

AIAA Region 1 Student Paper Competition Schedule of Events

Updated April 10, 2018

Friday April 13, 2018

11:00 AM	Registration	Cheel Barben Rooms
11:30 AM - 12:30 PM	Lunch	Cheel Barben Rooms
12:30 PM	Opening Remarks: President Collins	Cheel Barben Rooms

1:00 PM SESSION 1

Track 1 – Masters Division 1 and Team 1 Chair: I. Mastorakos

Science Center 354

Time	Title	Presenter
1:00 - 1:30 PM	Characterization of a Hybrid (Steel Composite) Gear with Various Composite Materials and Layups	Sean Gauntt
1:30 - 2:00 PM	Mission Planning for an Economically Viable Asteroid Mining Venture	Matthew Anderson
2:00 - 2:30 PM	Multipoint Magnetic Field Measurements: A Scientific Oriented CubeSat Constellation	Hannah Levin, Sergei Posnov, Phillip Teng
2:30 - 3:00 PM	Internal Pipe Flow Simulation Analysis	Antonia Iaquinta, Joseph Moreau, and Jared Parker, Haifa El-Sadi
3:00 - 3:30 PM	Testing Aerodynamic Stability of Parashield reentry Vehicles in Low Mach Number Flight	Quinn Kupec
3:30 - 4:00 PM	Estimation of a Plume with an Unmanned Terrestrial Vehicle	Spiridon Kasapis

Track 2 – Team 2

Chair: C. Merrett

Moore House Lounge

Time	Title	Presenter
1:00 - 1:30 PM	Design and Analysis of a CubeSat	Patrick Kroyak, Caitlin Lopez, Jackson Peters
1:30 - 2:00 PM	Design and Evaluation of Foot Restraints for Single-Person Spacecraft	Joshua Martin, Jayson DeNovellis, Rachel Harvey, Henry Hover, Faran Masood, Andre Nadeau
2:00 - 2:30 PM	Design and Testing efforts of the Umass Lowell DBF team for the 2017-2018 competition year	Sam Johnson
2:30 - 3:00 PM	Design, Fabrication, and Calibration of an Anechoic Wall-Jet Wind Tunnel	Austin Kleinfelter
3:00 - 3:30 PM	The Effects of Surface Finish on Drag Coefficient	Nathan P. Cast ¹ , Frank G. Vygoder ² , Martin Puig Arguinano ³ , Haifa El-Sadi
3:30 - 4:00 PM	Engineering of a Tribocharging Regolith Simulant Experiment	Blaire Weinberg, Joseph, Breeden

Track 3 – Aerodynamics 1**Chair: P. Piperni****Snell B10M**

Time	Title	Presenter
1:00 - 1:30 PM	3D Planar Laser-Induced Fluorescence(PLIF) Reconstruction of Hairpin Vortex	Xuanyu Zhu
1:30 - 2:00 PM	Measuring Forces and Moments on Waveriders in Hypersonic Shock Tunnel Using High Speed Imaging	Vergil Bandini
2:00 - 2:30 PM	Aerodynamic and Mechanical Design of Morphing Winglet for a Quad rotor Biplane Tail-Sitter	Peter Ryseck
2:30 - 3:00 PM	Experimental Transient Gust Response of a Representative Ship Airwake	Chris Cantillo
3:00 - 3:30 PM	Active Dihedral Applied to Fixed-Wing UAS for Wind Gust Rejection	Ryan Fisher
3:30 - 4:00 PM	Design and Evaluation of a Box Wing for the Quadrotor Biplane Vehicle	Benjamin Chang

Track 4 – Propulsion 1**Chair: D Bohl****Snell 239**

Time	Title	Presenter
1:00 - 1:30 PM	Additively Manufactured Liquid Injectors for Rocket Propulsion	Zachary Lewis
1:30 - 2:00 PM	Corotating Propellers for Quadrotor Applications	Noam Kaplan
2:00 - 2:30 PM	Electron confinement in an IEC fusion reactor core using permanent magnet fields	Nathan Schilling
2:30 - 3:00 PM	Laser Ablation Plume Impingement Onto Spacecraft Materials	Skylar Trythall
3:00 - 3:30 PM	RIT Hybrid Rocket Engine	Trevor Mothersell, Zachary Rizzolo
3:30 - 4:00 PM	Timing-Controlled Pulsed Detonation Engine Development	Westley Weinkam

4:45 - 7:00 PM**Dinner****Mama Lucias****6:50 - 9:00 PM****Movie****Roxy Theatre****8:00 - 11:00 PM****Bowling****Market Lanes**

Saturday April 14, 2018

7:30 AM

Registration Open

Science Center Main Floor Foyer

8:00 AM

SESSION 2

Track 1 – Aerodynamics 2

Chair: **P. Piperni**

Science Center 160

Time	Title	Presenter
8:00 - 8:30 AM	Experimental Investigation of Laminar Separation Bubbles at Low Reynolds Number	Mohamed Nassif
8:30 - 9:00 AM	Aerodynamic Optimization of an Olympic Luge Sled	Joseph Sakr
9:00 - 9:30 AM	Altitude Rate Control for Recovery of a Quadcopter After a Partial Single Rotor Failure in Steady Level Flight	Oliver Jia-Richards
9:30 - 10:00 AM	Investigation of the Hypersonic Trajectories of Spherical Fragments Interacting with a Wedge and Planar Oblique Shockwave	Cole Sousa

Track 2 – Simulation 1

Chair: **A. Achuthan**

Science Center 162

Time	Title	Presenter
8:00 - 8:30 AM	Aerial Plume Tracking and Localization for Glider Sensor Platform Mission Planning	Jason Cho
8:30 - 9:00 AM	Custom Trim Condition Analysis Rotorcraft Dynamics compared to Flight Testing of UH-60 Blackhawk	Sean Hailyur
9:00 - 9:30 AM	Design of an Attitude Control System for a 6U CubeSat in LEO	Rosemary Davidson
9:30 - 10:00 AM	Determination of Principal Axes and Moments of Inertia for Docked Spacecraft with Uncooperative Objects	Robert Vitagliano

Track 3 – Space Travel 1

Chair: **R. Buckingham**

Science Center 360

Time	Title	Presenter
8:00 - 8:30 AM	Numerical Modeling of a Magnetic Gyroscope for Cube-Satellite Attitude Control	Dan Russell
8:30 - 9:00 AM	Development of a mobile platform to demonstrate the ICE-PIC end-effector for Icy moon exploration	Melissa Adams
9:00 - 9:30 AM	Experimental and Numerical Evaluation of a Prototype Space Weather Sensor	Jaya Karlapati
9:30 - 10:00 AM	Investing the Energy Efficiency of Sublimators as End Effectors for Terrestrial Rover Mobility on Icy Moons	Arjun Agarwal

Track 4 – Team 3

Chair: **K. Visser**

Science Center 362

Time	Title	Presenter
8:00 - 8:30 AM	Orbital Debris Mitigation	Corey Raaflaub, Mohamed Alarabi, Deea Das, Brandon Hart, Summer Jimenez, John Kaminski, Mckenna Lachapelle, Benjamin Marsden, Zachary Page, Ricky Patel, Zachary Trottier
8:30 - 9:00 AM	Parallel Jaw Mechanism for Neutral Buoyancy testing on Ranger	Brady Sack, Jeffrey Zhu, Zachary Peters
9:00 - 9:30 AM	Stereoscopic Mixed Reality in Unmanned Aerial Vehicle Search and Rescue	Saimouli Katragadda, Benedict Mondal
9:30 - 10:00 AM	CFD Analysis of Three Vehicle Geometries	T. Quirion, B. Al Hady and A. Samkari, Haifa El-Sadi

10:00 - 10:30 AM Coffee Break

10:30 AM SESSION 3

Track 1 – Aerodynamics 3

Chair: P. Piperni

Science Center 160

Time	Title	Presenter
10:30 - 11:00 AM	Measuring Fluctuating Pressure Coefficient Downstream of a Cavity in Subsonic Flow	Alan Alahmad
11:00 - 11:30 AM	Exceptionally Small Scale Ducted Wind Turbines	Jonathan Frutschy
11:30 - 12:00 AM	Modeling the Effect Wind Tunnel Walls on Wingtip Vortex Development	Tobias Gloesslein
12:00 - 12:30 AM	Tracking of Neutrally Buoyant Helium Bubbles in Low-Speed Flow with Motion Capture Cameras	William Whitmore

Track 2 – Simulation 2 and Human Engineering

Chair: B. Helenbrook

Science Center 162

Time	Title	Presenter
10:30 - 11:00 AM	Simulating a Multirotor Testbed for Spacecraft Formation Flying	Joseph Breeden
11:00 - 11:30 AM	State-Machine Guidance and Occupancy-Grid Navigation for an Autonomous Quadrotor	Austin Mahowald
11:30 - 12:00 AM	System Identification of a MAV-scale Cyclocopter	Ehiremen Ebewele
12:00 - 12:30 AM	Designing an Inexpensive Cardboard RC Kit-Plane for Hands-on Aeronautical Engineering Education at University of Massachusetts Lowell	Cody Richards

Track 3 – Other 1

Chair: R. Buckingham

Science Center 360

Time	Title	Presenter
10:30 - 11:00 AM	Examination of Single Rotor Failure on a Classical Octocopter	Ariel Walter
11:00 - 11:30 AM	Morphing Wing Micro Air Vehicle	Ta'von Johnson
11:30 - 12:00 AM	Validation of the Hierarchical D* (HD*) 3D Path Planning Algorithm on a Multirotor	Christopher Kennedy
12:00 - 12:30 AM	A Goman-Khrabrov Framework for Control Design of Airfoils at High Angle of Attack	David Snyder

Track 1 – Flight Testing

Chair: K. Visser

Science Center 362

Time	Title	Presenter
10:30 - 11:00 AM	Experimental Investigations of a H2 Fuel Cell Drone	Faran Masood
11:00 - 11:30 AM	Lidar-based Obstacle Detection and Avoidance for Autonomous Micro Air Vehicles	Jonny Morely
11:30 - 12:00 AM	UAS Indoor Navigation and Obstacle Avoidance	Mackenzie Allen
12:00 - 12:30 AM	Vision-Based Guidance for an Autonomous Quadrotor in a GPS-denied Environment	Saimouli Katragadda

12:30 AM - 1:30 PM

Lunch

CAMP Atrium

1:30 - 3:15PM

Keynote Speaker – Mr Daniel Adamo

CAMP Atrium

3:30 pm

SESSION 4

Track 1 –Other 2**Chair: P. Piperni****Science Center 160**

Time	Title	Presenter
3:30 - 4:00 PM	Experimental Demonstration of Competing Swarms of Autonomous Vehicles: Intruders Versus Guardians	Katarina Sherman
4:00 - 4:30 PM	Development of Drone/UAV Test Capability	George Altamirano
4:30 - 5:00 PM	Development of a Probabilistic Trajectory Model for High-Altitude Scientific Balloons	Luke Renegar

Track 2 –Other 3**Chair: B. Helenbrook****Science Center 162**

Time	Title	Presenter
3:30 - 4:00 PM	Use of Hydrophobic Pressure-Based Porous Ceramic as anti-Icing Agent	Matthew Asper
4:00 - 4:30 PM	Uncertainty Analysis of a New Method for Inferring Surface Heat Flux	Evan Kramer

Track 3 – Other 4**Chair: N. Bagheri Sadeghi****Science Center 360**

Time	Title	Presenter
3:30 - 4:00 PM	Two degree of Freedom Modular Load Cell design for Wind Tunnel Testing	Jessica Ferguson
4:00 - 4:30 PM	Understanding Electrical Motors and Their Use on Small Aircraft	George Barlow

Track 4 – Structures 1**Chair: K. Visser****Science Center 362**

Time	Title	Presenter
3:30 - 4:00 PM	NiTi Shape-Memory Alloy in 3D Printed Morphing Airfoils	Frederick Delawie
4:00 - 4:30 PM	Nonlinear Affects on Aero-viscoelasticity	Erik Kocsis
4:30 - 5:00 PM	Strengthening Metallic Nanofoams Through Ligaments Scale Materials Design	Andres Garcia Jimenez

6:00 PM**Pizza Dinner and Awards****Adirondack Lodge**