



# IDEAS IN FLIGHT

James E. Webb Auditorium

July 24th & 25th, 2012



# DAY ONE (MORNING)

Welcome

8:30am-9:00am

Tom Irvine, Deputy Associate Administrator for Aeronautics Research, NASA Headquarters

Scholar presentations (20 min)

9:00am-9:20am

David Hash

University of Michigan

Modeling Future UAS Missions to Measure Their Impact on the National Airspace System

Mentor: Eric Mueller

Ames Research Center

Melissa Barnett

Embry Riddle Aeronautical University

Inverse Finite Element Method Investigation

Mentor: Eric Miller

Dryden Flight Research Center

Team presentation (30 min.)

9:20am-9:50am

Aeroacoustics Project

Ames Research Center

Allison Reinsvold, College of St. Benedict

Ivan Lucatero, California Polytechnic State University, San Louis Obispo

Chelsea Katan, Embry Riddle University

Mentors: Kurt Long, Clif Horne, Nate Burnside

9:50am-10:10am

*-Break-*

Scholar presentations (30 min.)

10:10am-10:40am

Emily Brandsdorfer

Stevens Institute of Technology

Advancements in Inflatable Habitats

Mentors: Karen Whitley, Judith Watson

Langley Research Center

Daniel Martelly

Massachusetts Institute of Technology

Examining and Evaluating Speech Recognition Tools in an Air Traffic Control Setting

Mentor: Durand Begault

Ames Research Center

Aditya Kalluri

Massachusetts Institute of Technology

Monitoring Attentional State Using Real-Time EEG Classification

(Vehicle Systems Safety Technologies Project, NASA Aviation Safety Program)

Mentors: Angela Harrivel, Beth Lewandowski

Glenn Research Center

Team presentation (60 min.)

10:40am-11:40am

Investigation of a Networked Validation Environment for Distributed Air/Ground NextGen Concept

Langley Research Center

Noah Dennis, Johns Hopkins University

Alec Gibson, University of Cambridge

James Grisham, University of Texas

Michael McCormack, University of California, Berkeley

Lana Miller, Mississippi State University

Matthew Underwood, West Virginia University

Mentors: Mark Ballin, Mike Guminsky, John Koelling, Dr. Elizabeth Ward

11:40am-12:00pm

Pictures

# DAY ONE (AFTERNOON)

12:00pm-1:30pm

Lunch

Team presentation (60 min.)

1:30pm-2:30pm

Primary Research Aerodynamic Design to Lower Drag (PRANDTL-D)

Dryden Flight Research Center

Luis Andrade, Cal State Polytechnic University

Kimberly Callan, University of Wisconsin at Madison

Javier González-Rocha, Cal State Sacramento

Sanel Horozovic, University of Illinois

Nancy Piñón, Tuskegee University

Julianna Plumb, Biola University

Ronaylnn Ramos, Cal State Polytechnic University

Stephanie Reynolds, Cal State Long Beach

Steffi Valkov, Cal State Polytechnic University

Joseph Wagster, Cal State Polytechnic University

Mentors: Al Bowers, Oscar Murillo, and Brian Taylor

Scholar presentations (20 min.)

2:30pm-2:50pm

Elizabeth D'Arienzo

Massachusetts Institute of Technology

Formation Flight for Drag Reduction

Mentor: Curt Hanson

Dryden Flight Research Center

Jacob Kilver

Ohio State University

Model Based Turbofan Engine Control

(Subsonic Fixed Wing Project, Efficient Propulsion and Power Task)

Mentor: Joseph Connolly

Glenn Research Center

2:50pm-3:10pm

*-Break-*

Team presentation (40 min.)

3:10pm-3:50pm

Investigation of a Networked Validation Environment for Distributed Air/Ground NextGen Concepts

Langley Research Center

Natalie Larson, University of California, San Diego

Justin Nelson, University of Wisconsin, Stout

Joshua Reed, Old Dominion University

Marvin Suggs, Arkansas Technical University

Mentors: Mark Ballin, Mike Guminsky, John Koelling, Dr. Elizabeth Ward

# DAY TWO (MORNING)

Welcome

8:30am-9:00am

Dr Jaiwon Shin, Associate Administrator for Aeronautics Research, NASA Headquarters

Scholar presentations (30 min.)

9:00am-9:30am

Zachary Goff

Toolbox Development for Analysis of Subscale Aircraft

Mentor: Chris Regan

Dryden Flight Research Center

Alexander Angilella

Rensselaer Polytechnic Institute

Anechoic Wind Tunnel and Flow Topology

Mentors: Kurt Long, Clif Horne, Nate Burnside, and Murray Tobak

Ames Research Center

Catherine Patrick

Purdue University

Fluorescence Characteristics of Synthetic Jet Fuels: Toward Cleaner Aircraft Emissions

Mentor: Dr. Yolanda Hicks

Glenn Research Center

Team presentation (45 min.)

9:30am-10:15am

Intelligent Aircraft Engines for Next Generation Air Transportation

Glenn Research Center

Arick Abraham, Rochester Institute of Technology

Melanie Chatham, Embry Riddle Aeronautical University-Prescott

Daniel Kakaley, North Carolina State University at Raleigh

Nathaniel Morris, Central State University

Heath Reising, University of Illinois at Urbana-Champaign

Mentors: Dr. John Lekki, Dr. Gary Hunter, Donald Simon

10:15am-10:30am

-Break-

Scholar presentations (30 min.)

10:30am-11:00am

Michelle Lynde

University of Texas, Arlington

Battery Health Management for an Electric UAVs

Mentor: Patrick Quach

Langley Research Center

Vincent Scotti

Florida Institute of Technology

Enterprise Firewalling with Open Source Tools

Mentors: Ernest M. Lopez, Matt Linton, Tandy L. Daras

Ames Research Center

Sanel Horozovic

University of Illinois at Chicago

Vane Testing and Selection for PRANDTL-D Aircraft

Mentors: Al Bowers, Oscar Murillo, and Brian Taylor

Dryden Flight Research Center

Team presentation (40 min.)

11:00am-11:40am

TAIGA System App Development

Ames Research Center

Paul Pinkston, Arkansas Technical University

Caleb Rice, West Virginia University

Victoria Lynn Salas, University of Wisconsin-Milwaukee

Micah Spaun, Whitworth College

Mentors: Parimal Kopardekar, Joey Rios

# DAY TWO (AFTERNOON)

Scholar presentations (20 min.)

11:40am-12:00pm

Brandon Hull  
Virginia Polytechnic Institute and State University  
Material Characterization of Carbon Nanotube Mats  
Mentor: Brian Grimsley  
Langley Research Center

Stephanie Shevenock  
Lawrence Technological University  
CFD Analysis of Inlet Buzz for Axisymmetric Single Stream Inlet  
Mentors: Dr. Meng-Sing Liou, Dr. Hyoung Jin Kim  
Glenn Research Center

12:00pm -1:30pm

Lunch

Team presentation (20 min.)

1:30pm-1:50pm

Catalyst Processing and Analysis for Green Fuel Production (Subsonic Fixed Wing Project)  
Taichi Murata, University of California-Los Angeles  
Macie Price, Manchester College  
Mentors: Dr. Aloysius Hepp, Dr. Ana De La Ree  
Glenn Research Center

Scholar presentations (20 min.)

1:50pm-2:10pm

Adam Weber  
University of Michigan  
Battery Health Management for an Electric UAVs  
Mentor: Patrick Quach  
Langley Research Center

Emma White  
Iowa State University  
Novel Materials for Lithium-Ion Batteries Power, Energy Storage and Conversion  
Mentor: Dr. Richard Baldwin  
Glenn Research Center

Team presentation (30 min.)

2:10pm-2:40pm

Conceptual Design of Two Short-Haul Civil Tiltrotors  
Ames Research Center  
Daniel Wukelic, University of Hawaii at Manoa  
Austen Knapp, University of Colorado  
Guillermo Costa, California Polytechnic State University, Pomona  
Mentors: Dr. William G. Warmbrodt, Carl R. Russell

Scholar presentations (20 min.)

2:40pm-3:00pm

Khalil Ramadi  
Pennsylvania State University  
A New Liner Design for the Advanced Subsonic Combustion Rig (ASCR) Environmentally Responsible Aviation (ERA)  
Mentor: Dr. Clarence Chang  
Glenn Research Center

Jonathan Thompson  
University of Colorado at Colorado Springs  
Cryogenic Ground Loading Operations Model  
Mentor: Vadim Smelyanskiy  
Ames Research Center

## DAY TWO (AFTERNOON)

Team presentation (30 min.)

3:00pm-3:30pm

Development of Fuel Droplet Vaporization Rate Measurement (Subsonic Fixed Wing Project)  
Glenn Research Center  
Steven Carter, University of Portland  
Daniel ReMine, University of Virginia-Main Campus  
Dennis Siedlak, Georgia Tech University  
Mentors: Dr. Sarah Tedder, Dennis Huff

Closing Remarks (15 min.)

3:30pm-3:45pm



*Congratulations to all our Ideas in Flight participants — our 2012 Aeronautics Scholarship interns and our 2012 Aeronautics Academy students — and to their dedicated mentors and coordinators at our NASA centers. All of you represent a bright future for aeronautics research and the meaningful benefits it provides every day to our nation. Good luck on your future endeavors!*

*Dr. Jaiwon Shin  
Associate Administrator  
Aeronautics Research Mission Directorate*

# NASA Headquarters Location and the Surrounding Area





NASA Headquarters  
Aeronautics Research Mission Directorate  
300 E Street, SW  
Washington D.C. 20546  
[www.aeronautics.nasa.gov](http://www.aeronautics.nasa.gov)