

2018 Small Satellite Conference Schedule

Saturday, August 4, 2018

7:15-7:45 AM	A/V Meeting for Saturday Presenters
7:30 AM	Registration/Check-In
7:15-9:00 AM	Breakfast
8:30 AM	Workshop Welcome
8:45-10:15 AM	Session I: Advanced Concepts I
10:15-10:45 AM	Break
10:45-12:00 PM	Session II: Delivering Mission Success
12:00-1:15 PM	Workshop Luncheon
1:15-2:45 PM	Session III: Education I
2:45-3:15 PM	Break
3:15-4:30 PM	Session IV: Instruments/Science I
4:30-6:00 PM	Session V: Radiation
6:00 PM	End of Day

Sunday, August 5, 2018

7:15-7:45 AM	A/V Meeting for Sunday Presenters
7:30 AM	Registration/Check-In
7:15-9:00 AM	Breakfast
8:30-10:00 AM	Session VI: Instruments/Science II
10:00-10:30 AM	Break
10:30-12:00 PM	Session VII: Advanced Concepts II
12:00-1:15 PM	Workshop Luncheon
1:15-2:45 PM	Session VIII: Education II
2:45-3:15 PM	Break
3:15-4:30 PM	Session IX: Upcoming Missions
4:30-6:00 PM	Session X: A Look Back: Lessons Learned
6:00 PM	End of Day

Monday, August 6, 2018

8:00-12:30 PM	Side Meetings
7:30 AM	Registration/Check-In
11:00-12:30 PM	Exhibit Opening Reception Luncheon
11:00 AM	Exhibits Open
12:00-12:30 PM	A/V Meeting for Monday presenters
1:00 PM	Conference Welcome
1:15-2:15 PM	Keynote Address – Dr. Thomas Zurbuchen
2:15-3:45 PM	Technical Session I: Year in Review
3:45-4:30 PM	Break - Exhibit Viewing in TSC & Fieldhouse; Ice Cream Social, Jeopardy Game, Prize Drawing in Fieldhouse
4:30-6:00 PM	Technical Session II: Next on the Pad

5:00 PM Exhibits Close
6:00 PM End of Day
6:30-10:00 PM Opening Social at the Space Dynamics Laboratory

Tuesday, August 7, 2018

7:15-7:45 AM A/V Meeting for Tuesday presenters
7:15-9:00 AM Breakfast
7:30 AM Registration/Check-In
8:00-9:45 AM **Technical Session III: Advanced Technologies I**
9:00 AM Exhibits Open
9:45-10:30 AM Break - Exhibit Viewing in TSC & Fieldhouse; Poster Viewing, SmallSat Swifties in the Fieldhouse

10:30-12:15 PM **Technical Session IV: Delivering Mission Success**
12:15-1:15 PM Munch & Mingle Luncheon
1:15-1:45 PM Exhibit Viewing
1:45-2:30 PM **Technical Session V: Science/Mission Payloads I**
3:30-4:15 PM Break - Exhibit Viewing in TSC & Fieldhouse; Poster Viewing, NASA Short Talks, Prize Drawing in Fieldhouse

4:15-5:15 PM **Special Session: Science and Future Directions**
5:15-6:00 PM **Technical Session VI: Year in Review II**
5:00 PM Exhibits Close
6:00 PM End of Day
6:30-10:00 Industry Sponsored Events

Wednesday, August 8, 2018

7:15-7:45 AM A/V Meeting for Wednesday presenters
7:15-9:00 AM Breakfast
7:30 AM Registration/Check-In
8:00-9:45 AM **Technical Session VII: Science/Mission Payloads II**
9:00 AM Exhibits Open
9:45-10:30 AM Break - Exhibit Viewing in TSC & Fieldhouse; Poster Viewing, SmallSat Swifties in the Fieldhouse

10:30-12:15 PM **Technical Session VIII: Frank J. Redd Student Competition**
12:15-1:15 PM Munch & Mingle Luncheon
1:15-1:45 PM Exhibit Viewing
1:45-3:00 PM **Technical Session IX: Space Access**
3:00-3:30 PM **Student Competition Awards**
3:30-4:15 PM Ice Cream Social/Exhibit Viewing in TSC & Fieldhouse; Poster Viewing, NASA short talks, Prize Drawing in the Fieldhouse

4:15-6:00 PM **Technical Session X: Ground Systems**
5:00 PM Exhibits Close
6:00 PM End of Day

6:30-10:00 Industry Sponsored Events

Thursday, August 9, 2018

7:15-7:45 AM	A/V Meeting for Thursday presenters
7:15-9:00 AM	Breakfast
7:30 AM	Registration/Check-In
8:00-9:45 AM	Technical Session XI: Assuring the Space Ecosystem
9:00 AM	Exhibits Open
9:45-10:30 AM	Mission of the Year Award, Break- Exhibit Viewing in TSC & Fieldhouse
10:30-12:15 PM	Technical Session XII: Advanced Technologies II
12:00 PM	Exhibits Close
12:15 PM	Closing Remarks
12:15-1:00 PM	Munch & Mingle Luncheon
1:30 PM	Conference Concludes

Pre-Conference Workshop

Saturday Sessions:

Session I: Advanced Concepts I

Saturday, August 4, 2018

Session Chair: John Bellardo, California Polytechnic State University

8:45 AM

Pointing, Acquisition, and Tracking for Small Satellite Laser Communications

Peter Grenfell, Alexa Aguilar, Kerri Cahoy - Massachusetts Institute of Technology; Michael Long – Lincoln Laboratory

9:00 AM

High Data Rate Inter-Satellite Omnidirectional Optical Communicator

Jose Velazco – NASA Jet Propulsion Laboratory; Ozdal Boyraz - University of California, Irvine

9:15 AM

NASA Centers and Universities Collaborate in Annual Smallsat Technology Partnerships

Jim Cockrell, Elwood Agasid, Roger Hunter - NASA Ames Research Center; Christopher Baker - NASA Headquarters

9:30 AM

Development and Evaluation of the 1/30U Small-Sized 3 Axis Attitude Control Module, and its Application for the JEM Internal Ball Camera Robot

Shuhei Shigeto, Shinji Mitani, Nobutaka Tanishima, Masayuki Goto – Japan Aerospace Exploration Agency

9:45 AM

Variable Shape Attitude Control Demonstration with Microsat "Hibari"

Kenichi Sasaki, Yuhei Kikuya, Sho Koizumi, Yuto Masuda, Yusuke Shintani, Tsubasa Tsunemitsu, Takashi Furuya, Yohei Iwasaki - Tokyo Institute of Technology

Alternates:

SmallSat High Performance Computing with DM & the DM7 Flight Experiment

Aaron Zucherman, John Samson, Benjamin Malphrus, Kenneth Carroll, Christian Huertas, Christopher Coleman, Michael Snyder - Morehead State University

Single GPS Antenna Attitude Vector Pair - NEOSat Recovery

Stuart Eagleson - Magellan Aerospace; Viqar Abbasi, Natasha Jackson - Canadian Space Agency; Robert Scott, Stefan Thorsteinson - Defense Research and Development Canada

Session II: Delivering Mission Success

Saturday, August 4, 2018

Session Chair: Kyle Kemble, Air Force Research Laboratory

10:45 AM

Frequency and Legal Regulations Surrounding a Ground Station Network

Naomi Kurahara, Satoshi Ezawa, Hazel Dami Naylor - Infostellar

11:00 AM

Reliable, Fast, and Flexible: A Thermal Modeling Approach for Small Satellites

Max Gulde, Javier Mancías, Martin Schimmerohn, Frank Schäfer - Fraunhofer Institute for High-Speed Dynamics

11:15 AM

ADCS at Scale: Calibrating and Monitoring the Dove Constellation

Lawrence Leung, Vincent Beukelaers, Simone Chesi, Hyosang Yoon, Daniel Walker, Joshua Egbert - Planet Labs Inc

11:30 AM

Statistical Analysis of CubeSat Mission Failure

Abdulaziz Alanazi, Jeremy Straub - North Dakota State University

Alternates:

Design Tradeoffs and Challenges of Omnidirectional Optical Antenna for High Speed, Long Range Inter CubeSat Data Communication

Imam Uz Zaman, Rasul Torun - University of California, Irvine; Andrew Janzen, Michael Peng, Jose Velazco – NASA Jet Propulsion Laboratory; Ozdal Boyraz - University of California, Irvine

Characterizing COTS IMU Performance in High Vacuum

Katherine Fowee, Dhruv Mather, Noah Franks, Alina Alexeenko - Purdue University

Defining a New Mission Assurance Philosophy for Small Satellites

Lee Jasper - Space Dynamics Laboratory; Lauren Hunt, David Voss, Charlene Jacka - Air Force Research Laboratory

Session III: Educational Programs I

Saturday, August 4, 2018

Session Chair: David Wilcox, NASA Wallops Flight Facility

1:15 PM

An Educational Platform for Small Satellite Development with Proximity Operation Capabilities

Ivan Bertaska, John Rakoczy - NASA Marshall Space Flight Center

1:30 PM

GW-Sat: GW's First Satellite with Propulsive 3-Axis-Stabilization

Jonathan Kolbeck, Michael Keidar - The George Washington University

1:45 PM

MakerSat-0: 3D-Printed Polymer Degradation First Data from Orbit

Connor Nogales, Braden Grim, Mitch Kamstra, Benjamin Campbell, Aaron Ewing, Robert Hance, Joshua Griffin, Stephen Parke - Northwest Nazarene University

2:00 PM

BIRDS-2: Multi-Nation Cubesat Constellation Project for Learning and Capacity Building

Kiran Pradhan, Faure Pauline, George Maeda, Sangkyun Kim, Hirokazu Masui, Mengu Cho - Kyushu Institute of Technology

2:15 PM

Advancing On-Orbit Assembly with ISAR

Dakota Wenberg, Alex Hardy, Thomas Lai, Christopher Wellins, Jin Kang - U.S. Naval Academy

2:30 PM

Small Satellites Contribute to the United Nations Sustainable Development Goals

Danielle Wood - Massachusetts Institute of Technology

Alternates:

Session IV: Instruments/Science I

Saturday August 4, 2018

Session Chair: Michael Socha

3:15 PM

Adapting Low-Cost Multispectral Drone Technology to CubeSats for Environmental Monitoring and Management: Harmful Algal Bloom Satellite-1 (HABSat-1)

Richard Beck, Hongxing Liu, Richard Johansen, Min Xu, Catharine McGhan, George Black, Ou Ma – University of Cincinnati; Molly Reif - US Army Corps of Engineers JABLTGX

3:30 PM

The Star-Planet Activity Research CubeSat (SPARCS): A Mission to Understand the Impact of Stars in Exoplanets

David Ardila - NASA Jet Propulsion Laboratory; Evgenya Shkolnik, Paul Scowen - Arizona State University; April Jewell, Shouleh Nikzad – NASA Jet Propulsion Laboratory; Judd Bowman, Michael Fitzgerald, Daniel Jacobs – Arizona State University

3:45 PM

Regional Ionosphere Mapping and Autonomous Uplink (RIMAU) Satellite Constellation for Space Weather Monitoring and Nowcasting over Singapore

Amal Chandran, Tzu-Wei Fang, Li Bing-Xuan, Han Bo - Nanyang Technological University; Loren Chang, Chi-Kuang Chao - National Central University, Taiwan

4:00 PM

INSPIRESat-1: An Ionosphere Exploring Microsat

William Evonosky, Amal Chandran, Spencer Boyajian – University of Colorado, Boulder; Priyadarshan Hari, Ankit Verma, Niwhashini Nandagopan, Kaustubh Kandi - Indian Institute of Space Science and Technology; Loren Chang - National Central University, Taiwan

Alternates:

Attitude Control Optimization of a Virtual Telescope for X-ray Observations

Reza Pirayesh, Asal Naseri - University of New Mexico; Steven Stochaj - New Mexico State University; Neerav Shah - NASA Goddard Space Flight Center; John Krizmanic - University of Maryland, Baltimore

The Scintillation Prediction Observations Research Task (SPORT): A Spacecraft Development for an International Mission

Luis Loures, Lidia Sato, Mangalathayil Abdu, Valdemir Carrara, Pedro Albuquerque, Hélio Santos, Linélcio Santos, Emerson Oliveira - Instituto Tecnológico de Aeronautica

IDEASSat: The Ionosphere Dynamics Explorer and Attitude Subsystem Satellite

Loren Chang, Chi-Kuang Chao, Cheng-Ling Kuo, Jann-Yenq Liu - National Central University, Taiwan; Amal Chandran, Tzu-Wei Fang - Nanyang Technological University; Priyadarshnam Hari, Kaustubh Kandi - Indian Institute of Space Science and Technology

Session V: Radiation

Saturday August 4, 2018

Session Chair: Chuck Swenson, Utah State University

4:30 PM

Taking Smallsats to the Next Level - Sensible Radiation Requirements and Qualification That Won't Break the Bank

Michael Campola - NASA Goddard Space Flight Center

4:45 PM

Lessons and Recommendations for Board-Level Testing with Protons

Steven Guertin - NASA Jet Propulsion Laboratory

5:00 PM

A New Approach to Radiation Tolerance for High-Orbit and Interplanetary SmallSat Missions

Grant Bonin - Deep Space Industries; Luke Stras - Canadensys Aerospace Corporation

5:15 PM

Model-Based Assurance for Satellites with Commercial Parts in Radiation Environments

Arthur Witulski, Brian Sierawski, Rebekah Austin, Gabor Karsai, Nag Mahadevan, Robert Reed, Ron Schrimpf - Vanderbilt University; Kenneth LaBel - NASA Goddard Space Flight Center

5:30 PM

NASA Electronic Parts and Packaging (NEPP) Program: Resources for SmallSats on EEE Parts

Kenneth LaBel, Jonathan Pellish – NASA Goddard Space Flight Center; Peter Majewicz – NASA Langley Research Center

Sunday Sessions

Session VI: Instruments/Science II

Sunday August 5, 2018

Session Chair: Chad Fish, ASTRA

8:30 AM

MonSTER: The Monitoring Spectroscopic Telescope for Energetic Radiation

Brian Grefenstette, Fiona Harrison, Kristin Madsen, Hiromasa Miyasaka, Sean Pike - California Institute of Technology

8:45 AM

Cubesat Electrostatic Dust Analyzer (CEDA) for Measuring Regolith Dust Transport on Airless Bodies

Xu Wang, Zoltan Sternovsky, Mihaly Horanyi - University of Colorado

9:00 AM

CUAD: Constellation for Upper Atmosphere Dynamics

Larry Gordley, Benjamin Marshall, Dave Fritts - GATS; John Fisher - Brandywine Photonics

9:15 AM

AERO: Auroral Emission Radio Observer

Philip Erickson, Geoffrey Crew, Michael Hecht, Mary Knapp, Frank Lind, Ryan Volz - MIT Haystack Observatory; James LaBelle – Dartmouth College; Frank Robey – Lincoln Laboratory

9:30 AM

Cesium Iodide Thallium-doped Incident Energy Spectrometer (CITIES): A Hard X-Ray Detector for CubeSats

Maxwell Yurs, Jenna Burgett - University of Minnesota

9:45 AM

Global Quantum Key Distribution using CubeSat-Based Photon Sources

David Mitlyng, Robert Bedington - S-fifteen Space Systems

Session VII: Advanced Concepts II

Sunday August 5, 2018

Hannah Goldberg, GomSpace

10:30 AM

Development of Attitude Sensor using Deep Learning

Sho Koizumi, Yuhei Kikuya, Kenichi Sasaki, Yuto Masuda, Yohei Iwasaki, Kei Watanabe, Yoichi Yatsu, Saburo Matsunaga - Tokyo Institute of Technology

10:45 AM

Development of a Monolithic Ceramic Electrostatic Ion Thruster for Interplanetary SmallSat Missions

Morgan Roddy - University of Arkansas; Kurt Polzin – NASA George C. Marshall Space Flight Center; Adam Huang – University of Arkansas

11:00 AM

Machine-Learning Space Applications on SmallSat Platforms with TensorFlow

Jacob Manning, David Langerman, Barath Ramesh, Evan Gretok, Christopher Wilson, Alan George - National Science Foundation; James MacKinnon, Gary Crum - NASA Goddard Space Flight Center

11:15 AM

Non-Deployable Miniaturized Quadslot Antenna for Cubesats

Samantha Romano, Martin Kaliski, Jordi Puig-Suari, John Bellardo - Cal Poly CubeSat

11:30 AM

Thermal Power Handling and Testing of RF PCBs for Deep Space Communication

Varun Joshi, Scott Palo, Chris Harnack, Chinmayi Dhangekar, James Mason - University of Colorado, Boulder

Alternates:

The Active CryoCubeSat Project: Testing and Preliminary Results

Lucas Anderson, Ryan Davidson, Charles Swenson - Utah State University; Arthur Mastropietro, Elham Maghsoudi, Simon Luong, Ian Mckinley, Stefano Cappucci - NASA Jet Propulsion Laboratory

Additive Manufactured Structures for the 12U Nanosatellite ERNST

Martin Schimmerohn, Marius Bierdel, Max Gulde, Darren Sholes, Aron Pfaff, Michael Pielok, Klaus Hoschke, Clemens Horch – Fraunhofer Institute for High-Speed Dynamics

Session VIII: Educational Programs II

Sunday August 5, 2018

Session Chair: Ryan Davidson, Utah State University

1:15 PM

The Virginia Space ThinSat Program: Maiden Voyage and Future Progressions

Dale Nash, Sean Mulligan, Regan Smith, Susannah Miller - Virginia Commercial Space Flight Authority; Robert Twiggs, Matt Craft, Jose Garcia - Twiggs Space Lab; Brenda Dingwall - NASA Goddard Space Flight Center

1:30 PM

Helping Students Reach Space: University Nanosatellite Program Challenges and Lessons Learned

Shivani Patel, Jesse Olson - ATA-Aerospace; Kate Yoshino, Lee Jasper, Jeffrey Ganley, Lauren Hunt – Air Force Research Lab

1:45 PM

Reliving 24 Years in the next 12 Minutes: A Statistical and Personal History of University-Class Satellites

Michael Swartwout - Saint Louis University

2:00 PM

HEPTA-Sat Training Program: International Knowledge Transfer Using Hands-on Type CubeSat Education

Masahiko Yamazaki, Taiga Zengo - Nihon University

2:15 PM

Mission Quality Assurance Virtual Training and Certification Using the NASA Academy of Aerospace Quality

Alice Smith, Jeffrey Smith, Alejandro Teran-Somohano - Auburn University

Alternates:

Report on the First NSF CubeSat Software Research Experience for Undergraduates

Jeremy Straub - North Dakota State University

Space Flight Operations Training Center: A New Approach to Preparing Undergraduates for Careers in Multi Spacecraft Mission Operations

Angela Walters - Capitol Technology University; Marcel Mabson - The Hammers Company, Inc.; Rishabh Maharaja - Capitol Technology University

Session IX: Upcoming Missions

Sunday August 5, 2018

Session Chair: Brent Abbott, AAC Microtec North America Inc.

3:15 PM

HaloSat: A Search for Missing Baryons with a CubeSat

Anna Zajczyk, Philip Kaaret, Donald Kirchner, Daniel LaRocca, William Robison, William Fuelberth, Hannah Gulick, Jesse Haworth - University of Iowa

3:30 PM

Design and Development of AOBA VELOX-IV Nanosatellite for Future Lunar Horizon Glow Mission

Tran Bui, Quang Tran, Jia Lew, Shanmugasundaram Selvadurai, Benjamin Tan, Amy Ling, Lim Yang, Lim Seng - Nanyang Technological University

3:45 PM

MeznSat: A CubeSat for Greenhouse Gases Monitoring and Algal Blooms Prediction

Abdul-Halim Jallad, Zulkifli Aziz, Aisha Allam - American University of Ras Al-Khaimah; Prashanth Marpu, Alexandros Tsoupos – Khalifa University; Abdulla Marar – United Arab Emirates Space Agency

4:00 PM

MarCO: Early Operations of the First CubeSats to Mars

Andrew Klesh, Brian Clement, Cody Colley, John Essmiller, Daniel Forgette, Joel Krajewski, Anne Marinan, Tomas Martin-Mur – NASA Jet Propulsion Laboratory

Alternates:

The ThinSat Program: Flight Opportunities for Education, Research and Industry

Robert Twiggs, Aaron Zucherman, Emily Bujold, Nick Counts, Christopher Colman, Jose Garcia, Andrew Diddle, Polina Zhirkina – Morehead State University

Guatemala's Remote Sensing CubeSat - Tools and Approaches to Increase the Probability of Mission Success

Marvin Martínez, Diego González, Diego Rodríguez, Johan Birnie, José Bagur, Ricardo Paz, Emilio Miranda, Fernanda Solórzano - Universidad del Valle de Guatemala

WEISS-SAT1: A Student Developed Astrobiology Payload for Small Satellite Microgravity Research

Rhonda Lyons; Victoria Cross; Christina Cross; Kevin Simmons; Don Platt - NYRAD Inc

Session X: A Look Back: Lessons Learned

Sunday August 5, 2018

Session Chair: Kerri Cahoy, Massachusetts Institute of Technology

4:30 PM

Analysis of Tumbling Motions by Combining Telemetry Data and Radio Signal

Ming-Xian Huang, Ming-Yang Hong, Jyh-Ching Juang – National Cheng Kung University

4:45 PM

On-Orbit Demonstrations of Robust Autonomous Operations on Cubesat

Toshihiro Obata, Shinichi Nakasuka, Yoshihide Aoyanagi, Takeshi Matsumoto - The University of Tokyo;
Seiko Shirasaka - Keio University

5:00 PM

Initial Results from the TechnoSat In-Orbit Demonstration Mission

Merlin Barschke, Philipp Werner, Karsten Gordon, Marc Lehmann, Walter Frese, Daniel Noak -
Technische Universität Berlin; Ludwig Grunwaldt - German Research Centre for Geosciences (GFZ);
Georg Kirchner - Austrian Academy of Sciences (OeAW)

5:15 PM

ANDESITE: A Student Built Swarm from Concept to Launch and Beyond

Jonathan Parham, Maria Kromis, Phillip Teng, Aleks Zosuls, Brian Walsh, Joshua Semeter - Boston
University

5:30 PM

The CubeSat Radiometer Radio Frequency Interference Technology Validation (CubeRRT) Mission

Christopher Ball, Chi-Chih Chen, Christa McKelvey, Graeme Smith, Mark Andrews, Andrew O'Brien,
Landon Garry, Joel T. Johnson - The Ohio State University

5:45 PM

Lessons Learned from Building the First Chilean Nano-satellite: The SUCHAI Project

Carlos Gonzalez, Camilo Rojas, Alex Becerra, Javier Rojas, Tomas Opazo, Marcos Diaz - University of Chile

SmallSat 2018 Technical Program

Session I: The Year in Review I

Monday August 6, 2018

Session Chair: Tim Lynch, Harris Corporation

2:15 PM

Dellinger: Reliability Lessons Learned from On-Orbit

Larry Kepko, Luis Santos Soto, Chuck Clagett, Behnam Azimi, Dean Chai, Alan Cudmore, James Marshall, John Lucas - NASA Goddard Space Flight Center

2:30 PM

NASA IceCube: CubeSat Demonstration of a Commercial 883-GHz Cloud Radiometer

Jaime Esper, Dong Wu, Brian Abresch, Brooks Flaherty, Chris Purdy, John Hudeck, Juan Rodriguez, Ted Daisey - NASA Goddard Space Flight Center

2:45 PM

Removedebris Mission, From Concept to Orbit

Ben Taylor, Guglielmo Aglietti, Simon Fellowes - Surrey Space Centre; Sean Ainley - Surrey Satellite Technology Ltd; Thierry Salmon – Airbus Safran Launchers; Ingo Retat, Christopher Burgess, Thomas Chabot – Airbus Defense and Space

3:00 PM

ORS-5 System Acquisition Successes and Regrets

Shahnaz Punjani, Heather Bogstie, Jared Grady, Mike Hogan, Eric Moomey, Robert Zaza – Space and Missiles Systems Center; Lisa Berenberg – The Aerospace Corporation

3:15 PM

The NASA Optical Communications and Sensor Demonstration Program: Proximity Operations

Darren Rowen, Brian Hardy, Christopher Coffman, David Hinkley, Richard Welle, Siegfried Janson - The Aerospace Corporation

Alternates:

On-Orbit Results and Lessons Learned from the ASTERIA Space Telescope Mission

Matthew Smith, Amanda Donner; Mary Knapp – Massachusetts Institute of Technology; Christopher Pong - NASA Jet Propulsion Laboratory; Colin Smith, Jason Luu, Peter Di Pasquale, Brian Campuzano - NASA Jet Propulsion Laboratory

NorSat-1: Enabling High Performance and Multipurpose Microsatellite Missions

Payam Mehradnia, Alexander Beattie, Daniel Kekez, Robert Zee - Space Flight Laboratory; Benjamin Walter, Silvio Koller, Daniel Pfiffner, Wolfgang Finsterle - Physikalisch Meteorologisches Observatorium Davos/World Radiation Centre

Demonstration in Space of a Smart Hyperspectral Imager for Nanosatellites

Marco Esposito, Chris van Dijk, Nathan Vercruyssen, Simon Silvio Conticello, Pierluigi Foglia Manzillo, Rick Koeleman - cosine measurement systems; Bavo Delauré, Iskander Benhadj - VITO NV

Session II: Next on the Pad

Monday, August 6, 2018

Session Chair: GP Sandhoo, Naval Research Laboratory

4:30 PM

TARANIS: Myriade Small Satellite for TLE Observation, 8 Instruments Challenge.

Pierre Spizzi - CNES

4:45 PM

CeRES: The Compact Radiation Belt Explorer

Shrikanth Kanekal, Lauren Blum, Eric Christian, Gary Crum, Jeff Dumonthier, Allison Evans, Thomas Flatley, Ashley Greeley- NASA Goddard Space Flight Center

5:00 PM

Validating an Entangled Photon Light Source in Space with the SpooQy-1 CubeSat

Xueliang Bai, Robert Bedington, Karthik Ilangoan, Hong Nguyen, Rakhitha Chandrasekara, Alexander Lohrmann, Aitor Zafra, Tanvirul Islam - National University of Singapore

5:15 PM

SSO-A: The First Large Commercial Dedicated Rideshare Mission

Scott Schoneman, Jeff Roberts, Adam Hadaller, Tony Frego, Kristen Smithson, Eric Lund - Spaceflight Industries

5:30 PM

New Capabilities for All-Weather Microwave Atmospheric Sensing Using CubeSats and Constellations

Bill Blackwell - Massachusetts Institute of Technology

5:45 PM

Making the Invisible Visible: Precision RF-Emitter Geolocation from Space by the HawkEye 360 Pathfinder Mission

Karan Sarda - Space Flight Laboratory; Dan CaJacob - HawkEye 360; Nathan Orr - Deep Space Industries; Robert Zee - Space Flight Laboratory

Session III: Advanced Technologies I

Tuesday, August 7, 2018

Session Chair: Natalie Watson, Millennium Space Systems

8:00 AM

ADEPT, A Mechanically Deployable Re-Entry Vehicle System, Enabling Interplanetary CubeSat and Small Satellite Missions

Alan Cassell, Brandon Smith, Paul Wercinski, Shakib Ghassemieh - NASA Ames Research Center; Kenneth Hibbard - The John Hopkins University Applied Physics Lab; Adam Nelessen, James Cutts - NASA Jet Propulsion Laboratory

8:15 AM

CubeSat Electrothermal Plasma Micro-Thruster: System Development and Integration

Sebastian Gnagy, Alec Henkenm, Amelia Greig - California Polytechnic State University

8:30 AM

Test and Development of Prototype 1000W X-band Microwave Solid-State Power Amplifier for Small SAR Satellite

Hiromi Watanabe - Keio University; Koji Tanaka, Koichi Ijichi, Hirobumi Saito - Japan Aerospace Exploration Agency; Seiko Shirasaka - Keio University

8:45 AM

One-year Lunar Calibration Result of Hodoyoshi-1, Moon as an Ideal Target for Small Satellite Radiometric Calibration

Toru Kouyama, Ryosuke Nakamura - National Institute of Advanced Industrial Science and Technology; Soushi Kato – Remote Sensing Technology Center of Japan; Naoki Miyashita - Axelspace Corporation

9:00 AM

Qube - A CubeSat for Quantum Key Distribution Experiments

Roland Haber, Daniel Garbe, Klaus Schilling – Center for Telematics; Wenjamin Rosenfeld - Ludwig Maximilian University of Munich;

9:15 AM

Four-Magnetometer Board for CubeSat Applications

Leonardo Regoli, Mark Moldwin, Jacob Thoma, Matthew Pellioni, Bret Bronner - University of Michigan

9:30 AM

Monofilament Vaporization Propulsion (MVP) - CubeSat propulsion system with inert polymer propellant

Curtis Woodruff, David Carroll, Darren King, Rodney Burton, Neil Hejmanowski - CU Aerospace

Session IV: Delivering Mission Success

Tuesday, August 7, 2018

Session Chair: Catherine Venturini, The Aerospace Corporation

10:30 AM

The Small Satellite Reliability Initiative: A Public-Private Effort Addressing SmallSat Mission Confidence

Michael Johnson - NASA Goddard Space Flight Center; Patricia Beauchamp, Harald Schone - NASA Jet Propulsion Laboratory; Catherine Venturini – The Aerospace Corporation; Lee Jasper - Space Dynamics Laboratory; Robbie Robertson – Cubic Aerospace; Miquel Moe, Jesse Leitner – NASA Goddard Space Flight Center

10:45 AM

Improving Mission Success of CubeSats

Catherine Venturini, Barbara Braun, David Hinkley - The Aerospace Corporation; Greg Berg - formerly at The Boeing Company

11:00 AM

Building, Deploying and Operating a Cubesat Constellation - Exploring the Less Obvious Reasons Space is Hard

Jeroen Cappaert - Spire Global Inc.

11:15 AM

Achieving Small Satellite "Smart Space"

James Loman, Ken Dodson, Frank Pastizzo, Mark Seay, Angel Vergara – SSL, A Maxar Technologies Company

11:30 AM

Bolstering Mission Success: Lessons Learned for Small Satellite Developers Adhering to Manned Spaceflight Requirements

Henry Martin, Conor Brown, Tristan Prejean, Nathan Daniels - NanoRacks

11:45 AM

Small Spacecraft Systems Virtual Institute's Federated Databases and State of the Art of Small Spacecraft Report

Bruce Yost, Craig Burkhard, David Mayer, Sasha Weston, Julianna Fishman - NASA Ames Research Center

Alternates:

ACES RED Experiment #1 Environmental Test Results for Industrial Grade, Non-traditional, and Other Components Lacking Flight Heritage

Mason Nixon, Christopher Duron - US Army Space and Missile Defense Command Army; Jameson Hilliard, Eric Becnel – Radiance Technologies; Gauge Day, John Gould, Jessica Shrontz, Evan Swinney – Systems Management and Production Center

Optimized Flight Preparation Process for the First Vega Ride-Share Mission

Fabio Caramelli, Francois Battie, Aldo Scaccia, Arturo De Lillis - European Space Agency; Salvatore Corbo – SAB Aerospace; Alexandre Dalloneau – Arianespace; Angelo Fontana – Avio; Augusto Cramarossa - Agenzia Spaziale Italiana

Session V: Science/Mission Payloads I

Tuesday, August 7, 2018

Session Chair: Rainer Sandau, International Academy of Astronautics

1:45 PM

Design Principles for Smallsat SARs

Anthony Freeman – NASA Jet Propulsion Laboratory

2:00 PM

Small Satellite Platform Imaging X-Ray Polarimetry Explorer (IXPE) Mission Concept and Implementation

William Deininger, William Kalinowski, Kyle Bygott, Brian Smith, Colin Peterson, Spencer Antoniak, Jennifer Erickson, Sandra Johnson - Ball Aerospace

2:15 PM (note this one and 2:45 is swapped)

Challenges and Solutions for Lunar Ice Cube BIRCHES and Other First Generation Cubesat Lunar Orbital Science Payloads

Pamela Clark - NASA Jet Propulsion Laboratory; Benjamin Malphrus, Kevin Brown - Morehead State University; Cliff Brambora, Dave Folta, William Farrell, Robert MacDowall, Terry Hurford – NASA Goddard Space Flight Center

2:30 PM

A Highly Miniaturized Satellite Payload Based on a Spatial Heterodyne Spectrometer for the Detection of Faint Emissions in the Atmosphere

Martin Kaufmann, Michael Deiml, Jilin Liu, Qiuyu Chen, Oliver Wroblowski, Martin Riese - Research Centre Jülich; Friedhelm Olschewski, Ralf Koppmann - University of Wuppertal

2:45 PM

CubeX: A Compact X-ray Telescope Enables Both X-ray Fluorescence Imaging Spectroscopy and Pulsar Timing Based Navigation

Jan Stupl, Monica Ebert, David Mauro – Stinger Ghaffarian Technologies; Jaesub Hong - Harvard University; Suzanne Romaine, Almus Kenter, Janet Evans, Ralph Kraft - Smithsonian Astrophysical Observatory

3:00 PM

The Aeolus Mission Concept, an Innovative Mission to Study the Winds and Climate of Mars

David Mauro - Stinger Ghaffarian Technologies Inc.; Anthony Colaprete - NASA Ames Research Center; Amanda Cook, Timothy Snyder, Kellen Bonner, Daniel Larrabee, Andres Dono-Perez, Ali Kashani – Millennium Engineering and Integration

3:15 PM

Microsats and Moby Dick: Microsatellite Support to Whale Science and Conservation

Matt Bille, Rachel Dendiu, Kirk Borne, Laurie Baker, Steve Brune, Ian Byrnes, Chris Round – Booz Allen Hamilton

Special Session: Science and Future Directions

Tuesday, August 7, 2018

Session Chair: Aaron Rogers, SSL

4:15 PM

Scalable Mission Assurance and a Construct for Increasing Mission Tempo

David Voss – Air Force Research Laboratory

4:35 PM

Background of Environmental Testing Standard "ISO-19683"

Hirokazu Masui – Kyushu Institute of Technology

4:55 PM

Disrupting the Space Enterprise

Fred Kennedy – Defense Advanced Research Projects Agency

Session VI: The Year in Review II

Tuesday, August 7, 2018

Session Chair: John Hanson, CrossTrac Engineering

5:15 PM

Advancing Technology for NASA Science with Small Spacecraft

Michael Seablom, Florence Tan, Charles Norton, and Daniel Moses - NASA Headquarters; Lawrence Kepko - NASA Goddard Space Flight Center

5:30 PM

Kestrel Eye Block II

Chip Hardy – US Army Space and Missile Defense Command; Kenneth Bocam, Kenneth Hyatt, Stephen Kalasky, Dominick Risaliti, Krystal Arroyo-Flores, Fred Eckert, Gregory Gallant – Adcole Maryland Aerospace

5:45 PM

The ISARA Mission - Flight Demonstration of a High Gain Ka-Band Antenna for 100Mbps Telecom

Richard Hodges, Dorothy Lewis, Matthew Radway, Armen Toorian, Fernando Aguirre, Daniel Hoppe, Biren Shah, Andrew Gray - NASA Jet Propulsion Laboratory

Session VII: Science/Mission Payloads II

Wednesday, August 8, 2018

Session Chair: NASA Marshall Space Flight Center

8:00 AM

Engineering-Model Results of X-Band Synthetic Aperture Radar for Small Satellite and its Application to Constellation Mission

Hirobumi Saito, Prilando Akbar, Koji Tanaka, Koichi Ijichi, Makoto Mita - Japan Aerospace Exploration Agency; Budhaditya Pyne, Tomoki Kaneko, Toshihiro Obata - The University of Tokyo

8:15 AM

SmallSat Solar Axion X-ray Imager (SSAXI)

Jaesub Hong - Harvard University; Suzanne Romaine, Christopher Moore, Katharine Reeves, Almus Kenter - Smithsonian Astrophysical Observatory; Brian Ramsey, Kiranmayee Kilrau – NASA Marshall Space Flight Center; Kerstin Perez – Massachusetts Institute of Technology

8:30 AM

SIGINT: The Mission CubeSats are Made For

Marcin Brodecki, Zeger de Groot - Innovative Solutions in Space

8:45 AM

GOMX-4 - The Twin European Mission for IOD Purposes

Laura Léon, Per Koch – GomSpace; Roger Walker – European Space Agency

9:00 AM

Flight Model Design and Development Status of the Earth - Moon Lagrange Point Exploration CubeSat EQUULEUS Onboard SLS EM-1

Ryu Funase, Satoshi Ikari, Yosuke Kawabata, Shintaro Nakajima, Shunichiro Nomura, Kota Kakihara, Ryohei Takahashi, Kanta Yanagida - The University of Tokyo

9:15 AM

Laser Crosslink Atmospheric Sounder to Investigate the Effects of Deep Convection on Ozone

Cadence Payne, Kerri Cahoy, Daniel Cziczo - Massachusetts Institute of Technology; John Conklin - University of Florida; Michael Hart - University of Arizona; Gottfried Kirchengaast - University of Graz; - Ing Nicolas Fraunhofer - Institute for Telecommunications, Heinrich Hertz Institute

9:30 AM

Starling1: Swarm Technology Demonstration

Hugo Sanchez, Dawn McIntosh, Howard Cannon, Craig Pires - NASA Ames Research Center; Josh Sullivan, Simone D'Amico – Stanford University; Brendan O'Connor – Emergent Space Technologies

Session VIII: Student Competition

Wednesday, August 8, 2018

Session Chair: Stan Kennedy, Oakman Aerospace

10:45 AM

Extending Target Tracking Capabilities through Trajectory and Momentum Setpoint Optimization

Robert Magner - University of Toronto

11:00 AM

Non-coherent LED Arrays as Ground Beacons for Small Satellite Optical Communications Systems

Christian Haughwout - Massachusetts Institute of Technology

11:15 AM

Improved Model for Low Cost Sun Sensor Attitude Filtering

Nicholas DiGregorio - University at Buffalo

11:30 AM

Attitude Dynamics Modeling of Nanosatellites with Flexible Deployable Structures

Mandar Phadnis - University of Colorado, Boulder

11:45 AM

Payload Configuration, Integration and Testing of the Deformable Mirror Demonstration Mission (DeMi) CubeSat

Jennifer Gubner - Massachusetts Institute of Technology

12:00 PM

Guidance, Navigation, and Control for Commercial and Scientific Applications of Formation Flying

Nathan Cole, Starla Talbot - University of Toronto

Session IX: Space Access

Wednesday, August 8, 2018

Session Chair: Carrie O'Quinn, The Aerospace Corporation

1:45 PM

Small Launch Vehicles - A 2018 State of the Industry Survey

Warren Frick, Carlos Niederstrasser – Northrup Grumman Corporation

2:00 PM

NASA's Space Launch System: Opportunities for Small Satellites to Deep Space Destinations

Kimberly Robinson, Andrew Schorr, David Smith - NASA Marshall Space Flight Center

2:15 PM

SS-520 Nano Satellite Launcher and its Flight Result

Yoshifumi Inatani - Japan Aerospace Exploration Agency; Hiroto Habu – IHI Aerospace

2:30 PM

Update on Improving Launch Vibration Environments for CubeSats

David Pignatelli, Ryan Nugent, Jordi Puig-Suari - California Polytechnic State University; Justin Carnahan - Tyvak Nano-Satellite Systems, Inc.

Alternates:

Setting the Standard: Recommendations on "Launch Unit" Standard SmallSat Sizes between CubeSats and ESPA-Class

Carrie O'Quinn, Barbara Braun, Allison Taylor, Danielle Piskorz - The Aerospace Corporation; Christopher Loghry – Moog; Jeffrey Kwong - VOX Space

Internally Isolated 12U Rail CubeSat Dispenser with Analyzable Boundary Conditions

Justin Carnahan, Austin Kruggel, David Callen - Tyvak Nano-Satellite Systems

Session X: Ground Systems

Wednesday, August 8, 2018

Session Chair: Bryan Klofas, Planet

4:15 PM

A Dynamic Open Source Long Term Archiving and Trending Solution for Small Satellites

Ryan Melton, Jason Thomas - Ball Aerospace and Technologies Corporation

4:30 PM

Overview of the Satellite Networked Open Ground Stations (SatNOGS) Project

Dan White - Valparaiso University; Corey Shields, Pierros Papadeas, Agisilaos Zisimatos, Manolis Surligas, Matthaios Papamatthaiou, Dimitrios Papadeas, Eleytherios Kosmas – Libre Space Foundation

4:45 PM

Cost Effective, Flexible Ground Architecture Using Software Defined Radio and GNU Radio

Thomas Summers, Jackson Schmandt, Eric Cheung, Chad Gentry, Yunghsin Chen - Naval Research Laboratory

5:00 PM

Message Scheduling Optimization with Energy Constraints and Uncertain Demands in a Store-and-Forward Nanosatellite Communications Architecture

Michelle Song – University of Washington; Cherry Wakayama - Space and Naval Warfare Systems Center Pacific; Zelda Zabinsky - University of Washington

5:15 PM

Determination of Earth Station Antenna G/T Using the Sun or the Moon as an RF Source

Michael Morgan - Orbital Systems, Ltd.

5:30 PM

Investigation of CSAC Driven One-Way Ranging Performance for CubeSat Navigation

Margaret Rybak, Penina Axelrad - University of Colorado, Boulder; Jill Suebert – NASA Jet Propulsion Laboratory

5:45 PM

A Novel IP-Centric Approach to LEO Communications

Brian Chandler - Viasat, Inc.

Session XI: Assuring the Space Ecosystem I

Thursday, August 9, 2018

Session Chair: Owen Brown, Scientific Systems

8:00 AM

ELROI: A License Plate for Satellites That Anyone Can Read

Rebecca Holmes, Charles Weaver, David Palmer - Los Alamos National Laboratory

8:15 AM

Spacecraft Anomaly Attribution Tradecraft Must Evolve

Darren McKnight - Integrity Applications, Inc.

8:30 AM

The Growing LEO/GEO Interference Challenge

Bob Potter - Kratos

8:45 AM

Flight Results of the InflateSail Spacecraft and Future Applications of DragSails

Ben Taylor, Craig Underwood - Surrey Space Centre; Andrew Viquerat - University of Surrey; Mark Schenk - University of Bristol; Simon Fellowes - Surrey Space Centre; Chiara Massimiani - Surrey Satellite Technology Ltd.; Richard Duke, Brian Stewart - Surrey Space Centre

9:00 AM

Evaluating the Risk Posed by Propulsive Small Satellites with Unencrypted Communications Channels to High-Value Orbital Regimes

Andrew Kurzrok - Yale University; Manuel Diaz Ramos – University of Colorado, Boulder; Flora Mechtel - Stanford University

9:15 AM

Flying in the Dark

John Paffett - Applied Space Solutions Limited

Session XII: Advanced Technologies II

Thursday, August 9, 2018

Session Chair: Joe Cardin, VACCO Technologies

10:30 AM

Dual Circularly Polarization X band 2Gbps Downlink Communication System of Earth Observation Satellite

Tomoki Kaneko - The University of Tokyo; Hirobumi Saito, Makoto Mita - Japan Aerospace Exploration Agency; Yasuhiro Ohikata - Mebius Corporation

10:45 AM

Radiation-Tolerant, GaN-based Point of Load Converters for Small Spacecraft Missions

Thomas Cook, Nicholas Franconi, Bradley Shea, Christopher Wilson, Brandon Grainger, Alan George – National Science Foundation; Ansel Barchowsky - NASA Jet Propulsion Laboratory

11:00 AM

Utilizing Commercial DSLR for High Resolution Earth Observation Satellite

Nobutada Sako - Canon Electronics Inc.

11:15 AM

F Prime: An Open-Source Framework for Small-Scale Flight Software Systems

Robert Bocchino, Timothy Canham, Garth Watney, Leonard Reder, Jeffrey Levison - NASA Jet Propulsion Laboratory

11:30 AM

Integration and Testing of the Nanosatellite Optical Downlink Experiment

Cadence Payne, Alexa Aguilar, Derek Barnes, Rodrigo Diez, Joseph Kusters, Peter Grenfell, Raichelle Aniceto, Chloe Sackier - Massachusetts Institute of Technology

11:45 AM

Planning for End-Of-Life Satellite Disposal; The Story of a High Strain Composite Tip-Rolled De-Orbit Sail

Bruce Davis, Andrew Tomchek, Dana Turse, Ryan VanHalle, Kamron Medina, Will Francis, Chris Pearson - Rocco

12:00 PM

Design of Reaction Wheel Drive Based on Gallium Nitride MOSFETs

Abdallah Alansaari, Alexandros Tsoupos, Prashanth Marpu - Khalifa University