Operations - A Fundamental Research | **Gerald Black;** Nuclear Fusion: Clean, Safe and Cheap Energy and the Next Giant Leap in Space Propulsion | **Nicholas Jewell, Emmy Jewell, Susan Jewell, Mark Kaushal;** A 21st Century S.T.E.A.M.E.D™ Academy Creating Experiential Learning with Exponential Technologies Offering VR/AR Astronautic Programs and Fully Immersive “Real-time” Simulators for Training NextGen Analog Astronauts, Imagineers, and Astropreneurs | **Brent Lane;**New World/New Worlds: Parallels in the Evolution of Enterprise-based Exploration Financing from the 16th and 21st Centuries |
| 2:00 | **Kurt Chankaya;**The Human Factor: Manned or Unmanned - Some Thoughts on Mission Resilience | **Matteo Borri;** Pneumatic Survey System for Martian Atmosphere | **Matthew Luttenberger;** M.A.R.S. University | **Dr. Martin Fowler;** The Time is Right for a Martian Covenant |
| 2:30 | **Kurt Chankaya;**The Use of Atmospheric in-situ Resources for Radiation Protection on the Surface of Mars | **Art Harman;** Don't Destroy ISS in 2024 - Privatize it! | **Zach Whitten;** Whittenberg Country School Parallax Robots | **Amir Notea, Frederico Monaco, Irene Lia Schlacht, Antonio Del Mastro;** Socially Organizing Large Scale Mars Missions: What we can Learn from Earthlings |
| 3:00 | **Prasad Falke;**What Improvements to the Deep Space Network are Needed to Support Manned Missions to Mars? | **Art Harman;** Mars Flyby - Do it in the 2020s, not the 2030s | **Ivo Georgiev;**MarsianSchool | **Robert Riccardi,**ON/TO MARS! - A Private Funding Proposal for Mars Landing/Exploration/Outpost Leading to a Permanent Settlement |
| 3:30 | **Kambiz Eqbal;**An Approach through "Energy Offering Methods" throughout the Human Establishment in the Martian Environment; Providing Feasible/ Most Efficient Scenarios to Every Operational Stage | **Vinod Sridhar;** Mars Electromagnetic Radiation Shielder (MERS) | **Mark Cusimano, Steven Shields;**Mars Regolith Simulant as a STEM Education Resource | **Danny Quintana;** Space and Ocean Exploration, the Alternative to the Military-Industrial Complex |
| 4:00 |  | **PP Edward Heisler;**The US Should End the Ban on NASA Working with China | **Hoppe Jennings;** Mission to Mars: A way to teach middle school science. | **John Stone;** How to Fund a Private Expedition to Mars |
| 4:30 |  |  | **Melodie Yashar**; Mars Ice House: Designing for Human Factors in Space Exploration Architectures | **Henry Stirk;** Free Mars |

***5:00pm - 5:30pm - Break***

***Lobby***

***5:30pm - 6:30pm - Cash Bar***

***Pacific D***

**6:30pm - 11:00pm Mars Society Banquet**

Song: Rise to Mars: Oscar Castellino

Banquet Speaker: Anousheh Ansari - First Female Private Space Explorer

Mars Society Awards Ceremony

Remarks by Dr. Robert Zubrin, Mars Society President

**Sunday, September 10**

***Pacific D***

**9:00am - Plenary**  
Dr. Darlene Lim - Geobiologist, Ames Center, NASA

**9:30am - Plenary**  
Geoffrey Landis - Author & Planetary Scientist, NASA

**10:00am - Plenary**  
TBD - Lockheed Martin Mars Mission

**10:30am - Plenary**  
The University Rover Challenge

**11:00am- Plenary**

The University Rover Challenge

**11:30am - Closing Remarks**Dr. Robert Zubrin, President, The Mars Society