

**MEETING NO. 114**

**AGENDA**

**AEROSPACE CONTROL AND GUIDANCE SYSTEMS COMMITTEE**

The Wyndham Cleveland at Playhouse Square  
1260 Euclid Avenue  
Cleveland, Ohio 44115  
(216) 615-7500

**14-17 October 2014**

**Tuesday 1.0 PLANNING ADVISORY BOARD MEETING**

14-Oct-14 Location – Palace West Room

7:00pm

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

**Board Members**

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

**Wednesday 2.0 REGISTRATION AND BREAKFAST**

15-Oct-14 Location – Palace West Room

7:00am – 8:30am

8:30am – 9:00am **3.0 GENERAL BUSINESS MEETING**

Location – Palace West Room

Lou Knotts – Chairman

9:00am – 12:00pm **4.0 GENERAL COMMITTEE TECHNICAL SESSION**

Christine Belcastro and Dale Enns Co-Chairs

**4.1 Research Institutions, Industry, and University Summary Reports**

4.1.1 Technical Committee Liaison

4.1.1.1 SAE S-7 HQ Technical Committee – Dick Newman/Brian Lee

4.1.2 Universities

4.1.2.1 University of Illinois at Urbana-Champaign – Naira Hovakimyan

4.1.2.2 Hamburg University of Technology – Frank Thielecke

4.1.2.3 Georgia Tech University – Eric Feron

4.1.2.4 University of Maryland – Norm Wereley

4.1.3 Research Institutions and Companies

4.1.3.1 Unmanned Dynamics - Naira Hovakimyan

4.1.3.2 Systems Technology, Inc. – Dave Klyde

4.1.3.3 Scientific Systems Company – Raman Mehra

4.1.3.4 Rockwell Collins – Darren Cofer

4.1.3.5 MUSYN – Amar Hjartarson

4.1.3.6 Mitchell Aerospace Research – Dave Mitchell

4.1.3.7 Calspan – Lou Knotts

**4.2 Government Agency Summary Reports**

4.2.1 DLR - Oliver Brieger

4.2.2 DoD

4.2.2.1 NAVAIR

4.2.2.2 AFRL

4.2.2.3 Army

4.2.3 NASA

4.2.3.1 Langley

4.2.3.2 Glenn

4.2.3.3 Armstrong

12:00pm – 1:10pm

**LUNCHEON – Palace East Room (Meet in Subcommittees)**

Subcommittee chairs, members and attendees will meet for lunch and agenda planning for Meeting No. 115.

1:10pm – 1:50pm

**5.0 4<sup>th</sup> Annual Dave Ward Memorial Lecture**

“TBD”, by Dave Ward Award winner

Location – Palace West Room

1:50pm – 3:10pm

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

Sanjay Garg and Irene Gregory, Co-Chairs

6.1 “Run Time Assurance Design Considerations for Advanced Aerospace Applications, John Schierman, Barron Associates

6.2 “Autonomy Research for Civil Aviation – NRC Panel Report”, John-Paul Clarke, Georgia Tech

3:10pm – 3:20pm

**BREAK**

- 3:20pm – 4:00pm **6.0 SUBCOMMITTEE E – FLIGHT, PROPULSION, AND AUTONOMOUS VEHICLE CONTROL SYSTEMS (cont)**  
Sanjay Garg and Irene Gregory, Co-Chairs
- 6.3 "A Critical Analysis of the X-15 3-65-96 Accident – Part I: Aircraft Systems and Flight Control, Jeb Orr, Charles Stark Draper Lab
- 4:00pm – 5:20pm **7.0 SUBCOMMITTEE A – AERONAUTIC AND SURFACE VEHICLES**  
Steve Jacobson, Chair  
Brian Lee and Dave Mitchell, Vice Chairs
- 7.1 "TBD", by author and org
- 7.2 "TBD", by author and org
- 5:30pm – 6:30pm **SOCIAL HOUR (hosted by Sanjay and Mala Garg)**  
Location – Palace East Room
- 6:30pm – 9:00pm Rock and Roll Hall of Fame is open until 9 PM on Wednesdays  
Group Discount tickets available 2 weeks in advance through ACGSC website  
20 minute (1.1 mile) walk or cab ride
- Thursday**  
16-Oct-14  
7:00am – 8:00am **BREAKFAST**  
Location – Palace West Room
- 8:00am – 8:40am **7.0 SUBCOMMITTEE A – AERONAUTIC AND SURFACE VEHICLES (cont)**  
Steve Jacobson, Chair  
Brian Lee and Dave Mitchell, Vice Chairs
- 7.3 "Legacy 500 FBW Development and Flight Test", by Fabricio Caldeira, Embraer
- 8:40am – 10:00am **8.0 SUBCOMMITTEE B – MISSILES AND SPACE**  
Piero Miotto, Chair  
Kevin Wise, Vice Chair
- 8.1 "Tactical Aerial Logistics System (TALOS) for the ONR Autonomous Aerial Cargo / Utility System (AACUS)", Dr James Paduano, Aurora Flight Sciences
- 8.2 " Results from Flight Testing the SLS Adaptive Augmenting Control on an F/A-18", Eric Gilligan, Tannen VanZwieten, John Wall, and Jeb Orr, NASA
- 10:00am – 10:20am **BREAK**

10:20am – 11:00am **8.0 SUBCOMMITTEE B – MISSILES AND SPACE (cont)**

Piero Miotto, Chair  
Kevin Wise, Vice Chair

8.3 “Retrospective Cost Adaptive Control for Non-minimum-Phase Systems with Application to Aircraft, Spacecraft, and Missiles”, by Dennis Bernstein, University of Michigan, Aerospace Engineering Department

11:00am – 11:40am **9.0 SUBCOMMITTEE C- AVIONICS AND SYSTEM INTEGRATION**

Raman Mehra and Marty Waszak, Co-Chairs  
Jan DeLuca, Vice Chair

9.1 “Unmanned Low-Cost Testing Aircraft for Innovative Teaching and Research”, Frank Thielecke, TUHH

11:50am – 1:15pm **LUNCHEON**

Location – Palace East Room  
PAB will meet for lunch and agenda planning for Meeting No. 115.  
Meeting attendees have open seating for lunch.

1:15pm – 2:00pm **BUS RIDE TO NASA GLENN RESEARCH CENTER (and Security Check-in)**

2:00pm –5:00pm **TOUR OF NASA GLENN COORDINATED BY SANGAY GARG**

**Friday**

17-Oct-14

7:00am – 8:00am

**BREAKFAST**

Location – Palace West Room

8:00am– 9:20am

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

Raman Mehra and Marty Waszak, Co-Chairs  
Jan DeLuca, Vice Chair

9.2 “Multicore in flight critical avionics – Current practices, trends and outlook for certification”, Joseph Wlad, Alex Wilson, WindRiver.

9.3 “Autonomous Control of UAS Ground Operations in the Terminal Area (ACUGOTA)”, Jerome Wei, Walter Wang, Northrop Grumman Corporation

9:20am – 10:00am

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

Ron Hess and Dave Doman, Co-Chairs  
Dave Schmidt, Vice Chair

10.1 "A Critical Analysis of the X-15 3-65-97 Accident – Part II: Human Factors, Immanuel Barshi, NASA Ames Research Center

10:00am – 10:20am **BREAK**

10:20am – 11:40am **10.0 SUBCOMMITTEE D – DYNAMICS, COMPUTATIONS, AND ANALYSIS (cont)**

Ron Hess and Dave Doman, Co-Chairs

Dave Schmidt, Vice Chair

10.2 "Fractional Order Modeling of Atmospheric Turbulence – A More Accurate Modeling Methodology for Aero Vehicles," George Kopasakis, NASA Glenn

10.3 "Rapid Mission Planning for Aircraft Thermal Management",  
Dave Doman, AFRL