

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

MARS AND THE SPACE REVOLUTION



THE MARS SOCIETY





MARS AND THE SPACE REVOLUTION

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***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 <i>All chapter contacts are encouraged to attend to learn new outreach tools. Session led by Lucinda Offer (UK) and James Burk (Seattle)</i>	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 - Panel

Evidence for shallow subsurface ice in the mid-latitudes of Mars

Jeffrey J. Plaut - Senior Research Scientist

Jet Propulsion Laboratory / California Institute of Technology

Project Scientist, 2001 Mars Odyssey

Co-Principal Investigator, MARSIS radar on Mars Express

Science Team Member, SHARAD radar on MRO

8:30pm - 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 Room 2014	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 Global Agency in Space Exploration Initiatives	Dr. Joseph Parker Colonization of Lower Gravity Worlds Concerns and Solutions to Human Gestation and Development	Dr. Julio Francisco Dantas de Rezende Sustainable 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 24

Saturday, August 25

Main Ballroom Rooms 101 - 104

9:00am - Plenary

Abigail 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	Martin Dinov and Dzera Kaytati An AI natural language processing approach to optimizing thought and communication patterns in Martian artificial habitats

2:30	Red Eagle Contestant Presentation	Raul Colon The Building of an Information Highway on Mars	Nicholas James Gilman, MD, FAAP and Alberto M. Jacir, MD, MBA, CPE Mars Colonization and Pediatrics: Unasked, Unanswered
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	Manousos Chairetis Make humanity space, again.
3:30	Red Eagle Contestant Presentation	Ethan Clifton The Elliptical Dilemma	Frank Crossman & Bruce Mackenzie Agriculture for an Early Mars Settlement
4:00	<i>Room Closed for Banquet Prep</i>	Carlos Glender Analysis of Sand on Mars to Determine Possible Organic Synthesis of Sand	Brian Hanley Beyond Underpants: Finance of space entrepreneurship
4:30	<i>Room Closed for Banquet Prep</i>	Jeff Dillon Lunar Rail Gun and Mars Atmosphere Laser	Ejner Fulsang On Becoming a Spacefaring Society

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 - Evolution of Mars

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