

**MEETING NO. 115**  
**GENERAL MEETING AGENDA**  
**AEROSPACE CONTROL AND GUIDANCE SYSTEMS COMMITTEE**

The Crowne Plaza Portland Downtown  
1441 NE 2<sup>nd</sup> Avenue  
Portland, OR 97232  
503-233-2401

**3-6 March 2015**

**Tuesday**  
3-Mar-15  
6:00pm

**1.0 PLANNING ADVISORY BOARD MEETING**  
Location – Windsor C

<b>Chairman</b>	Phil Hattis
<b>Vice-Chairman</b>	Brian Lee
<b>Immediate Past Chairman</b>	Lou Knotts
<b>Treasurer</b>	Stan Pszczolkowski
<b>Secretary</b>	Marge Draper-Donley

**Board Members**

Christine Belcastro	Sanjay Garg	Raman Mehra
Oliver Brieger	Irene Gregory	Piero Miotto
Jan De Luca	Klaus-Uwe Hahn	Dave Mitchell
Dave Doman	Ron Hess	Dave Schmidt
Shawn Donley	Steve Jacobson	Mark Tischler
Dale Enns	Gavin Jenney	Marty Waszak
	Dave Klyde	Kevin Wise

**Wednesday**  
4-Mar-15

7:00am – 8:30am **2.0 REGISTRATION AND BREAKFAST**  
Location – Belmont C Foyer

8:30am – 9:00am **3.0 GENERAL BUSINESS MEETING**  
Location – Belmont C  
Phil Hattis – Chairman

**Wednesday**

4-Mar-15

9:00am – 12:00pm

**4.0 GENERAL COMMITTEE TECHNICAL SESSION**

Christine Belcastro and Dale Enns Co-Chairs

**4.1 Government Agencies Summary Reports**

4.1.1 DLR – Oliver Brieger

4.1.2 DoD

4.1.2.1 Army – Tom Berger

4.1.2.2 AFRL – Dave Doman

4.1.3 NASA

4.1.3.1 Glenn – Sanjay Garg

4.1.3.2 Langley – Carey Buttrill

4.1.3.3 Armstrong – Curt Hanson

**4.2 Research Institutions, Industry, and University Reports**

4.2.1 Research Institutions and Companies

4.2.1.1 Systems Technology, Inc. – Dave Klyde

4.2.1.2 Scientific Systems Company – Raman Mehra

4.2.1.3 Alec Bateman – Barron & Associates

4.2.1.4 Darren Cofer – Rockwell Collins

4.2.1.5 Robert Hefley Engineering – Robert Hefley

4.2.1.6 Optimal Synthesis – P.K. Menon

4.2.1.7 Aurora Flight Sciences – Jim Paduano

4.2.2 Technical Committee Liaison

4.2.2.1 SAE S-7 Committee – Brian Lee

4.2.3 Universities

4.2.2.1 University of Minnesota – John Weyrauch

4.2.2.2 Moscow Aviation Institute - Alexander

12:00pm – 1:30pm

**LUNCHEON – Belmont B (Meet in Subcommittees)**

Subcommittee chairs, members and attendees will meet for lunch and agenda planning for Meeting No. 116.

1:30pm – 3:30pm

**5.0 SUBCOMMITTEE D – DYNAMICS, COMPUTATIONS, AND ANALYSIS**

Ron Hess and Dave Doman, Co-Chairs

Dave Schmidt, Vice Chair

5.1 “Multi-objective Adaptive Control for Safety Critical Dynamical Systems,” Tansel Yucelan, Univ. of MO

5.2 “Finite-Element Modeling of the Structural Dynamics of a Flying-Wing Research Drone”, Claudia Patricia Moreno, University of Minnesota

5.3 “Matlab-Based Flight Dynamics and Flutter Modeling of a Flexible Flying-Wing Research Drone,” Dave Schmidt, Univ. of CO, Colorado Springs

3:30pm – 3:50pm

**BREAK**

3:50pm – 4:30pm

**5.0 SUBCOMMITTEE D – DYNAMICS, COMPUTATIONS, AND ANALYSIS (cont)**

Ron Hess and Dave Doman, Co-Chairs

Dave Schmidt, Vice Chair

5.4 "Control Science for Hypersonic Systems," Michael Bolender, AFRL

<b>Wednesday</b> 4-Mar-15	<b>6.0 SUBCOMMITTEE E – FLIGHT, PROPULSION, AND AUTONOMOUS VEHICLE CONTROL SYSTEMS</b> Sanjay Garg and Irene Gregory, Co-Chairs
4:30pm – 5:10pm	6.1 “Aero Controls Technology Challenges for NASA Aeronautics Research Strategic Thrusts,” Sanjay Garg, NASA Glenn Research Center
5:30pm – 6:30pm	<b>SOCIAL HOUR – Belmont B</b>
<b>Thursday</b> 5-Mar-15	
7:00am – 8:00am	<b>BREAKFAST – Belmont C Foyer</b>
8:00am – 9:20am	<b>6.0 SUBCOMMITTEE E – FLIGHT, PROPULSION, AND AUTONOMOUS VEHICLE CONTROL SYSTEMS (cont)</b> Sanjay Garg and Irene Gregory, Co-Chairs
	6.2 . “Single Pilot Operations for Commercial Aircraft – Concept of Operations and Technology Needs,” Walter Johnson, NASA Ames
	6.3 “Indirect Manifold Construction Approach for Control of Nonlinear Non-Minimum Systems,” Anshu Narang-Siddharth, U. of Washington, Seattle
9:20am – 10:00am	<b>9.0 SUBCOMMITTEE C – AVIONICS AND SYSTEM INTEGRATION (cont)</b> Raman Mehra and Marty Waszak, Co-Chairs Jan DeLuca, Vice Chair
	9.1 “Practical Aspects of the Frequency-Domain Approach for Aircraft System Identification,” Gene Morelli, NASA Langley
10:00am – 10:20am	<b>BREAK</b>
10:20am – 12:20pm	<b>7.0 SUBCOMMITTEE A – AERONAUTIC AND SURFACE VEHICLES</b> Steve Jacobson, Chair Klaus-Uwe Hahn, Dave Mitchell, Vice Chairs
	7.1 “Helicopter and Multi-Rotor Autopilot Development,” Michael Allen, Cloud Cap Technology
	7.2 “Flying Qualities Criteria for Unmanned Aircraft ,” Kara Greene, AFIT
	7.3 “Flight Testing the 787-9: Opportunities and Challenges in Certifying a Simple Derivate,” Nikos Mills, Boeing
12:30pm – 2:00pm	<b>LUNCHEON – Belmont B</b> PAB will meet for lunch and agenda planning for Meeting No. 116 Meeting attendees have open seating for lunch.
2:00pm – 2:40pm	<b>7.0 SUBCOMMITTEE A – AERONAUTIC AND SURFACE VEHICLES (cont)</b> Steve Jacobson, Chair Klaus-Uwe Hahn, Dave Mitchell, Vice Chairs
	7.4 “Comparison of Envelope Limiting Schemes,” Tony Lambregts, FAA-Retired
2:40 pm–3:20 pm	<b>8.0 SUBCOMMITTEE B – MISSILES AND SPACE</b> Piero Miotto, Chair Kevin Wise, Vice Chair
	8.1 “MAJIC: A Gyroscopically Actuated Astronaut Mobility Unit for Future EVA Missions,” Michelle Carpenter, Draper Laboratory

**Thursday**

5-Mar-15

3:20 pm – 3:40 pm

**BREAK**

3:40 pm – 5:00 pm

**8.0 SUBCOMMITTEE B – MISSILES AND SPACE (cont)**

Piero Miotto, Chair

Kevin Wise, Vice Chair

8.2 “Piloted Aircraft Testing of Launch Vehicle Manual Steering with Adaptive Augmenting Control,” Curt Hanson, NASA Armstrong

8.3 “Preliminary Design and Prototyping of a Low-Cost Spacecraft Attitude Determination and Control Setup,” Kamran Turkoglu, San Jose State University

**Friday**

6-Mar-15

7:00 am – 8:00 am

**BREAKFAST – Belmont C Foyer**

8:00 am – 8:40 am

**8.0 SUBCOMMITTEE B – MISSILES AND SPACE (cont)**

Piero Miotto, Chair

Kevin Wise, Vice Chair

8.4 “Mission and Fault Management (MFM) for the NASA SLS Launch Vehicle,” Kevin Melcher, NASA Glenn

8:40 am – 9:20 am

**6.0 SUBCOMMITTEE E – FLIGHT, PROPULSION, AND AUTONOMOUS VEHICLE CONTROL SYSTEMS (cont)**

Sanjay Garg and Irene Gregory, Co-Chairs

6.4 “Overview of DARPA HAMCS (High Assurance Military Cyber Systems) with focus on Aerospace Applications,” John Launchbury, DARPA

9:20 am – 9:40 am

**BREAK**

9:40 am – 11:40 am

**9.0 SUBCOMMITTEE C – AVIONICS AND SYSTEM INTEGRATION (cont)**

Raman Mehra and Marty Waszak, Co-Chairs

Jan DeLuca, Vice Chair

9.2 “Certification Considerations for Adaptive Systems,” Darren Cofer, Rockwell Collins

9.3 “Small UAS Development: an Unconventional Approach,” Juris Vagners, Univ. of Washington

9.4 “The Significance of Simulation for the Insitu Unmanned Aircraft Systems,” Rolf Rysdyk, Insitu