
21ST INTERNATIONAL MARS SOCIETY CONVENTION
PASADENA CONVENTION CENTER • PASADENA, CALIFORNIA • AUGUST 23-26, 2018
MARS AND THE SPACE REVOLUTION
THE MARS SOCIETY

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21st Annual International Mars Society Convention
Pasadena Convention Center, Pasadena, CA
August 23-26, 2018

Wednesday, August 22 (Pre-Convention Events)
6pm-7pm - Early Registration - Conference Center Lower Level
Pasadena Convention Center
300 E Green St
Pasadena, CA 91101

7pm-10pm - Steering Committee Meeting
(The first hour is open to the public)
ROOM 207
Pasadena Convention Center
300 E Green St
Pasadena, CA 91101

Thursday, August 23

Registration Opens at 8:00am - Conference Center Lower Level

Main Ballroom - Rooms 101-104
9:00am - Opening Plenary
Dr. Robert Zubrin - President, The Mars Society

9:30am - Plenary
Michael Meyer - Future of US Mars exploration

10:00am - Plenary
Bob Balaram - Mars Helicopter

10:30am - Plenary
Joseph Kirschvink - Could the Terrestrial Biosphere have started on the flanks of Tharsis?

11:00am - Panel
STEM Education Panel
Nicole Willet, Mars Society Education Director
Dan Lakis, Keri Krukal, Jodi Marchesso

Noon - 1:00pm - Lunch Break

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

	Technology Track 1 Main Ballroom Rooms 101-104	**Cultural Track 1 Room 204**	**Science Track 1 Room 212**	**Outreach Track 1 Room 214**
1:00	**Tech 1 - Doug Plata** How Quickly Could a Mars Colony Become Completely Earth Independent?	**Art Harman** Liberty in Space	**Kent Nebergall** Settling Mars while Protecting Science and Exobiology	**Bob Barboza** The Occupy Mars Learning Adventures Fellowship Programs
1:30	**Max Fagin** Why the First Space Elevator Will Likely be Martian	**Matthew Luttenberger** Life on Mars Part2: You	**Jason Preston** Wherever you go, There You Are: The Case for Panspermia	**Mike Dolphin** Computer Gaming and Mars
2:00	**Tech 1 -Anthony Muscatello** Terraforming Mars with Self-Replicating Robots and Oxygen	**David Sky Brody** Mars the Trickster	**Matteo Borri** Chlorophyll Detection with Solid State Sensor	**Robert Riccardi** ON/TOMARS.org
2:30	**Kurt Chankaya** Use of In-Transit Fuel for GCR Shielding	**Gerald Voecks** An Alternative, Broad Scope to ISRU Plans for Mars	**Matteo Borri** Field Chlorophyll Detection via Self-Fluorescence	**Tatiana Novoselskaya** Astronomy Back to High Schools: Results of Students' Survey

3:00	**Ron Bennett** Using Radiation Sails to Transport Interplanetary and Interstellar Probes	**Hannah Earnshaw** In Search of a Martian Faith	**J.E. Brandenburg** The New Mars Synthesis and recent Mars Data	**Susan Ip-Jewell** Mars Academy USA
3:30	**Art Harman** Human Mars Flyby - Still THE starting gate for Mars	**H. Raven Rose** Mars or Bust: How Science Fiction Films Will Promote Mars Colonization Reality	**James Burk** Marspedia: Building an Online Encyclopedia for Education & Public Outreach	**Aline Decadi** Outreach of the AMADEE-18 Mars Analog Simulation
4:00	**Ivo Georgiev** Generative Engineering for Mars Colonization	**James Melton** Your Boarding Pass to Mars. Who will go? The Human Element	**K D Teasdale** Thermal Insulation for a Mars Inflatable Greenhouse	**Jason Preston** Cramming for the Final: Why Colonization is Incompatible with Adult-onset Astronaut Training
4:30	**Jeffery Greenblatt** Estimation of Optimal Launch Schedule and Necessary Payload Supporting Human Mars Settlement	**Tech Track** **Katsiaryna Snytkova** Human Factors and Space-Crew Composition	**Lucinda Offer** How to Start a Mars Society Chapter	**Bill Lewis** Earning Cultural Support
5:00	**Casey Handmer, PhD** Developing an Extensible Roadmap for Industrialization of Mars to Full Self-Sufficiency		**Chapters Council** *All chapter contacts are encouraged to attend to learn new outreach tools. Session led by Lucinda Offer (UK) and James Burk (Seattle)*	**Dr. Julio Francisco Dantas de Rezende** Sustainability in Mars Desert Research Station (MDRS)" Learning for Mars Settlements

5:30pm - 7:00pm - Dinner Break

Thursday, August 23

Main Ballroom Rooms 101 - 104

7:00pm - Plenary
Rick Tumlinson - A Declaration of Human Rights in the Universe

7:30pm - Plenary
Evidence for shallow subsurface ice in the mid-latitudes of Mars
Jeffrey J. Plaut - Senior Research Scientist
Jet Propulsion Laboratory / California Institute of Technology

8:00pm - Debate
Lunar Orbital Platform-Gateway - Breakthrough or Boondoggle?

Friday, August 24

Main Ballroom Rooms 101 - 104

9:00am - Plenary
John Callas - NASA Exoplanet Update

9:30am - Plenary
Jeff Volosin - TESS

10:00am - Plenary
David Poston - Kilopower

10:30am - Plenary
Tom Hoffman - INSIGHT Mission

11:00am - Plenary
Bill Clancey - Arcturus IV - Training Creative Engineers

11:30am - Panel
Religion on Mars

Friday, August 24
12:00pm - 1:00pm - Lunch Break

Friday, August 24

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

	Technology Track 2 MAIN BALLROOM Rooms 101 - 104	**Cultural Track 2 Room 204**	**Medical Track 1 Room 212**	**Politics Track 1 Room 214**
1:00	**Aswath Suresh** Innovative Mars Water Extraction System (IMWES)	**Stephen W. Houghton II** A Corporate and Political Structure for the Colonization of Mars	**Adam Norton** Mars Gravity Simulator	**Edward Heisler** Which Way Forward? Mars Exploration or Trump's "Space Force" Warriors?
1:30	**Aswath Suresh** Design and Development of Intelligent Mars Transportation Rover	**Marvin Hilton** Exploring Mars to Connect with Ourselves and the Universe	**William Gardiner** Overcoming the Health Barriers to Living in Deep Space: New Advances	**Heidi Hecht** Cryptocurrencies and Blockchain as an Interplanetary Financial System
2:00	**Natalia Ćwilichowska, Dariusz Domański, Adrian Krzemiński, Paweł Piszko, Piotr Torchała** Scorpio X as a sample of mobile robot	**Danny Quintana** The Case Against the Human Exploration of Mars Until Robotics and Propulsion Systems Improve	**Inga Popovaite** Using Structural Social Psychology to Study Mixed-Gender Group Processes in Isolation	**Craig Davidson** Why a Lunar base is better than the proposed Lunar Orbital Platform-Gateway to advance human space exploration
2:30	**Lawrence Kuznets** The MarsSuit Project	**C. Jaeger,S. Lindheim, A. Lueck, N. Uhlenbrock, F. Wahrmann, M. Waltermathe** Sanctifying the hidden ecocycle	**Jason Preston** Straight to the Bathtub, You're Filthy: Cyclic Airlock Baths for Colony Hygiene	**Kent Nebergall** Reverse Engineering SpaceX - Accelerate Like Elon
3:00	**John Pearson** Mars lander / Hab	**Michale Waltemathe** For all (hu)mankind Selection and	**Dr. Joseph Parker** Colonization of Lower Gravity Worlds Concerns	**Dr. Julio Francisco Dantas de Rezende** Sustainable

		Global Agency in Space Exploration Initiatives	and Solutions to Human Gestation and Development	Development Goals (SDGs) in Habitat Marte - Brazil
3:30	**Abhishek Balasubramaniam** Dinoponera 6 Wheeled Exploration Vehicle and Swarm Bots	**Prof. Kirill Novoselskiy, PhD** Reflections of Mars in Russian Performing Arts	**Doug Plata, MD** Providing for the Medical Needs of a Grow Base	**Art Harman** "LOP-G" or "Boots on the Poles?" Which is the right path to Mars?
4:00	**Gerald Black** Nuclear Fusion Power and Propulsion	**Rt. Rev. James D. Heiser** Is Mars Exploration Virtuous?	**Doug Plata** Reality Check: What Would it Take for the BFR to Become Reality?	**Art Harman** President Trump's Space Policy
4:30	**Rachel Lyons** Space for Humanity: From the Stratosphere to Mars - Opening Up Space to the Common Person	**Daniel Murawsky** A Government Only Mars Could Create		**John Stone** Funding Methods for "Humans to Mars" Expeditions

Friday, August 24

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

Main
7:00pm - Demonstration
The Terraforming Mars Game

7:30pm - James Polulos
For the Love of Mars
Why settling the Red Planet can lift us from our antihuman malaise
(Author of The Art of Being Free: How Alexis de Tocqueville Can Save Us from Ourselves)
8:00pm - Panel
How can we make the Moon a stepping stone for Mars?

9:00pm - Movie
Seat 25

Saturday, August 25

Main Ballroom Rooms 101 - 104

9:00am - Plenary
Abagail Fraeman - Mars Rovers: Past, Present, Future

9:30am - Plenary
Paul Wooster - SpaceX's plans for Mars

10:00am - Plenary
Carol Stoker - Why and How We Should Search for Life on Mars Before Sending Humans

10:30am - Plenary
Lou Friedman - Political History of Humans to Mars

11:00am - Plenary
Shannon Rupert - Update on the Mars Desert Research Station

11:30am - Panel
Virtual Reality & Mars - The MarsVR Program
James Burk, *Program Manager, MarsVR. IT Director, the Mars Society.*
Shannon Norrell*, Director of Engineering, MarsVR. Co-Founder of HP's Mars Home Planet*
Erik Stowers and Anthony Gardner, *Texas A&M & SpaceCraft-VR.com*
Jeff Dillon, *Senior Engineer, Unity*

Saturday, August 25
12:00pm - 1:00pm - Lunch Break

Saturday, August 25

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

	Red Eagle Contest Main Ballroom Rooms 101-104	**Technology Track 3 Room 204**	**Cultural Track 3 Room 212**
1:00	**Red Eagle Contestant Presentation FInalists** Red Movers- France Argo Nova - Germany /Sweden Team Gurjao - Italy/India Team Icarus - USA Project Eagle - Poland	**Saachi Grewal** Modifications to the Exolance Mars Probe Design to Confirm to the 3U CubeSat Form Factor	**James Melton** Who Will Go to Mars?
1:30	Red Eagle Contestant Presentation	**Christopher Morrison, Wesley Deason, Michael Eades, Samuel H Judd, Vishal Patel, Mark Reed, Paolo Venneri** The Pylon: Near-Term Commercial LEU Nuclear Fission Power for Mars and the Moon	**Ravish Kumar Sharma** A review on Natural Disasters that Martians might face
2:00	Red Eagle Contestant Presentation	**William Mook Jr.** The Economic and Logistical Impact of Autonomous Rocket Drones on Mars	**Nicholas James Gilman, MD, FAAP and Alberto M. Jacir, MD, MBA, CPE** Mars Colonization and Pediatrics: Unasked, Unanswered
2:30	Red Eagle Contestant Presentation	**Raul Colon** The Building of an Information Highway on Mars	**Frank Crossman & Bruce Mackenzie** Agriculture for an Early Mars Settlement

3:00	Red Eagle Contestant Presentation	**Jason Preston** Butyl Rubber Soul: Why We Can't Do Without Butyl Rubber on Mars, and How to Make it Simply, Safely, Efficiently, and Purely from Martian Materials	**Brian Hanley** Beyond Underpants: Finance of space entrepreneurship
3:30	Red Eagle Contestant Presentation	**Ethan Cliffton** The Elliptical Dilemma	**Ejner Fulsang** On Becoming a Spacefaring Society
4:00	*Room Closed for Banquet Prep*	**Carlos Glender** Analysis of Sand on Mars to Determine Possible Organic Synthesis of Sand	
4:30	*Room Closed for Banquet Prep*	**Jeff Dillon** Lunar Rail Gun and Mars Atmosphere Laser	

Saturday, August 25

Lobby

6:30pm - 7:00pm - Cash Bar

Main Ballroom Rooms 101 - 104

7:00pm - 10:00pm Mars Society Banquet
Demo: MarsVR Phase 1 - MDRS Training Environment (James Burk)
Banquet Speaker: University Rover Challenge
Mars Society Awards Ceremony
Remarks by Dr. Robert Zubrin, Mars Society President

Sunday, August 26

Main Ballroom Rooms 101 - 104

9:00am - Plenary
Vlada Stamenkovic - Modern Mars Habitability and Subsurface Exploration

9:30am - Plenary
John Mankins - Power Beaming in Space

10:00am - Plenary
Rand Simberg - Property Rights

10:30am - Plenary
Mike Dunn - Mars - Moon Lava Tube simulation

11:00am - Plenary
Kris Zacny - Drilling for Water on Mars

11:30am - Special Panel
The First
Sean Penn leads an ensemble cast in this near-future drama about a crew of astronauts attempting to become the first humans on Mars. Under the direction of visionary aerospace magnate Laz Ingram (Natascha McElhone), the crew contends with peril and personal sacrifice as they undertake the greatest pioneering feat in human history.

Beau Willimon, Creator and Executive Producer
Charles Elachi, Former Director of the Jet Propulsion Laboratory (JPL) who serves as a consultant on the series
LisaGay Hamilton, one of the actors

12:30 - Closing Remarks
Dr. Robert Zubrin, President, The Mars Society