American Institute of Aeronautics and Astronautics
Space Architecture Technical Committee
Meeting Minutes
2013/09/10-12
AIAA Space 2013 Conference & Exposition
San Diego, California, USA

1.   Roll Call

Total members: 37
Participating members: 6

The SATC roster appears below. Membership categories are: Associate (A), Regular (R), International (I). Members participating in this conference are indicated by ✓ .

Anton Andonov (I)	Ogbonnaya Iheukwumere (I)
Payam Bahrami (I)	Barbara Imhof (I)
Olga Bannova (R)	Rohan Jaguste (I)
Donald Barker (R)	Päivi Jukola (I)
Annette Barnes (R)	Mark Kerr (R)
Lynn Baroff (R)	✓ Shahzad Khaligh (R), Treasurer
Maijinn Chen (R)	François Lévy (R)
✓ Marc Cohen (R)	Renée Matossian (R)
✓ Silvano Colombano (R)	Susmita Mohanty (I)
Ondřej Doule (I)	David Nixon (R)
Donna Duerk (R)	Regina Peldszus (I)
Maria João Durão (I)	Georgi Petrov (R)
Michael Fox (R)	✓ Raúl Pólit Casillas (I)
Shai Gerner (I)	Tomáš Rousek (I)
John Gulliford (R)	Brent Sherwood (R)
Ted Hall (R), Chair	Jacky Silva (R)
Patrick Harkness (I)	✓ Frederick Slane (R)
Sandra Häuplik-Meusburger (I)	David Wong (I)
✓ Scott Howe (R)	

2.   Technical Sessions (2013/09/10-12)

As in recent years, the SATC collaborated with the Space Automation and Robotics TC (SARTC) to organize the technical track on Robotic Technologies and Space Architecture (RSA). The track comprised 6 sessions, of which 3 were cross-listed among several tracks:

- RSA-01: Modular Design and Surface Construction
- OPS-04 / RSA-02 / SR-02: Space Resources Surface Operations
- COL-04 / EXPL-05 / RSA-03 / SR-03: Using Regolith for Construction
- RSA-04: Space Robotics Inspection and Servicing
- EXPL-09 / RSA-05 / SR-05: Asteroid, Moon, or Mars ISRU Equipment
- RSA-06: Habitat Support Systems

The SATC chaired 2 sessions. Among these, there were a total of 12 accepted abstracts and 4 withdrawals, leaving 8 papers.

- **RSA-01: Modular Design and Surface Construction**
  Tuesday, 2013/09/10, 15:30-17:30
  Chair: Shahzad Khaligh

  Burr, Jason R.; Carter, Dylan P.; Cummings, Jesse; Cunningham, Michael; Foust, Rebecca; O'Hare, Christopher L.; Wingate, Scott (2013 September). Flexible Lunar/Extraterrestrial Exploration Transportation System (FLEETS) (AIAA 2013-5364).

  Rios-Georgio, Gabriella I. (2013 September). A System Study for Evolving Propulsion Systems on Piloted and Cargo Mars Missions (AIAA 2013-5365).

  Weisbin, Chuck; Lincoln, William; Papanastassiou, Dimitri; Coleman, Max (2013 September). Mars Biosignature-Detection Capabilities: A Method for Objective Comparison of In Situ Measurements and Sample Return (AIAA 2013-5366).

  Zandonadi, Durval; Kakizaki, Mauro; Goncalves, Jadir N. (2013 September). Welding and Testing of Propulsion Subsystem of PMM-Based Satellite Qualification Model (AIAA 2013-5367).

- **RSA-06: Habitat Support Systems**
  Thursday, 2013/09/12, 15:30-17:30
  Chair: Shahzad Khaligh

  Pólit-Casillas, Raúl; Howe, A. Scott (2013 September). Virtual Construction of Space Habitats: Connecting Building Information Models (BIM) and SysML (AIAA 2013-5508).

  Hoyt, Robert P. (2013 September). SpiderFab: An Architecture for Self-Fabricating Space Systems (AIAA 2013-5509).

  Rea, Rochelle; Beck, Christopher; Rovekamp, Roger; Neuhaus, Peter; Diftler, Myron (2013 September). X1: A Robotic Exoskeleton for In-Space Countermeasures and Dynamometry (AIAA 2013-5510).

  Chang, Huai-Chien; Wang, Chun-Chieh (2013 September). Designing a Zero Gravity Toilet for Disabled Space Tourists (AIAA 2013-5511).

In addition, 2 SATC members (Marc Cohen and Scott Howe) co-authored 4 papers in other sessions:

> Zacny, Kris; Chu, Phil; Craft, Jack; Cohen, Marc M.; James, Warren W.; Hilscher, Brent (2013 September). Asteroid Mining (AIAA 2013-5304).

> Griffin, Brand Norman; Smitherman, David V.; Howe, A. Scott (2013 September). Internal Layout for a Cis-Lunar Habitat (AIAA 2013-5433).

> Howe, A. Scott; Kennedy, Kriss J.; Gill, Tracy R.; Smith, Russell W.; George, Patrick (2013 September). NASA Habitat Demonstration Unit (HDU) Deep Space Habitat Analog (AIAA 2013-5436).

> Howe, A. Scott; Wilcox, Brian H.; McQuin, Christopher; Townsend, Julie; Rieber, Richard R.; Barmatz, Martin; Leichty, John (2013 September). Faxing Structures to the Moon: Freeform Additive Construction System (FACS) (AIAA 2013-5437).

Other papers in the RSA track that are possibly of interest to SATC members:

> Chang, Huai-Chien; Wang, Chun-Chieh (2013 September). Near Earth Asteroid (NEA) as an Alternative Manned Interplanetary Spaceship (AIAA 2013-5380).

> Strobl, William C.; Mildice, James; Hora, Richard P. (2013 September). Human Inter-Space Vehicles and Astronaut Survivability (AIAA 2013-5381).

> Steele, Paul (2013 September). Operations Toolset for Future Integrated Human, Robot and Automated Missions (AIAA 2013-5408).

> Khoshnevis, Behrokh; Thangavelu, Madhu; Yuan, Xiao; Zhang, Jing (2013 September). Advances in Contour Crafting Technology for Extraterrestrial Settlement Infrastructure Buildup (AIAA 2013-5438).

> Snyder, Michael; Dunn, Jason; Gonzalez, Eddie (2013 September). The Effects of Microgravity on Extrusion Based Additive Manufacturing (AIAA 2013-5439).

> Qiao, Yu (2013 September). Developing Structural Materials Using Lunar Soils (AIAA 2013-5440).

3. Best Paper in Space Architecture for 2012 – Certificate of Merit Presentation (2013/09/12)

The Certificate of Merit for the Best Paper in Space Architecture for 2012 was officially presented to Marc Cohen on Thursday morning following the networking breakfast. He presented the paper almost exactly one year earlier at AIAA Space 2012. An SATC review committee selected it as the best of the year in December:

Cohen, Marc M. (2012 September). <u>Mockups 101: Code and Standard Research for Space Habitat Analogues</u> (AIAA 2012-5153). AIAA Space 2012 Conference & Exposition, Pasadena, California, USA, 11-13 September 2012. Reston, Virginia, USA: American Institute of Aeronautics and Astronautics.