
The Space Launch Revolution: Opening the Way to Mars

**22nd Annual International Mars Society Convention
Thursday-Sunday, October 17-20, 2019**

**Fertitta Hall & Hoffman Hall in the Marshall School of Business
on the campus of the University of Southern California (USC)**

SCHEDULE IS SUBJECT TO CHANGE

Wednesday, October 16th, 2019 (Pre-Convention Events)

6:00pm-7:00pm - Early Registration

Fertitta Hall in the Marshall School of Business, Lower Level

7:00pm-9:00pm - Steering Committee Meeting

Fertitta Hall in the Marshall School of Business, 5th Floor Conference Room

(The first hour is open to the public)

Thursday, October 17th, 2019

Registration Opens at 8:00am -

Edison Auditorium, Lower Level in Hoffman Hall in the Marshall School of Business

All morning sessions will be in Edison Auditorium, Lower Level in Hoffman Hall

9:00am - Opening Plenary -

Dr. Robert Zubrin - President, The Mars Society

The Case for Space

9:30am - Plenary

Luther Beegle - Deputy Division Manager of JPL's Science Division

Exploring Mars Underground / Search for Water & Life

10:00am - Plenary

Jim Cantrell – Founder of Vector Launch

Micro Space Launch Revolution

Thursday, October 17th, 2019

10:30am – Plenary

Nova Spivack – Founder of The Arch Mission Foundation

The Arch Mission Foundation: Preserving the Knowledge and Species of Earth for the Future Generations

Thursday, October 17th, 2019

11:00am - Plenary

Max Fagin – Senior Aerospace Engineer at Made in Space

Engineering Entry, Descent and Landing Systems for Human Mars Missions

11:30am - Plenary

Rob Manning – Chief Engineer at NASA JPL

Why Exploring Mars Has Been So Much Fun

Thursday, October 17th, 2019

Noon - 1:00pm - Lunch Break

1:00pm - 5:30pm - Session Tracks:

	Technology 1 Track 1 Hoffman Hall, LL Edison Auditorium	Colonization Track 2 Fertitta Hall Lower Level	Science/ Medical Track 3 Fertitta Hall Lower Level	Social 1 Track 4 Fertitta Hall Lower Level
1:00	Robert Mahoney, Tim Mew, Thomas Green - The Engineering Requirements for a Large Martian Population and Their Implications	John E. Parks Smart Growth on Mars: A Proposed Framework for Measuring Human Well-Being and Sustainability During Settlement	Mario Colorado, German Sarmiento, Fabio Pena - Microalgae as Food and Oxygen, Need Number one of Travelers to Mars	Wilson Chirwa A Catechism for a Martian

	Technology 1 Track 1 Hoffman Hall, LL Edison Auditorium	Colonization Track 2 Fertitta Hall Lower Level	Science/Medical Track 3 Fertitta Hall Lower Level	Social 1 Track 4 Fertitta Hall Lower Level
1:30	Jason Preston Terraforming? Try Areoforming: Adapting the Organism and the Environment to Each Other	Steve Theno NewMars - An Engineering Concept for a 1000 Person Mars Colony	Maria Harney, Susan Ip-Jewell -Developing Psychological and Neuro-Behavioral Countermeasures for Analog Astronauts Living in Austere, I.C.E.	Ivan Fino A Legal System to Deal with the "Cosmignocene" Era
2:00	Kent Nebergall Starlink's Children: Opportunities for Massive Satellite Constellations	Justyna Pelc, Beata Suścicka, Magdalena Łabowska, Piotr Torchala - Society on Mars based on IdeaCity Project	Cora Lyon, Eric Bortz, Jason Burkhead, Brandon Briggs - Next Generation Sequencing of Extremophiles: Determining the Biological Phenotype of Deinococcus Radiodurans	Kat Paterno Opening Windows of Opportunities: How Human Settlement on Mars Can Lead the Way to Peace, Advanced Evolution and a Truly Humanistic Society
2:30	Anthony Muscatello, Dr. James Burke, Robert Bueller, Daniel Tompkins - Architecture for a Farm in a Moon Village with In-Situ Materials for Infrastructure	Jason Preston The Race for Living Space: Why and How to Create Self- Replicating Habitable Volumes as Quickly and Cheaply as Possible on Mars	Alastair Tait, Christian Schroeder, James Ashley - The "Rosetta Stones" of Mars. the Legacy of Opportunity's Meteorite Finds	Pamela Jaye Smith Applied Mythology for Space Evolution
3:00	Tarun Bandemegala, Ksenia Benifand, Aimee Valliere, Janet Biggs - Mars Connect Suit: A Novel "Non-Verbal Communication" Spacesuit	Beata Suścicka, Magdalena Łabowska, Justyna Pelc, Poitr Torchala Urban Planning in Space on the Example of IdeaCity Project	Jay Velasco, Susan Ip-Jewell, Rafael Grossmann, john Hanacek, Ksenia Benifand, Joe Lang - Developing General AI, Blockchain and AR/MR for Emergency Medical Triage Analog	Danny Quintana Copernicus Was Mistaken, Why We Must Explore the Heavens to Save Life on Earth

	Technology 1 Track 1 Hoffman Hall, LL Edison Auditorium	Colonization Track 2 Fertitta Hall Lower Level	Science/Medical Track 3 Fertitta Hall Lower Level	Social 1 Track 4 Fertitta Hall Lower Level
3:30	Martin Van Den Berghe, Kenneth Neilson, Joshua West - Developing an Oxygen ISRU System Using a Novel Bioelectric Reactor	Art Harman Liberty in Space - The Near Future	Raywat Deonandan, Stefan Litvinjenko - How to Epidemiologically Model a Disease Outbreak from Space	Matthew Luttenberger Remember to Pack Your Bags
4:00	Doug Plata Comparing Greenhouses on Mars Versus the Moon	Piotr Torchala, Justyna Pelc, Magdalena Łabowska, Beata Suścicka Space Industry on the Example of IdeaCity Project	William Gardiner Managing the Effect of Damaging Radiation in Deep Space: A New Hope	James D. Heiser The Value of Mars Exploration and Settlement
4:30	Suranjana Trivedy Autonomous Vehicles for Planetary Exploration	Peter Kokh Dual Torus Station Concept for Moon- Mars Acclimation	Dr. Donald McLeod, Kevin Dunic - Physiology for Extraterrestrial Life -	James Melton Martian Culture - The New Society
5:00	Oleg Demidov, Vitaly Pashkin - Where Should Humans Put the First Colony on the Red Planet?	John Brandenburg Advanced Propulsion and Power for Mars and Beyond	Diana Pawlicki Laser Technology- An insight on the Future	

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



Thursday, October 17th, 2019

Edison Auditorium, Lower Level in Hoffman Hall in the Marshall School of Business

7:30pm – Plenary

Rick Tumlinson – Founding Partner at SpaceFund, Founder EarthLight Foundation, Space Frontier Foundation

Reality Check - Taking the Fiction Out of the Space Frontier

8:00pm – Debate

NASA's Proposed Gateway

Robert Zubrin, President, The Mars Society and Greg Autry, Director, SoCal Commercial Spaceflight Center

Friday, October 18th, 2019

Edison Auditorium, Lower Level in Hoffman Hall in the Marshall School of Business

9:00am – Plenary

Daisy Zhou, Worldshaper Academy - Mars Scholar Project

Future Martians Need More Real PBL Learning

9:30am - Plenary

Kris Zacny, Vice President & Director, Exploration Technology - Honeybee Robotics

Going Deep: Reaching Lakes at the Martian South Pole

10:00am - Plenary

Darlene Lim, NASA Ames

Designing and Developing Mission Elements in Support of Human Scientific Exploration of Mars

10:30am - Plenary

Dave Poston, NASA Kilopower Project

Mars Nuclear Power Production

11:00am - Plenary

Tom Hoffman- Insight Project Manager, NASA

Mars InSight Mission Update

Friday, October 18th, 2019

11:30am - Economic Panel - Opportunities for Space Entrepreneurs

Panelists: **Sean McClinton**, President, Seattle Space Entrepreneurs & Founder, SDM Enterprises, Inc.,

Lennart Lopin, Founder & President, The Marscoin Foundation. President/CEO, ByteFederal.

James L. Burk, IT Director, The Mars Society & Senior Manager of Business Mgmt Services, Artic Consulting,

Friday, October 18th, 2019

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

Friday, October 18th, 2019

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

	Technology 2 Track 1 Hoffman Hall, LL Edison Auditorium	Political /Sci/ Med 2/ Misc. Track 2 Fertitta Hall Lower Level	Analog 1 Track 3 Fertitta Hall Lower Level	Social 2 /Economy Track 4 Fertitta Hall Lower Level
1:00	Oleg Demidov, Vitaly Pashkin - How to Feed the First Mars Colonists - What, Where and How to Grow?	Art Harman Artemis to the Moon in 2024 - Why This Date is Absolutely Critical	Anastasia Prosina High-Fidelity Mars Analog Habitat in Iceland	Jason Preston I Make Martians: How to Build Human Beings Who Can Handle Mars
1:30	Douglas Shull Lunar Lava Tubes (LLTs) Show the Way for Mars!	Edward Heisler In Defense of Elon Musk and SpaceX	Michał Hałoń Artificial Markers Recognition for ERC Competition and Their Possible Use on Mars	Nelson Bridwell To Be, Or Not To Be

	Technology 2 Track 1 Hoffman Hall, LL Edison Auditorium	Political /Sci/ Med 2/ Misc. Track 2 Fertitta Hall Lower Level	Analog 1 Track 3 Fertitta Hall Lower Level	Social 2 /Economy Track 4 Fertitta Hall Lower Level
2:00	Doug Plata SpaceX's Starship: Moon or Mars Rocket?	Mars A.R. Saldana Professionals and Enthusiasts Perception of Factors Shaping the Future Business in Outer Space	Patrycja Cieplicka, Marcin Gajewski, Michał Hałoń, Łukasz Kostrzewa -Sirius - An Analog Mars Rover From SKA Robotics	Jyotiraditya Sikder, Anubhav Mitra, Soumodeep Maitra, Arya Panit Bhavan's Gangabux Kanoria Vudyamandir Martian Economy: A Speculation
2:30	Łukasz Kostrzewa Patrycja Cieplicka Marcin Gajewski Michał Hałoń - Design of a Graphical User Interface for Rover Control	Jose Soto Medical Affairs Reaching Deep Space	Shannon Rupert Crewed Mars Missions: Who Should Go?	Krizia Puig Martian Matter(s): Disability Justice & The Im/possibilities of Space Exploration
3:00	Jeff Dillon Cubesat to Mars Using Low Energy Transfer	Reena Tolentino, Susan Ip-Jewell, Maria Harney, Jay Velasco, Jay Velasco - The Artronaut Project	Inga Popovaite Data Science from Mars. New Methods to study Groups in Space Analogs	James Gilley The Economic Value of Mars
3:30	Jeffery Greenblatt Design and Modeling of an Electrochemical Device Producing Methane, Oxygen and polyethylene from In- situ resources on Mars	Angela Cui The Mars Society China - Chinese Private Space Industry	Julio Rezende, Davi Souza - Research on Design of Mars Analog habitat: The Case of Habitat Narte (Brazil)	Dr. Frank Witte Changing the Solar System Economy Paradigm
4:00	Gerald Black SpaceX's Super Heavy and Starship	Art Harman Promoting Mars and the Moon to decision makers: How to effectively lobby for our future	Susan Ip-Jewell, Karan Ghatora, Ashok Narayan- amoorthu, Saran Subba -Mars Medics Analog Astronaut Missions During	Stephen Houghton II Towards a Strategy for the US and our Allies in Space

			Austere I.C.E. - Nepal Scenarios	
	Technology 2 Track 1 Hoffman Hall Lower Level Edison Auditorium	Political /Sci/ Med 2/ Misc. Track 2 Fertitta Hall Lower Level	Analog 1 Track 3 Fertitta Hall Lower Level	Social 2 /Economy Track 4 Fertitta Hall Lower Level
4:30	Bruce Mackenzie Mars Exports for Interplanetary Trade	Brian Hanley Banking for Mars		Alex Sharp Engineering an Interplanetary Economy

Friday, October 18th, 2019

6:00pm - 9:00pm – OFF SITE AT THE GLOBE THEATRE

MARS ROCKS! A BENEFIT CONCERT FOR THE MARS SOCIETY

This is 21 years of age and over event

The Globe Theatre

740 Broadway, Los Angeles, CA 90014

MARS ROCKS! is the Mars Society's first ever Benefit Concert featuring the bands **REVOLUSHN** and **THE HAILERS** plus several musical guests from bands like Pink Floyd, DEVO, and Janes Addiction. Come out and join us for an awesome night of Music, Comedy, and SCIENCE.

Doors Open at 6:00pm. Music Begins at 7:00pm

Saturday, October 19th, 2019

Edison Auditorium, Lower Level in Hoffman Hall in the Marshall School of Business

9:00am – Plenary

Carol Stoker, NASA Ames

Drilling for Life on Mars

9:30am - Plenary

Shannon Rupert - Director, Mars Desert Research Station

20 Years on Mars



Saturday, October 19th, 2019

Edison Auditorium in Hoffman Hall in the Marshall School of Business

10:00am - Plenary

Andrew Drozd - Plenary

President and Chief Scientist, ANDRO Computational Solutions, LLC

The Fibonacci Project: Using the Challenge of Space to Revolutionize STEM Education

10:30am - Plenary

Kurt Chankaya – The Mars Society

The Mars Society University Rover Challenge

11:00am – Plenary

Anastasiya Stepanova, Institute of Biomedical Problems, Mars Society Russia

Comparison of Space Analogue Simulations Mars160 and SIRIUS19

11:30am – Plenary

Ashwin Vasavada, MSL Project Scientist, Planetary Geosciences, JPL

MSL (Curiosity) Rover Update

Saturday, October 19th, 2019

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

Saturday, October 19th, 2019

1:00pm – 6:00pm - Session Tracks:

	Technology 3 Track 1 Hoffman Hall Edison Auditorium	Technology 4 Track 2 Fertitta Hall Lower Level	Technology 5 Track 3 Fertitta Hall Lower Level	Outreach Track 4 Fertitta Hall Lower Level
1:00	Mars Colony Prize Contest CrowdSpace	Bruce Mackenzie Hillside Settlement, review of Mars Foundation Design	Ethan Clifton Neuroeconomics and the Art of Resource Utilization	Julio Rezende The Mars Society's Action and Social Role in the European Community
1:30	Mars Colony Prize Contest Emerging Futures	John Parks From Trash to Treasure: The Role of Recycled Thermoplastics for Mars Habitation	Craig Davidson, Peter Vorobieff - Why Cubesats Will Get Us To Mars	Bob Barboza Creative Designing for the Mars Projects
2:00	Mars Colony Prize Contest Ideacity	Darian Phillips Mars Transit Direct	Julio Rezende, Nikolay Moiseev, Davi Souza - SpaceSuits: The Emergence of Feasible Technologies	James Burk Marspedia: an Online Encyclopedia about all things Mars
2:30	Mars Colony Prize Contest Kent Nebergall	Aadi Bhattacharya, Anshul Gupta, Anuj Kapoor, Raka Bose, Sohun Aggarwal, Subhra Bose, Swaraaj Pujari - MegaPower: Generating Electricity for our Future on the Red Planet	David Jedynak, Janet Jedynak -Open Standard Rugged Commercial-off-the- Shelf Computing Electronics Reference Architecture for Mars Surface	Matthew Luttenberger MARS Market

	Technology 3 Track 1 Hoffman Hall Edison Auditorium	Technology 4 Track 2 Fertitta Hall Lower Level	Technology 5 Track 3 Fertitta Hall Lower Level	Outreach Track 4 Fertitta Hall Lower Level
3:00	Mars Colony Prize Contest Wroclaw University of Science and Technology	Charly Desprez, Pierre Fraudeau, Pierre-Yves Froissart, Francois-Wandrille de Lamberterie, Marine Lauimain - Engineering the Future Vehicle for the Manned Exploration of Mars	Colin Lennox Self-organizing Wetland Bioreactors (Sowb's) as a Component of Enclosed Life Support Systems for Regolith, Atmospheric, Nutrient and Waste Cycling	Bruce Mackenzie Kickoff Mars Village Design Study Group
3:30	Mars Colony Prize Contest MIT Star City	Suchuan Huang, Yong Tang, Junliang Tao - SBOR: A Bio-Inspired Self-Burrowing-Out Robot	Ronald Bennett Using Radiation Sails to Transport Interplanetary and Interstellar Probes	Hernán David Mateus-Jiménez, Atila Meszaros The Mars Society Latin America
4:00	Mars Colony Prize Contest Team Bubolaq	David Dunham, Kjell Stakkestad, Jim McAdams, Jerry Horsewood - Morph the Gateway into an Earth-Mars Cyler?	Julio Rezende, Davi Souza -Space Food System	Conor O'Kane Mars Flight VR - A VR Helicopter Simulator Set in Real Location on Mars
4:30	Mars Colony Prize Contest Team Dvaraka		Donald Jacques Sustainable Habitat Development	James Burk, Lucinda Offer, Nora Hovee Chapters Council 4:30 – 5:30
5:00	Mars Colony Prize Contest Wesley Stine			
5:30	Mars Colony Prize Contest LET IT BE			



Saturday, October 19th, 2019

Mars Society Evening Banquet

USC HOTEL - 3540 S Figueroa St, Los Angeles, CA 90007

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

7:00pm - 10:00pm Mars Society Banquet

(Italian Buffet)

Banquet Speaker: Paul Wooster, Principal Mars Development Engineer, SpaceX

Mars Society Awards Ceremony

Remarks by Dr. Robert Zubrin, Mars Society President

Sunday, October 20th, 2019

Edison Auditorium, Lower Level in Hoffman Hall in the Marshall School of Business

9:00am - Plenary

Reut Sorek Abramovich, Astrobiologist & Chair, Israel Chapter

Israel D-MARS Program Update (via Skype)

9:30am – Plenary

Vahe Perroomian, Associate Professor of Physics and Astronomy, USC

21st Century Moonshot

10:00 - Plenary

Andrew Rader

Beyond the Known: How Exploration Created the Modern World

10:30am - Plenary

Bryan Versteeg, Founder, Spacehab.com

Mars Habitat Designs



Sunday, October 20th, 2019

Edison Auditorium, Lower Level in Hoffman Hall in the Marshall School of Business

11:00am - Plenary

Greg Autry, Director, SoCal Commercial Spaceflight Center

Space is Open for Business

11:30am - Plenary

Stefanie Schur, Landscape Architect & Urban Designer

Designing for a Vibrant Mars Colony

12:00pm - Closing Remarks

Dr. Robert Zubrin, President, The Mars Society