

MEETING NO. 123 AGENDA
AEROSPACE CONTROL AND GUIDANCE SYSTEMS COMMITTEE

Eldorado Hotel & Spa
309 West San Francisco St.
Santa Fe, NM 875011
505-995-4560

27-29 March 2019

Tuesday

26 March 2019

7:00pm - 9:00pm

1.0 PLANNING ADVISORY BOARD MEETING

Zia B

Chairman	Marge Draper-Donley
Vice-Chairman	Piero Miotto
Immediate Past Chairman	Brian Lee
Treasurer	Stan Pszczolkowski
Secretary	Jeb Orr

Planning Advisory Board Members

Riccardo Bevilacqua	Irene Gregory	Raman Mehra
Mike Bolender	Phil Hattis	Dave Mitchell
Oliver Brieger	Steve Jacobson	James Paduano
Jan De Luca	Dave Klyde	John Valasek
Dave Doman	Lou Knotts	Kevin Wise
Dale Enns	Xavier LeTron	Tansel Yucelen

PAB Emeritus

Shawn Donley	Ron Hess	Gavin Jenney	Dave Schmidt
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Wednesday

27 March 2019

7:00am – 8:30am

2.0 REGISTRATION AND BREAKFAST

Anasazi South

8:30am – 9:00am

3.0 GENERAL BUSINESS MEETING

Anasazi South

Marge Draper-Donley – Chairman

Wednesday

27 March 2019

9:00am – 12:00pm

4.0 GENERAL COMMITTEE TECHNICAL SESSION

Dale Enns and Tansel Yucelen Co-Chairs

9:00am - 9:50am

4.1 Government Agencies Summary Reports

4.1.1 NASA

4.1.1.1 Ames - Hashemi, Kelley E.

4.1.1.2 Armstrong – Steve Jacobson

4.1.1.3 Langley – Irene Gregory

4.2 Research Institutions, Industry, and University Reports

4.2.1 Research Institutions and Companies

4.2.1.1 Barron Associates - Gandhi, Neha

4.2.1.2 Systems Technology, Inc. - Dave Klyde

9:50am – 10:10am

BREAK

10:10am – 12:00pm

4.2.1.3 Calspan Flight Research Group - Lou Knotts

4.2.1.4 Scientific Systems Company - Raman Mehra

4.2.1.5 McLaurin Aerospace – Jeb Orr

4.2.1.6 Mitchell Aerospace Research - Dave Mitchell

4.2.1.7 DK Schmidt and Associates – Dave Schmidt

4.2.2 Technical Committee Liaison

4.2.2.1 SAE S-7 Committee – Brian Lee

4.2.2.1 IEEE AESS Statuse – Marge Draper-Donley

4.1.3 Universities

4.1.3.1 Naval Postgraduate School – Isaac Kaminer

4.1.3.2 New Mexico State University – Liang Sun

4.1.3.4 Texas A & M University - John Valasek

12:00 pm – 1:30 pm

LUNCHEON – Anasazi North (Meet in Subcommittees)

Subcommittee chairs, members and attendees will meet for lunch and agenda planning for Meeting No. 124.

1:30pm – 2:10pm

9.0 SUBCOMMITTEE E – FLIGHT, PROPULSION, AND AUTONOMOUS VEHICLE CONTROL SYSTEMS

John Valasek Chair

Irene Gregory, Vice Chair, Lou Knotts, Vice Chair

1:30pm – 2:10pm

9.1 “Aerial Co-Robots of the Future”, Dr. Naira Hovakimyan, U. of Illinois, Urbana-Champaign

2:10pm – 5:10pm

5.0 SUBCOMMITTEE A – AERONAUTIC AND SURFACE VEHICLES

Steve Jacobson, Chair

Oliver Brieger, Xavier Le Tron and Dave Mitchell, Vice Chairs

2:10pm – 2:50pm

5.1 “MIL-STD-1797C Update”, Will Thomas

2:50pm – 3:10pm **BREAK**

Wednesday
27 March

3:10pm – 3:50pm

3:50pm - 4:30pm 5.3 “X-56A Flutter Suppression Flight Testing with Modern Control”, Peter Suh, NASA Armstrong Flight Research Center

4:30pm -5:10pm 5.4 “Proverse yaw: On the Minimum Induced Drag of Wings”, Steve Jacobson, NASA Armstrong Flight Research Center

6:00pm – 9:00pm **RECEPTION - Cava West**

Thursday

28 Mar 2019

7:00am – 9:00am **BREAKFAST – Anasazi South**

8:00am – 11:00am **6.0 SUBCOMMITTEE B – MISSILES AND SPACE-** Anasazi South
TBD, Chair

Riccardo Bevilacqua, Vice Chair; Kevin Wise, Vice Chair

8:00am – 8:40am 6.1 “Dominator UAS Research and Development”, Jeremy Clark, Boeing

8:40am – 9:20am 6.2 “Spacecraft Collisions and Fragmentation”, Norman Fitz-Coy, University of Florida

9:20am – 10:00am 6.3 “GNC for Mars Entry Systems”, Zachary Putnam, University of Illinois

10:00am- 10:20am **BREAK**

10:20am – 11:00am 6.4 “STS/ISS On-orbit Flight Control: A Historical Perspective”, Rob Hall, NASA

6.5 “Vision-Based Navigation Algorithms and Performance Analysis for Precision Lunar Landing”, Kevin Duda, Draper Labs

11:00am – 12:20am **7.0 SUBCOMMITTEE C – AVIONICS AND SYSTEM INTEGRATION**

Raman Mehra, Chairman

Jan DeLuca, Vice Chair; James Paduano, Vice Chair

11:00am – 11:40am 7.1 “Fast, Reactive, Monocular Vision-Based Obstacle Avoidance for Small UAS”, Neil Johnson, SSCI

11:40am – 12:20am 7.2 “Flutter Suppression Phase II for a Flying-Wing Research Drone - Margins?”, Dave Schmidt et al, DK Schmidt and Associates

12:20pm – 2:00pm **LUNCHEON**

PAB will meet for lunch and agenda planning for Meeting No. 124 in the Chapel.
Other attendees have open seating for lunch in Anasazi North

2:00 pm – 3:20pm **7.0 SUBCOMMITTEE C – AVIONICS AND SYSTEM INTEGRATION (cont)**

Raman Mehra, Chairman

Jan DeLuca, Vice Chair; James Paduano, Vice Chair

- 2:00pm – 2:40pm 7.3 “Vision-based Navigation and Tracking with Small UAS”, Randy Beard, Brigham Young University
- 2:40pm – 3:20pm 7.4 “The Impact of In-Flight Motion on the Aggressiveness of Pilot Inputs: A Comparison with Fixed-base Simulation”, Dave Klyde, STI
- 3:20pm - 3:40pm **BREAK**
- 3:40pm – 5:00pm **8.0 SUBCOMMITTEE D – DYNAMICS, COMPUTATIONS, AND ANALYSIS**
Dave Doman, Chair
Dave Klyde, Vice Chair, Mike Bolander, Vice Chair
- 3:40pm – 4:20pm 8.1 “Intersections between Machine Learning and Adaptive Control”, Anu Annaswamy, MIT
- 4:20 pm – 5:00 pm 8.2 “X-56 Control of Flexible Structures”, Jeff Ouellette, NASA AFRC

Friday

29 March 2019 **BREAKFAST – Anasazi South**

7:00am – 9:00am

8:00am – 9:20am **8.0 SUBCOMMITTEE D – DYNAMICS, COMPUTATIONS, AND ANALYSIS (cont)**

Dave Doman, Chair

Dave Klyde, Vice Chair, Mike Bolander, Vice Chair

8:00am - 8:40am **8.3 “Bringing Aerial Refueling to the E-2D”**, Joe Allen, Naval Air Warfare Center

8:40am – 9:20am 8.4 “Fuel Flow Topology Optimization and Control for Aircraft Thermal Management”, Mike Oppenheimer, AFRL

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

John Valasek Chair

Irene Gregory, Vice Chair, Lou Knotts, Vice Chair

9:20am – 10:00am 9.2 “NUAIR NYS Unmanned Air Vehicle Test Range”, Dr. Ray Young, Chief Integration Officer NUAIR

10:00am – 10:20am **BREAK**

10:20am – 11:00am 9.3 “Updates and Capabilities of a FAA UAS Test Site”, Nicholas T. Flom, Northern Plains UAS Test Site

11:00am – 11:40am 9.4 “From machine learning and AI to control theory and physics: a holistic view of autonomy”, Evangelos Theodorou, Georgia Tech

11:40 am **ADJOURN**