

2019 Astrodynamics Research Group of Penn State (ARGoPS) Symposium



University Park, PA

April 26-27, 2019



ARGoPS Directors: Dr. David B. Spencer, Dr. Robert Melton,
Dr. Puneet Singla

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Sponsored By: Analytical Graphics, Inc.



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GENERAL INFORMATION

Welcome to the 2019 Astrodynamics Research Group of Penn State (ARGoPS) Symposium. This symposium is organized by the Astrodynamics Research Group of Penn State and is held at the Pennsylvania State University in University Park, Pennsylvania. Information about the conference, including the online program, useful links etc., may be found here: <http://argops.psu.edu/research/symposium/>

The majority of the presentations and events will be held in the Keller and Hammond Buildings on the Penn State campus. All event locations are noted in the *Schedule of Events* section and directions to each can be found in the *Location and Maps* section.

We recommend staying at one of our favorite local hotels:

- Hyatt Place – 219 W Beaver Ave, State College, PA 16801
- Nittany Lion Inn – 200 W. Park Avenue, State College, PA 16803
- The Atherton Hotel – 125 S Atherton St, State College, PA 16801

If you need directions or assistance during the symposium, you can contact Jason Reiter at (360) 635-7461.

SCHEDULE OF EVENTS

Friday, April 26th

Time	Presenter	Organization	Event/Presentation Title	Location
8:15 AM - 8:35 AM	Dr. Puneet Singla	Penn State, Associate Professor	<i>Welcome and Opening Remarks</i>	211 Keller Bldg.
8:35 AM - 8:55 AM	Jason Reiter	Penn State, Graduate Student	Spacecraft State Estimation and Stealth Through Orbit-Perturbing Maneuvers: A Game Theory Approach	211 Keller Bldg.
8:55 AM - 9:25 AM	Damien Gueho	Penn State, Graduate Student	Learning Capabilities of Neural Networks and Keplerian Dynamics	211 Keller Bldg.
9:25 AM - 9:45 AM	Peter Scarcella	Penn State, Graduate Student	Consider Filtering Applied to Maneuver Detection for Relative Orbit Determination	211 Keller Bldg.
9:45 AM - 10:00 AM			<i>Morning Break</i>	211 Keller Bldg.
10:00 AM - 10:20 AM	Matt Shaw	Penn State, Graduate Student	Design of Interplanetary Trajectories with Multiple Synergetic Gravitational Assist Maneuvers via Particle Swarm Optimization	211 Keller Bldg.
10:20 AM - 11:15 AM	Dr. John Junkins	Texas A&M, University Distinguished Professor	Keynote Presentation	211 Keller Bldg.
11:15 AM - 11:30 AM			<i>Group Picture</i>	Penn State Lion Shrine
11:30 AM - 12:30 PM			<i>Group Lunch (covered up to \$12)</i>	Cafe Laura
12:35 PM - 1:20 PM	Jim McAdams	KinetX Aerospace, Senior Mission Design Engineer	OSIRIS-REx at Bennu – Mission Overview and Status	211 Keller Bldg.
1:20 PM - 1:40 PM	Dr. Pradipto Ghosh	Analytical Graphics, Inc., Computational Astrodynamics Specialist,	Gaussian Process Regression Modeling of Solar Electric Propulsion Throttle Tables	211 Keller Bldg.
1:40 AM - 2:10 PM	Mike Nino	Penn State, Graduate Student	Time-Optimal, Constrained, Satellite Reorientation Maneuver Using Inverse Dynamics	211 Keller Bldg.
2:10 PM - 2:30 PM	Davide Conte	Penn State, Graduate Student	From Earth to Mars, One (small) Step at a Time	211 Keller Bldg.
2:30 PM - 3:00 PM	David Ciliberto	Penn State, Graduate Student	Extended Kalman Filtering in Regularized Coordinates for Orbit Determination	211 Keller Bldg.
3:00 PM - 3:15 PM			<i>Afternoon Break</i>	211 Keller Bldg.

3:15 PM - 3:35 PM	Zach Hall	Penn State, Graduate Student	A Probabilistic Approach for Uncertain Lambert Problem and Reachability Set Computation	211 Keller Bldg.
3:35 PM - 3:55 PM	Thomas Palazzo	Penn State, Graduate Student	Levy Flight Based Indirect Method to Solve Optimal Control Problem	211 Keller Bldg.
3:55 PM - 4:15 PM	Haximodor He	Penn State, Graduate Student	Fireworks Optimization Algorithm Applied to Trajectory Design for LEO to Lunar Halo Orbits	211 Keller Bldg.
4:15 PM - 5:30 PM			<i>Discussions on Future Directions in Astrodynamics</i>	211 Keller Bldg.
6:30 PM - 8:30 PM			<i>Off-Campus Dinner (sit within breakout groups)</i>	The Tavern

Saturday, April 27th

Time	Presenter	Organization	Event/Presentation Title	Location
8:15 AM - 9:00 AM	Dr. Manoranjan Majji	Texas A&M, Assistant Professor	Recent Advances in Dynamical Systems Theory for Astrodynamics Applications	202 Hammond Bldg.
9:00 AM - 9:20 AM	Amit Jain	Penn State, Graduate Student	Stochastic Reachability Analysis for the Hypersonic Re-Entry Problem	202 Hammond Bldg.
9:20 AM - 9:50 AM	Khushboo Patel	Penn State, Graduate Student	Precision Landing on the Moon using Lambert Targeting and Particle Swarm optimization	202 Hammond Bldg.
9:50 AM - 10:05 AM			<i>Morning Break</i>	202 Hammond Bldg.
10:05 AM - 10:50 AM	Dr. Chris Scott	JHU Applied Physics Lab, Mission Design Engineer	Dragonfly MD/Nav Overview	202 Hammond Bldg.
10:50 AM - 11:10 AM	Andrew Goodyear	Penn State, Graduate Student	Analytic Dual-Quaternion State Transition Matrices for Kalman Filtering	202 Hammond Bldg.
11:10 AM - 12:00 PM			<i>Discussions on Future Directions in Astrodynamics</i>	202 Hammond Bldg.
12:00 PM - 1:00 PM			<i>Lunch Downtown (not covered)</i>	TBD
1:00 PM - 2:00 PM			<i>Trip to Creamery</i>	Berkey Creamery
2:00 PM - 5:00 PM			<i>Penn State Baseball vs Maryland</i>	Medlar Field
5:00 PM - 7:00 PM			<i>Happy Hour</i>	Federal Taphouse

