Interdisciplinary Paper Session I - Monday, August 1

1:30pm – 4:30pm
Room 117
Session Chairs: Timothy Risch (NASA-AFRC) & Eric Lira (NASA-KSC)

1:30 PM	TFAWS2016-I-10	"Thermal Design, Tvac Testing, and Lessons Learned for Critical GSE of ATLAS and the ICESat-2 Mission" *Bradshaw, Heather*
2:00 PM	TFAWS2016-I-12	"Computational Tools for Modeling Chemical Degradation in Extreme Environments" *Rokkam, Srujan; Lawson, John; Cross, Peter; Burns, Richard*
2:30 PM	TFAWS2016-I-13	"Multiphysics-based Damage Modeling and Crack propagation using Meshless Peridynamics Approach" *Rokkam, Srujan; Gunzburger, Max*
3:00 PM	TFAWS2016-I-14	"Manufacturing Simulation Incorporating Phase Transformations" *Wertheimer, Ted; Schafstall, Hendrik*
3:30 PM	TFAWS2016-I-15	"New Understanding of Energy Distributions Exhibited during Thermal Runaway of Commercial Lithium Ion Batteries used for Human Spaceflight Applications" *Yayathi, Sandeep; Walker, William; Doughty, Daniel; Ardebili, Haleh*
4:00 PM	TFAWS2014-I-16	"Review of Lessons Learned from RaD-X High Altitude Balloon Flight in September 2015" *Stavely, Rebecca*

Interdisciplinary Paper Session II - Wednesday, August 3

9:00am – 12:00pm
Room 117
Session Chairs: Timothy Risch (NASA-AFRC) & Eric Lira (NASA-KSC)

9:00 AM	TFAWS2016-I-01	"Hydrodynamic Pressure Generated in Lubricant Film around Low-Friction Shaftless Reaction Wheel" *Ramjatan, Sahadeo; Yew, Alvin*

9:30 AM   TFAWS2016-I-02   "Application of Active Heat Exchanger Systems for Energy Extraction from Oceanic Crust"
Banerjee, Arundhuti; Chakraborty, Tanusree; Matsagar, Vasant

10:00 AM   TFAWS2016-I-04   "Lessons Learned on the Advanced Topographic Laser Altimeter System"
Garrison, Matt; Patel, Deepak; Bradshaw, Heather; Robinson, Frank; Neuberger, Dave

10:30 AM   TFAWS2016-I-05   "Reduced-Order Modeling for Rapid Thermal Analysis and Evaluation of Spacecraft"
Hengeveld, Derek

11:00 AM   TFAWS2016-I-06   "Modeling the World's Worst Performing yet Most Popular Heat Engine"
Cullimore, Brent; Bell, Douglas

11:30 AM   TFAWS2014-I-07   "Verification of Curved Elements for Thermal Analysis"
Bell, Douglas; Panczak, Tim

Heat Pipes Paper Session - Tuesday, August 2

9:00am – 12:00pm
Room 117
Session Chairs: Ruwan Somawardhana (NASA-JPL) & William Walker (NASA-JSC)

9:00 AM   TFAWS2016-HP-01   "An Advanced Loop Heat Pipe for Cryogenic Applications"
Ku, Jentung; Hoang, Triem

9:30 AM   TFAWS2016-HP-02   "Hybrid Variable Conductance Heat Pipe and HiK™ Plates – Advanced Passive Thermal Experiment"
Ababneh, Mohammed; Tarau, Calin; Anderson, William; Farmer, Jeffery; Alvarez-Hernandez, Angel

10:00 AM   TFAWS2016-HP-03   "High Temperature Water-Titanium Heat Pipe Radiators for the Kilopower Fission Power System"
Anderson, William; Ababneh, Mohammed; Beard, Derek; Tarau, Calin

10:30 AM   TFAWS2016-HP-04   "Alkali Metal Heat Pipes for the Kilopower Nuclear Reactor"
Beard, Derek; Tarau, Calin; Anderson, William

11:00 AM	TFAWS2016-HP-05	"Development of a Low-Cost Water Heat Pipe Radiator for Fission Surface Power"
		Tarau, Calin; Maxwell, Taylor; Anderson, William; Wagner, Corey; Wrosch, Matthew
11:30 AM	TFAWS2014-HP-07	"Thermal Modeling and Test Correlation for SWOT Loop Heat Pipe"
		Shea, Evan

Passive Thermal Paper Session - Tuesday, August 2

1:30pm – 5:00pm
Room 117
Session Chairs: William Walker (NASA-JSC) & Ruwan Somawardhana (NASA-JPL)

1:30 PM	TFAWS2016-PT-01	"Thermally Enhanced Card Retainers for Aerospace Electronics Systems"
		Flannery, Matt; Schmidt, James; Weyant, Jens; Thorson, Kevin
2:00 PM	TFAWS2016-PT-02	"Applications for Phase Change Material (PCM) Heat Sinks"
		Anderson, William; Ritt, Pete; Tarau, Calin; Weyant, Jens
2:30 PM	TFAWS2016-PT-03	"Temporary Thermocouple Attachment for Thermal/Vacuum Testing at Non-Extreme Temperatures"
		Ungar, Eugene; Wright, Sarah
3:30 PM	TFAWS2016-PT-08	"Advanced Features of Thermal Desktop®/SINDA-FLUINT: Interface with Matlab and Using SpaceClaim For Complex Geometries"
		Wang, Xiao-Yen; Fabanich, William
4:00 PM	TFAWS2016-PT-09	"TNSolver: An Open Source Thermal Network Solver for Octave or MATLAB"
		Cochran, Robert
4:30 PM	TFAWS2016-PT-10	"Cryogenic Tank Pressurization and Liquefaction System Modeling in Thermal Desktop"
		Desai, Pooja

Active Thermal Paper Session I - Wednesday, August 3

1:00pm – 5:00pm
Room 117
Session Chairs: Ryan Edwards (NASA-GRC) & A.J. Mastropietro (NASA-JPL)

1:00 PM TFAWS2016-AT-15 "The Effect of Gravity on Single Vapor Elongated
Bubbles"
Scammell, Alex; Kim, Jungho

1:30 PM TFAWS2016-AT-01 "Thermo-Fluid Modeling of the Pressurization and
Draining of a 1000 Gallon Cryogenic Tank with GFSSP"
LeClair, Andre; Majumdar, Alok

2:00 PM TFAWS2016-AT-02 "Coolant Refill of the Photovoltaic Thermal Control
System on the International Space Station"
Cowan, Darnell

2:30 PM TFAWS2016-AT-03 "Modeling the Rapid Boil-off of a Cryogenic Liquid
When Injected into a Low Pressure Cavity"
Lira, Eric

3:00 PM TFAWS2016-AT-04 "System Trade-off Analysis of Two-Phase Mechanically
Pumped Fluid Loop for Thermal Control of Future Deep
Space Missions"
Sakamoto, Kenichi; Daimaru, Takurou; Nagai, Hiroki;
Cappucci, Stefano; Bhandari, Pradeep; Furst, Benjamin;
Sunada, Eric

3:30 PM TFAWS2016-AT-05 "Development of a Pumped Two-Phase System for
Spacecraft Thermal Control"
Ellis, Michael; Kurwitz, Richard

4:00 PM TFAWS2016-AT-08 "Using 1D Thermodynamic and Heat Transfer Equations
to Quickly and Accurately Model Tank Pressurization"
Gilligan, Ryan; Tomsik, Thomas

Active Thermal Paper Session II - Thursday, August 4

9:00am – 12:00pm
Room 117
Session Chairs: Ryan Edwards (NASA-GRC) & A.J. Mastropietro (NASA-JPL)

9:00 AM	TFAWS2016-AT-09	"Summary and Status of 5 Mechanical Pumped Fluid Loop (MPFL) Projects Currently in Process at the Jet Propulsion Laboratory (JPL) for the Planned Europa Mission, Mars 2020, Ecosystem Spaceborne Thermal Radiometer Experiment on Space Station (ECOSTRESS), Orbiting Carbon Observatory (OCO-3), and Cold Atom Lab (CAL)" *Mastropietro, A.J., et al.*
9:30 AM	TFAWS2016-AT-10	"CFD Flow Analysis and Resizing Studies for the Evaporator of the ISS Urine Processor Assembly" *Evans, Christopher*
10:00 AM	Empty	
10:30 AM	TFAWS2016-AT-16	"Water Phase Change Heat Exchanger System Level Analysis for Low Lunar Orbit" *Ungar, Eugene; Navarro, Moses; Hansen, Scott; Sheth, Rubik*
11:00 AM	TFAWS2016-AT-13	"Design of High Performance Gas-to-Fluid Heat Exchangers using Shape and Topology Optimization" *Bacellar, Daniel; Aute, Vikrant; Huang, Zhiwei; Radermacher, Reinhard*
11:30 AM	TFAWS2016-AT-14	"Modeling of Gaseous Oxygen Liquefaction Inside Mars Ascent Vehicle Propellant Tank" *Wang, Xiao-Yen; Plachta, David*

ITAR (Aerothermal) Paper Session - Thursday, August 4

1:30pm – 2:00pm
Room 120
Session Chair: Joshua Fody (NASA-LaRC)

1:30 PM	TFAWS2016-AE-02	"A System Level CFD Effluent Analysis of a Small-Cell Lithium Ion Battery Thermal Runaway Process for the Multi-Purpose Crew Vehicle (Orion)" *Ianetti, Anthony*