

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

Kevin Wise

Dave Klyde

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

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 Calspan Flight Research Group - Lou Knotts

4.1.1.3 Scientific Systems Company - Raman Mehra

4.1.1.4 Barron & Associates - Alec Bateman

4.1.1.5 Mitchell Aerospace Research - Dave Mitchell

4.1.1.6 Sikorsky Aircraft – Vineet Sahasrabudhe

4.1.2 Technical Committee Liaison

4.1.2.1 SAE S-7 Committee – Brian Lee

4.1.3 Universities

4.1.3.1 University of Minnesota – Pete Seiler

4.1.3.2 Technical University Munich - Florian Holzapfel

4.1.3.3 Hamburg University of Technology - Frank Thielecke

4.1.3.4 Moscow Aviation Institute – Alexander Efremov

4.2 Government Agencies Summary Reports

4.2.1 DLR - Klaus-Uwe Hahn

4.2.2 DoD

4.2.2.1 AFRL – Dave Doman

4.2.3 NASA

4.2.3.1 Langley - Carey Buttrill

4.2.3.2 Marshall – John Wall

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 5th Annual Dave Ward Memorial Lecture – Eastover Room

“‘Plug&Adapt’ Adaptive Autopilot System,” by the 2015 award winner Girish Chowdhary, Oklahoma State University

1:50pm – 3:10pm

6.0 SUBCOMMITTEE C – AVIONICS AND SYSTEM INTEGRATION

Raman Mehra, Chair

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, 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,” Dan Wells, Augusta Westland

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 “The Air Force Test Pilot School's Future Plans for Integration of a UAV Course into the Current Curriculum,” Chris Cotting, U.S. Air Force Test Pilot School

8.3 “Autonomous Systems: The Future in Aerospace,” Kevin Wise, Boeing

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

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