



Aerospace Control and Guidance Systems Committee Meeting No. 130

Spring 2023

Missoula, MT

FINAL AGENDA – March 19, 2023

TUESDAY, 21 March 2023

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| 07:00 pm -9:00 pm | PLANNING ADVISORY BOARD MEETING – Russell Boardroom |
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| Chairman | Jeb Orr |
| Vice-Chairman | John Valasek |
| Immediate Past Chairman | Piero Miotto |
| Treasurer | Stan Pszczolkowski |
| Secretary | Kevin Duda |

| Planning Advisory Board Members | | |
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| Mike Bolender | Irene Gregory | Chris Miller |
| Oliver Brieger | Phil Hattis | Dave Mitchell |
| Dave Doman | Dave Klyde | Brett Ridgely |
| Marge Draper-Donley | Brian Lee | Kevin Wise |
| Jared Grauer | Raman Mehra | Tansel Yucelen |

| PAB Emeritus | | | | |
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| Shawn Donley | Ron Hess | Lou Knotts | Gavin Jenney | Dave Schmidt |

WEDNESDAY, 22 March 2023 – Day 1

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| 7:00 am – 8:30 am | Registration and Breakfast – Bitterroot Room |
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| 8:30 am – 9:00 am | GENERAL BUSINESS MEETING – Bitterroot Room Jeb Orr – Chairman |
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| 9:00 am – 11:00 am | GENERAL COMMITTEE TECHNICAL SESSION – Bitterroot Room <ul style="list-style-type: none"> • Marco Lotterio, Systems Technology, Inc. • Scott Condie, Virgin Galactic • Lou Knotts, Calspan • Chris Miller, NASA Armstrong Flight Research Center • Marge Draper-Donley, Naval Air Warfare Center Aircraft Division • Oliver Brieger, Airbus |
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| 11:00 am – 11:20 am | Break |
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SUBCOMMITTEE D – DYNAMICS, COMPUTATIONS, AND ANALYSIS

Co-Chairs: Dave Doman, Mike Bolender, and Dave Klyde

Room: Bitterroot

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| 11:20 am – 12:00 pm | D.1 “Increasing the Availability of the Precision Landing Mode on the F/A-18E/F/G,” Jacques (Jack) Romano, Naval Air Warfare Center Aircraft Division |
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| 12:10pm – 1:30 pm | LUNCHEON – (Meet in Subcommittees) – Blackfoot Room |
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| 1:30 pm – 2:10 pm | D.2 “Design and Challenges of the Model Following Algorithm on the X-62 VISTA,” Chris Cotting, USAF Test Pilot School, Edwards AFB and Que Harris, Lockheed Martin ADP |
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| 2:10 pm – 2:50 pm | D.3 “DARTS: A Versatile Dynamics Toolkit for Guidance and Control,” Carl Leake, NASA Jet Propulsion Laboratory |
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| 2:50 pm – 3:10 pm | Break |
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| 3:10 pm – 3:50 pm | D.4 “Decision Making Under Uncertainty with Application to Precision Airdrop and Beyond,” Adam Gerlach, USAF Air Force Research Laboratory, Aerospace Systems Directorate |
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SUBCOMMITTEE C – AVIONICS AND SYSTEM INTEGRATION (Session 1 of 2)

Co-Chairs: Raman Mehra and Jared Grauer

Room: Bitterroot

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| 3:50 pm – 4:30 pm | C.1 “DARPA CRANE: Control of Revolutionary Aircraft with Novel Effectors,” Rene Woszidlo, Aurora Flight Sciences |
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| 6:00 pm – 9:00 pm | RECEPTION – Blackfoot Room |
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THURSDAY, 23 March 2023 – Day 2

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| 07:00 am-8:30 am | Breakfast – Bitterroot Room |
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SUBCOMMITTEE C – AVIONICS AND SYSTEM INTEGRATION (Session 2 of 2)

Co-Chairs: Raman Mehra and Jared Grauer

Room: Bitterroot

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| 8:30 am – 9:10 am | C.2 “Aerospace Fault Detection and Fault Tolerance Industrial Benchmark,” Phillipe Goupil, Airbus |
| 9:10 am – 9:50 am | C.3 “Sustainability and Future Mobility,” Kevin Wise, Boeing |
| 9:50 am – 10:30 am | C.4 “On The Emergence of AI Language Models as a Design Tool,” Jeb Orr, Mclaurin Aerospace |

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| 10:30 am – 10:40 am | Break |
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SUBCOMMITTEE B – MISSILES AND SPACE

Co-Chairs: Phil Hattis, Brett Ridgely, and Kevin Wise

Room: Bitterroot

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| 10:40 am – 11:20 pm | B.1 “Space Launch System Core Stage TVC Test and Flight Experiences,” John Wall, NASA MSFC (Mclaurin Aerospace/ESSCA) |
| 11:20 am – 12:00 pm | B.2 “Survival Design and Strategies for Aborted Crewed Missions for Mars Exploration,” Phil Hattis, Draper |

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| 12:10 pm – 1:30 pm | LUNCHEON – Blackfoot Room PAB LUNCHEON – Russell Room |
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| 1:30 pm – 2:10 pm | B.3 “Current JPL Guidance and Control Section Activities,” John Liu, NASA Jet Propulsion Laboratory |
| 2:10 pm – 2:50 pm | B.4 “DQG: Dual Quaternion-based 6-DoF Powered-Descent Guidance for the NASA SPLICE Program,” Abhinav Kamath, University of Washington |

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| 2:50 pm – 3:00 pm | Break |
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SUBCOMMITTEE E – FLIGHT, PROPULSION, AND AUTONOMOUS VEHICLE CONTROL SYSTEMS

Co-Chairs: John Valasek, Irene Gregory (Session 1 of 2)

Room: Bitterroot

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| 3:00 pm – 3:40 pm | E.1 “Primary Flight Control at DLR-SR – Recent Flight Test Experiences & Projects,” Christian Weiser, DLR |
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FRIDAY, 24 March 2023 – Day 3

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| 07:00 am – 8:00 am | Breakfast – Bitterroot Room |
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SUBCOMMITTEE E – FLIGHT, PROPULSION, AND AUTONOMOUS VEHICLE CONTROL SYSTEMS

Co-Chairs: John Valasek, Irene Gregory (Session 2 of 2)

Room: Bitterroot

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| 8:00 am – 8:40 am | E.2 “COBRA or Combined Bernstein Polynomial, Optimal Reciprocal Collision Avoidance, Differential Dynamic Programming for Trajectory Replanning and Collision Avoidance for UAM Vehicles,” Matthew Houghton, NASA Langley Research Center |
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SUBCOMMITTEE A – AERONAUTIC AND SURFACE VEHICLES

Co-Chairs: Dave Mitchell, Oliver Brieger, and Chris Miller

Room: Bitterroot

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| 8:40 am – 9:20 am | A.1 “Analytic INS Error Calculation using Nonlinear Contraction Theory,” Winfried Lohmiller, Airbus |
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| 9:20 am – 9:40 am | Break |
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| 9:40 am – 10:20 am | A.2 “A Proposed Method of Compliance to Support Certification of Advanced Flight Controls in General Aviation and Hybrid Vehicles,” Marco Lotterio, Systems Technology, Inc. |
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| 10:20 am – 11:00 am | A.3 “Vertical Motion Simulation of the Lift + Cruise Vehicle with Real-Time Complex Powertrain Models,” Peter Suh, NASA AFRC |
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| 11:00 am – 11:30 am | Adjourn |
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