

As of 6-5-19

**Registration**

8:00 am - 7:00 pm

**Student Registration**

9:00 am - 6:00 pm

**Morning Plenary**

8:30 am - 9:45 am

**Student Plenary**

10:00 am - 10:45 am

**Friday, June 7**

**South Foyer**

**North 1**

**Commonwealth South**

Keynote Speaker: Jim Bridenstine, NASA Administrator

Honoring The Gerard O'Neill Voyagers Circle Members

MC: Dr. Greg Autry, University of Southern California Marshall School of Business and National Space Society Board of Directors

**Commonwealth South**

"How To Prepare for the Astronaut Job Fair"

Keynote Speaker: Mike Mongo, Astronaut Teacher, Author, *The Astronaut Instruction Manual*, and Founder, *Mike Mongo's Astronaut Job Fair*

**10:00 am - 12:00 noon**

**Bio-Sustainability**

10:00 am

10:20 am

10:40 am

11:00 am

11:20 am

**Mars**

10:00 am

10:40 am

10:55 am

11:10 am

**Moon**

10:00 am

10:15 am

10:30 am

10:45 am

11:00 am

11:15 am

11:30 am

11:45 am

**Morning Sessions**

**North 2**

**Bio-Sustainability in Space**

The Big Picture for Bio-Requirements. John Mankins and Willa Mankins (Moon Village Association)

Sustaining Lunar Resources Through Environmental Assessment. William Kramer (Hawaii Research Center for Futures Studies, University of Hawaii)

Lessons Learned from Biosphere 2. Rodrigo Romo (Pacific International Space Center for Exploration Systems)

NSS Student Space Settlement Contest Presentation

The Vital Role of Aquaculture in Space. Bryce Meyer (St. Louis Space Frontier)

**Concourse 2**

**Mankind's Future on Mars**

Travel to and Mars, Base and Settlement Based on BFS Transport. Dr. Robert Zubrin (Mars Society)

NSS Student Space Settlement Contest Presentation

NSS Student Space Settlement Contest Presentation

Doctors' Panel: Space Medicine on Mars. Dr. Dwight Holland (Human Systems Integration Associates), Dr. Carlos Salicrup (Mars Academy USA), Dr. Maria Harney (Mars Academy USA). Moderator: Dr. Susan Ip-Jewell (Mars Academy USA)

**North 3**

**Commercial Moon**

Commercial Lunar Exploration to Support NASA's Science Goals (CLPS). Steven Clarke (NASA) Evolutionary Lunar Base Strategy. Charles Miller (NextGen Space LLC)

Lunar Development Lab Concept for Lunar Resource Mapping, Extraction and Utilization. Dr. Allison Zuniga (NASA Ames Research Center)

Reusable Lunar Lander. Danielle Richey (Lockheed Martin)

MOBIUS: An Evolutionary Strategy for Lunar Tourism Future of ISS. Mehdi Lali (Boeing St. Louis)

Vision and Approach to Near-future Lunar Exploration. Shigeru Imai (Japan Manned Space Systems Corporation)

Lunar EVA Space Suits for NASA and Commercial Missions. Ted Southern (Final Frontier Design) (tbd)

As of 6-5-19

**Friday, June 7**

|             |  |
|-------------|--|
| <b>NIAC</b> |  |
| 10:00 am    |  |
| 11:00 am    |  |
| 11:15 am    |  |

**Concourse 1**  
**NASA Innovated Advanced Concepts**  
 NIAC Program Description and Q&A. Jason Derleth (NASA), Michael LaPointe (NASA), Ronald Turner (Analytical Services, Inc.), Katherine Reilly (Bryce Space and Technology), John Nelson (Bryce Space and Technology) and Tara Halt (Bryce Space and Technology)  
 NSS Student Space Settlement Contest Presentation  
 Comments from a Member of the NIAC External Council (NEC), with Q&A. Dr. David Brin (Scientist, Author)

**Student spUN Debates**  
 10:00 am - 1:00 pm

**Stars 1&2** (16th floor)  
 spUN Debate Preparation

**Teacher Session**  
 10:00 am - 12:00 noon

**Mezzanine 3**  
 A Revolutionary Artificial Intelligence and Space Education Focus Group - A Demonstration for Teachers

**Lunch**  
 12:00 noon - 1:50 pm

**Commonwealth South**  
 "How Digital Telepresence Can Fund a Robust Luna City For Our Generation"  
 Keynote Speaker: Dr. Martine Rothblatt, Chairman & CEO, United Therapeutics Corporation  
 Presenting of NSS Space Pioneer Award to Dr. Martine Rothblatt  
 Presenting of Jim Baen Memorial Short Story Award  
 MC: Karlton Johnson, Chairman, National Space Society Board of Governors

**Student Poster Session**  
 1:30 pm - 3:30 pm

**Cavalier**  
 NSS Space Settlement Contest posters on display with the student presenters.

|                           |  |
|---------------------------|--|
| <b>2:00 pm - 5:00 pm</b>  |  |
| <b>Bio-Sustainability</b> |  |
| 2:00 pm                   |  |
| 2:20 pm                   |  |
| 2:45 pm                   |  |
| 3:00 pm                   |  |
| 3:30 pm                   |  |
| 4:00 pm                   |  |
| 4:20 pm                   |  |
| 4:40 pm                   |  |
| <b>Mars</b>               |  |
| 3:35 pm                   |  |
| 2:00 pm                   |  |
| 3:00 pm                   |  |
| 3:35 pm                   |  |
| 4:00 pm                   |  |
| 4:30 pm                   |  |
| <b>Moon</b>               |  |
| 2:00 pm                   |  |
| 2:10 pm                   |  |

**Afternoon Sessions**

**North 2**  
**Bio-Sustainability in Space**  
 Carbon's Role in Sustainable Space Settlement. Dan Hawk (ITS Space Agency)  
 The Man on the Moon Needs Health Care. Simona Lovin (Cognosante Foundation)  
 NSS Student Space Settlement Contest Presentation  
 A Search for Higher Ground: Space Farming and Lessons Learned From Indoor Cannabis Cultivation. Elliott Gorfain (Higher Ground Initiative)  
 Next Generation Life Support Systems. Douglas Gage (XPM Technologies)  
 NSS Student Space Settlement Contest Presentation  
 Lunar ISRU, and the Problem with Plastics. John Wilkes (Worcester Polytechnic Institute, retired)  
 Food Production Power Requirements with Synthetic Biology Options. Dr. Christopher Morrison (UltraSafe Nuclear Corporation)

**Concourse 2**  
**Mankind's Future on Mars**  
 NSS Student Space Settlement Contest Presentation  
 Policy Panel: Will Planetary Protection Stop Musk from Building a City on Mars? Dr. Doug Plata (Space Development Network), Michelle Hanlon (For All Moonkind, Inc.), Alfred Anzaldúa (National Space Society), Bruce Mackenzie (Mars Foundation). Moderator: Dale Skran (National Space Society)  
 Practical Mars Terraforming – Mars Needs Nitrogen. John Strickland (National Space Society - Roadmap Committee)  
 NSS Student Space Settlement Contest Presentation  
 Ice-Rich Lava Tubes on Earth: Implications for the Moon and Mars. Dr. Pascal Lee (Mars Institute)  
 Autonomously 3-D Printed Surface Habitats. Melodie Yashar (Space Exploration Architecture)

**North 3**  
**Architectures and Technologies**  
 Space Launch Systems for Lunar Missions. Benjamin Donahue (Boeing)  
 NextSTEP Habitats. (tbd) (NASA Marshall Space Flight Center)

As of 6-5-19

**Friday, June 7**

|         |  |
|---------|--|
| 2:20 pm | NASA Centennial Challenges OverView / 3D Printed Habitat Monsi Roman (NASA Marshall Space Flight Center)   |
| 2:30 pm | NASA 3D Printed Habitat Centennial Challenge. Tracie Prater  |
| 2:40 pm | (tbd)  |
| 2:50 pm | NSS Student Space Settlement Contest Presentation  |
| 3:00 pm | A Holistic View on Lunar Habitats. Dr. Haym Benaroya (Rutgers University)  |
| 3:10 pm | CisLunar Explorer Project. Dr. Dean Larson (National Space Society) and Aaron Zucherman (Cornell University)   |
| 3:20 pm | LROC Update. Dr. Brett Denevi (Johns Hopkins University Applied Physics Laboratory)  |
| 3:30 pm | Break  |
| 3:40 pm | Master Planning and Architecture for a Moon Village. Daniel Inocente (Skidmore Owings Merrill) and Laura Gonzales (Skidmore Owings Merrill)                      |
| 3:50 pm | 1-G Lunar Habitat. Dr. Thomas Matula (Sul Ross State University)   |
| 4:00 pm | (tbd)  |
| 4:10 pm | The Subterranean Option; Lunar-Mars Lava Cave Habitat Development Efforts Update. Michael Dunn (4th Planet Logistics Inc.)                                       |
| 4:20 pm | Innovation in Lunar Robotic Construction Methods. Dr. Behrokh Khoshnevis (University of Southern California)   |
| 4:30 pm | Site Selection Strategy for a Permanent Lunar Settlement. Dr. David Schrunk (Science of Laws Institute) and Madhu Thangavelu (University of Southern California) |
| 4:40 pm | The Pylon: Near-Term Commercial LEU Fission Reactor For Lunar & Martian Heat & Electricity. Dr. Christopher Morrison (UltraSafe Nuclear Corporation)             |
| 4:50 pm | Making the Moon Accessible to the World. Dan Hendrickson (Astrobotic Technology Inc.)  |

**NIAC**

**Concourse 1**

**NASA Innovated Advanced Concepts**

|         |   |
|---------|---|
| 2:00 pm | Astrobotic Future Missions and Technology. Dr. Andrew Horchler (Astrobotic Technology)  |
| 2:30 pm | Space Propulsion through Direct Conversion of Nuclear Energy. Dr. John Slough (MSNW, LLC)   |
| 3:00 pm | NSS Student Space Settlement Contest Presentation   |
| 3:15 pm | The Apis™ Mission Architecture to Revolutionize Human Exploration and Space Industrialization. Dr. Joel Sercel (Trans Astronautica Corporation; MOMENTUS Space) |
| 3:45 pm | Probing the Habitable Zones of Planetary Systems with Large Space Telescopes. Christopher Walker (FreeFall Aerospace; University of Arizona)                    |
| 4:15 pm | NSS Student Space Settlement Contest Presentation   |
| 4:30 pm | Contour Crafting/Planetary Construction. Dr. Behrokh Khoshnevis (Contour Crafting)  |

**NSS Meeting**

2:00 pm - 3:00 pm

**Boardroom**

Membership Database meeting  
All members are invited to this discussion on NSS efforts to update the Society Database. Participate in a discussion around the needs and functionality of this new system designed to improve the member experience.

**Student spUN Debates**

2:00 pm - 3:30 pm

**Galaxy & Stars** (16th floor)

Debate Round 1. Resolved: Space development contributes to achieving the United Nations Sustainable Development Goals. Four simultaneous debates in Stars rooms and Galaxy.

**Student NextGen Program**

3:30 pm - 5:00 pm

**Commonwealth South**

Astronaut Job Fair

**NSS Meeting**

5:00 pm - 7:00 pm

**Concourse 2**

Mars Special Interest Group (SIG) organizational meeting

**NSS Meeting**

5:00 pm - 6:00 pm

**Boardroom**

NSS Advisors meeting

**NSS Meeting**

6:00 pm - 7:00 pm

**Boardroom**

NSS International Committee meeting

As of 6-5-19

**Silent Auction**

6:00 pm - 6:50 pm

**Showcase Event**

5:00 pm - 6:00 pm

**Cocktail Reception**

6:00 pm - 7:00 pm

**Governors' Dinner**

7:00 pm - 9:30 pm

**Movie Screening**

7:30 pm - 9:30 pm

**NSS Meeting**

10:00 pm - Till

**Friday, June 7**

**Assembly Foyer**

The Scott Maclaren Memorial Apollo Items Auction to Benefit NSS Education programs

**Cavalier**

Georgian Ensemble "Chakrulo" sponsored by the Alexander Kartveli Association.

**Prefunction Area**

Open reception includes a cash bar and appetizers.

**Commonwealth South**

Keynote Speaker: Salvatore T. "Tory" Bruno, President & CEO, United Launch Alliance

Presenting of NSS Wernher von Braun Award to Tory Bruno

Presenting of NSS Space Pioneer Award to Miles O'Brien, Aerospace Journalist

Presenting of NSS Chris Pancratz Activist of the Year Award

Presenting of NSS Excellence Awards

MC: Art Dula, Heinlein Prize Trust and National Space Society Board of Governors

Dinner Sponsored by the Heinlein Prize Trust

**Galaxy** (16th floor)

ISDC Film Festival - "Apollo: Missions to the Moon"

Directed by Tom Jennings. Super Special Pre-Release Screening.

tbd