

**MEETING NO. 116**

**AGENDA**

**AEROSPACE CONTROL AND GUIDANCE SYSTEMS COMMITTEE**

Hilton Charlotte Executive Park  
5624 Westpark Drive  
Charlotte, NC 28217  
704-527-8000

**13-16 October 2015**

**Tuesday**

13-Oct-15

6:00pm

**1.0 PLANNING ADVISORY BOARD MEETING**

Eastover Room

**Chairman**

Phil Hattis

**Vice-Chairman**

Brian Lee

**Immediate Past Chairman**

Lou Knotts

**Treasurer**

Stan Pszczolkowski

**Secretary**

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**

14-Oct-15

7:00am – 8:30am

**2.0 REGISTRATION AND BREAKFAST**

Eastover Room

8:30am – 9:00am

**3.0 GENERAL BUSINESS MEETING**

Eastover Room

Phil Hattis – Chairman

**Wednesday**

14-Oct-15

9:00am – 12:00pm

**4.0 GENERAL COMMITTEE TECHNICAL SESSION**

Christine Belcastro and Dale Enns Co-Chairs

*The following General Committee Technical Session agenda is only representative, based on the prior meeting's actual agenda – this list of presenters will be finalized during the month before meeting 116*

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

4.1.1 Research Institutions and Companies

4.1.1.1 Systems Technology, Inc. – Dave Klyde

4.1.1.2 Scientific Systems Company – Raman Mehra

4.1.1.3 Barron & Associates – Neha Gandhi

4.1.1.4 Rockwell Collins - Darren Cofer

4.1.1.5 Robert Heffley Engineering – Robert Heffley

4.1.1.6 Optimal Synthesis – P.K. Menon

4.1.1.7 Aurora Flight Sciences – Jim Paduano

4.1.1.8 Crew Systems, Inc. – Dick Newman

4.1.2 Technical Committee Liaison

4.1.2.1 SAE S-7 Committee – Brian Lee

4.1.3 Universities

4.1.2.1 University of Minnesota – John Weyrauch

**4.2 Government Agencies Summary Reports**

4.2.1 DLR – Oliver Brieger

4.2.2 DoD

4.2.2.1 Army – Tom Berger

4.2.3 NASA

4.2.3.1 Glenn – Sanjay Garg

4.2.3.2 Langley – Irene Gregory

4.2.3.3 Armstrong – Curt Hanson

12:00pm – 1:10pm

**LUNCHEON – Dilworth Room (Meet in Subcommittees)**

Subcommittee chairs, members and attendees will meet for lunch and agenda planning for Meeting No. 117.

1:10pm – 1:50 pm

**5.0 5<sup>th</sup> Annual Dave Ward Memorial Lecture**

Presentation by 2015 award winner

Location – Eastover Room

1:50pm – 3:10pm

**6.0 SUBCOMMITTEE C – AVIONICS AND SYSTEM INTEGRATION**

Raman Mehra and Marty Waszak, Co-Chairs

Jan DeLuca, Vice Chair

6.1 “Towards Automated Validation and Verification of Guidance and Control Systems,” Misty Davies, NASA/Ames

6.2 “Progress in High-Integrity Vision-Based Inertial Navigation,” Eric Johnson, Georgia Tech

**Wednesday**

14-Oct-15

3:10pm – 3:20pm

**BREAK**

3:20pm – 4:40pm

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

Raman Mehra and Marty Waszak, Co-Chairs

Jan DeLuca, Vice Chair

6.3 “Flight Software for the LADEE Mission,” Howard Cannon, NASA/Ames

6.4 “Satellite Swarms Density Control – A Decentralized Paradigm for Swarm Coordination and Control”, Behcet Acikmese, University of Texas

4:40pm – 5:20pm

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

Ron Hess and Dave Doman, Co-Chairs

Dave Schmidt, Vice Chair

7.1 “Analysis Tools for Mission-Oriented Evaluation of Military Transport-Type Aircraft Systems,” Thomas Jann, DLR

5:30pm – 6:30pm

**SOCIAL HOUR – Dilworth Room**

**Thursday**

15-Oct-15

7:00am – 8:00am

**BREAKFAST – Eastover Room**

8:00am – 10:00am

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

Ron Hess and Dave Doman, Co-Chairs

Dave Schmidt, Vice Chair

7.2 “Guidance, Navigation, and Control for Small UAS Electronic Geofencing,” Ella Atkins, University of Michigan

7.3 “Augusta Westland 609 Autorotation Testing,” POC: Robert Fortenbaugh. Bell Textron

7.4 “Advanced Controls and Displays for Precision Carrier Landings – Project MAGIC CARPET,” Buddy Denham, NAVAIR

10:00am – 10:20am

**BREAK**

10:20am – 12:20pm

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

Sanjay Garg and Irene Gregory, Co-Chairs

8.1 “Sense and Avoid Algorithms for UAS – Flight Tests and RTCA SC-228 Standards,” Maria Consiglio, NASA Langley Research Center

8.2 “UAS Traffic Management System – Opening the Skies to New Applications,” Parimal Kopardekar, NASA Ames Research Center

8.3 “Autonomous VTOL UAV Flight Test – Has Technology Progressed Since the 1970’s,” Paul Rothhaar, NASA Langley Research Center

**Thursday**

15-Oct-15

12:30pm – 2:00pm

**LUNCHEON – Dilworth Room**

PAB will meet for lunch and agenda planning for Meeting No. 116

Meeting attendees have open seating for lunch.

2:00pm – 2:40pm

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

Sanjay Garg and Irene Gregory, Co-Chairs

8.4 “NASA’s Assured Autonomy for Aviation Transformation Roadmap,” Irene Gregory, NASA Langley Research Center

2:40 pm–3:20 pm

**9.0 SUBCOMMITTEE A – AERONAUTIC AND SURFACE VEHICLES**

Steve Jacobson, Chair

Klaus-Uwe Hahn, Dave Mitchell, Vice Chairs

9.1 “UAV Flying Qualities, Part II,” Kara Greene, AFIT

3:20 pm – 3:40 pm

**BREAK**

3:40 pm–5:00 pm

**9.0 SUBCOMMITTEE A – AERONAUTIC AND SURFACE VEHICLES (cont)**

Steve Jacobson, Chair

Klaus-Uwe Hahn, Dave Mitchell, Vice Chairs

9.2 “Simulation-Based Requirement Formulation and Stochastic Evaluation for Flight Control Applications,” Florian Holzapfel, TU Munich

9.3 “L1 Adaptive Control Flight Test,” Chris Cotting, USAF Test Pilot School

**Friday**

16-Oct-15

7:00 am – 8:00 am

**BREAKFAST – Eastover Room**

8:00 am – 8:40 am

**9.0 SUBCOMMITTEE A – AERONAUTIC AND SURFACE VEHICLES (cont)**

Steve Jacobson, Chair

Klaus-Uwe Hahn, Dave Mitchell, Vice Chairs

9.4 “HQ Test Techniques,” Oliver Brieger, DLR

8:40 am – 9:20 am

**10.0 SUBCOMMITTEE B – MISSILES AND SPACE**

Piero Miotto, Chair

Kevin Wise, Vice Chair

10.1 “Rendezvous vis Differential Drag Considering Uncertainties in the Density and Ballistic Coefficients,” Leonel Mazel, University of Florida

9:20 am – 9:40 am

**BREAK**

**Friday**

16-Oct-15

9:40 am – 11:20 am **10.0 SUBCOMMITTEE B – MISSILES AND SPACE (cont)**

Piero Miotto, Chair

Kevin Wise, Vice Chair

10.2 “Attitude and Rate Estimation for the CYGNSS Microsatellite,” Matthew Fritz,  
Draper Laboratory

10.3 “The National Ignition Facility: A First Look at a Successful Complex System  
Design,” Wilson Felder, Stevens Institute of Technology

10.4 “Advanced GNC Technology Development at NASA,” Cornelius Dennehy,  
NESC