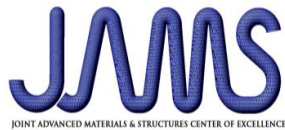


# JAMS Technical Review Meeting

Ahmet Oztekin, PhD

FAA William J. Hughes Technical Center  
Advanced Materials Research Program Manager  
COE JAMS Program Manager

[ahmet.oztekin@faa.gov](mailto:ahmet.oztekin@faa.gov)  
(609) 485 6809



May 22-23, 2019  
Charlotte, NC



Federal Aviation  
Administration



# FAA Research Process

## Research Programs, Requirements, and Centers of Excellence

- **FAA has a number of programs** to conduct research about potential safety concerns in various key areas of interest.
  - e.g., UAS, Human Factors, Environmental Impact, Structures & Materials, Propulsion, Fuel, Fire, Aircraft Icing, Commercial Space Transportation, General Aviation, etc.
- **Each program's** scope and objectives are defined **by a set of research requirements**
- Some of these research programs sponsor an **FAA Center of Excellence** (COE)
- FAA's **Advanced Materials and Structural Safety** research program sponsors COE  
**JAMS**

# FAA Research Process

## FAA's Advanced Materials Research Program & Requirements

- **Program Scope:**
  - Advanced composite materials and structures including hybrid assemblies used in civil aviation
    - Current scope also include additive manufacturing
- **Research Requirements:** Three years in advance, FAA proposes topics for research
  - Proposed research requirements evaluated by an FAA-wide internal review process and compete for funding
  - FY 2018 research requirements for the advanced materials program
    - **Fatigue and Damage Tolerance** of Composite Structures
    - Composite **Maintenance Practices**
    - **Crashworthiness** Issues Unique to Composites,
    - Structural Integrity of **Adhesive Joints**,
    - **Continued Operational Safety** (COS) and **Certification Efficiency** (CE) for Emerging Composite Technologies
  - Year before execution we modify the requirements as necessary, based on what we have learned in the interim

# FAA Advanced Materials Research

## FAA Team – Collaboration of Two FAA Offices

FAA Administrator (AOA)

5 Lines of Business

Aviation  
Safety (AVS)



Air  
Certification  
(AIR)



Policy &  
Innovation  
(AIR-600)



**Sponsor**

Developing Research  
Requirements

Aviation Research  
(ANG-E2)



Structures &  
Materials  
(ANG-E281)



**Performer**

Managing Research Funds &  
Technical Monitoring of Grants

9 Staff Offices

Next Generation  
Air Transportation  
System (ANG)



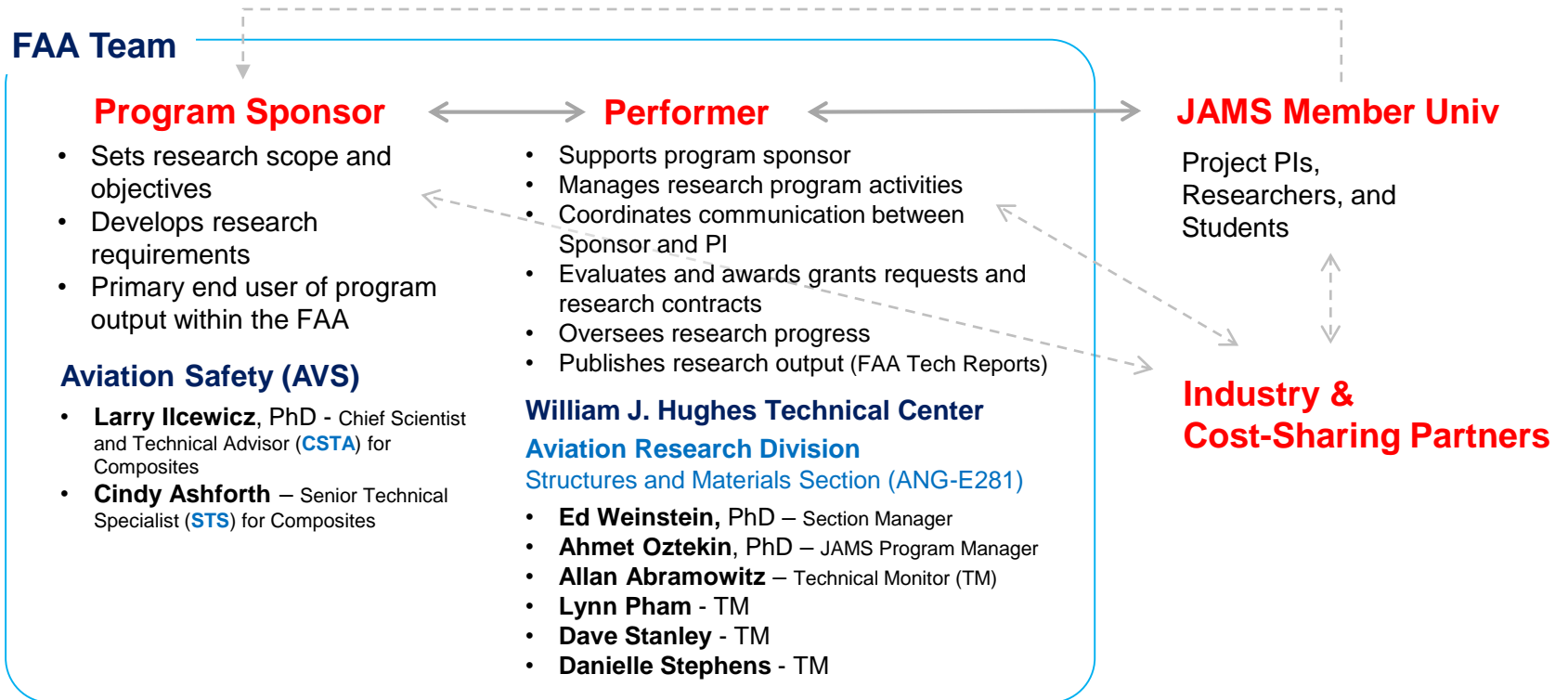
William J Hughes  
Technical Center  
(ANG-E)



NextGEN

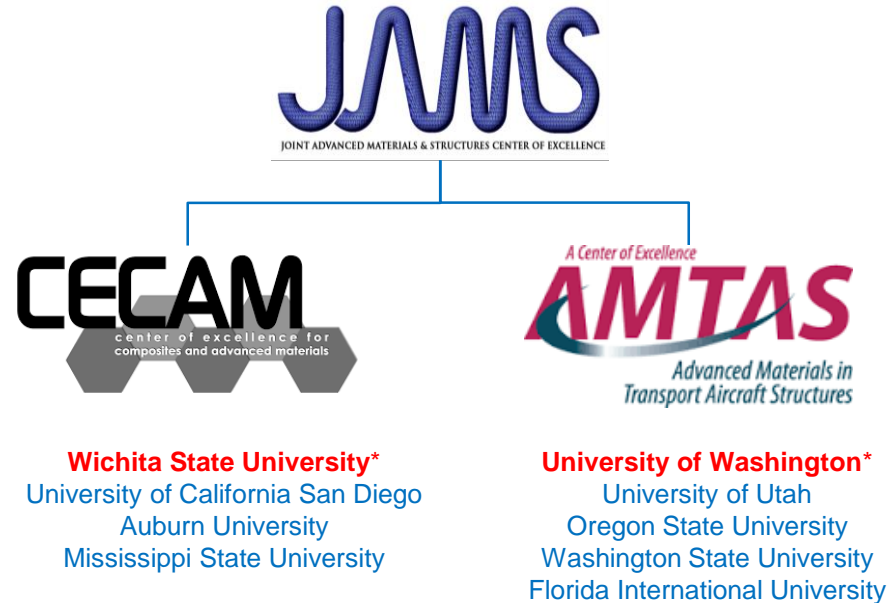


# FAA Research Team & JAMS Stakeholders



# Joint Centers of Excellence for Advanced Materials & Structures – COE JAMS

- JAMS was established by the FAA as a Joint Centers of Excellence in 2003.
- 9 member universities (currently active)
- FY18-19 funding cycle:
  - 24 grants awarded
  - Total federal funding amount: \$6.6M
    - Cost matched by non-federal contributions of our partners



\* JAMS Co-leads

# COE JAMS

## 2018-2019 JAMS Research Portfolio

- **29 ongoing research project**
  - **Fatigue and Damage Tolerance: 7 Projects**
    - JAMS Member Universities: OSU, UCSD, UU, UW, and WiSU
  - **Maintenance Practices: 3**
    - WiSU
  - **Crashworthiness: 2**
    - UU and WiSU
  - **Bonded Joints: 6**
    - FIU, UU, UW, WiSU, and WSU
  - **Continued Operational Safety and Certification Efficiency: 11**
    - MSU, UW, and WiSU

# Thank You For Your Continued Support To COE JAMS!

**Ahmet Oztekin**

[ahmet.oztekin@faa.gov](mailto:ahmet.oztekin@faa.gov)

(609) 485 6809

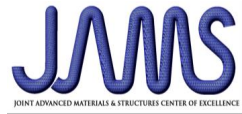
Structures and Materials Research, ANG-E281  
FAA William J. Hughes Technical Center  
Atlantic City International Airport, NJ 08405



# FAA/JAMS Only Session



# COE JAMS



## Change of Leadership at the FAA Air Transportation Centers of Excellence Program Management

- **Karen Davis** is our new point of contact for everything related to processing JAMS grant requests

[Karen.S.Davis@faa.gov](mailto:Karen.S.Davis@faa.gov)

FAA Air Transportation Centers of Excellence, ANG-E42

William J. Hughes Technical Center

Atlantic City International Airport, NJ 08405

(609) 485-6242



# Future of the COE JAMS

- Past two years we were on life support: Two short term extensions, each limited to a single year.

## FAA Reauthorization Act of 2018:

*“§ 44518. Advanced Materials Center of Excellence*

*(a) ... The Administrator of the Federal Aviation Administration shall continue operations of the Advanced Materials Center of Excellence... under its structure as in effect on March 1, 2016...”*

- This year, as the sponsoring organization, the **FAA Technical Center is requesting a 5-year extension** of the JAMS COE agreement.
- I will travel with Karen Davis to attend a meeting at the FAA HQ in Washington, DC on May 29 to finalize the memo that will go to the Administrator.

# COE Grant Review & Approval Process

- Individual grant requests are bundled in packages. We are asked to create as few packages as possible.
- Every JAMS grant request package is reviewed and signed by the **FAA Administrator** and then by the **Secretary of Transportation** for final approval
- JAMS submitted two packages last summer. One was approved on 9/24/2018 and the other 3/1/2019

## JAMS Package 1 (11 Grant Requests, \$1.46 M)

U.S. Department of Transportation  
Federal Aviation Administration  
September 11, 2018

Office of the Administrator  
200 Independence Ave., SW  
Washington, DC 20515

**ACTION MEMORANDUM TO THE SECRETARY**

From: Daniel K. Elwell, Acting Administrator  
2051511

Prepared by: Pamela Whitley, Acting Assistant Administrator, NUS&N  
207111

Subject: Grant Awards to a Competitively Established, Air Transportation Joint Center of Excellence (COE) for Advanced Materials and Structures (JAMS) for Fiscal Year 2018

**ACTION REQUIRED**

The Federal Aviation Administration (FAA) requests that the Secretary approve 11 grant awards to the university members comprising FAA's Air Transportation Joint Center of Excellence (COE) for Advanced Materials and Structures (JAMS).

**SUMMARY**

In accordance with Public Law 101-508, Sec. 9209 and 49 U.S.C. § 44513, the FAA has competitively established COEs with intent of geographically diverse universities throughout the United States to conduct research in critical aviation topic areas. The FAA's COE for JAMS was competitively awarded in 2007 to support the FAA needs across diverse program areas including fatigue and damage tolerance of composites; composite maintenance practices; environmental effects of composite; structural integrity of adhesively bonded structure; additive manufacturing; and certification of composites. The proposal grants to the COE university members align with the COE's research scope and are fully supported by the FAA Office of NUS&N.

The following chart summarizes the 11 proposed grant awards for 11 projects. The total amount of the proposed grants is \$1,456,658. If approved, these grants will bring the Fiscal Year (FY) 2018 year-to-date award amount to this COE to \$1,456,658 out of an expected annual total of \$8 million. The FAA is directed by Congress to use these funds to support advanced research needs.

• Attach item V – JAMS FY 2018 Competitive Funding Director and FY2019 Issues and Summary Accomplishment Report (Optional)  
• Attachment VI – Funds Certification Form

The Secretary  
APPROVED: *Just Chao*  
DISAPPROVED: \_\_\_\_\_  
COMMENTS: \_\_\_\_\_  
DATE: 9-24-19

## JAMS Package 2 (15 Grant Requests, \$5.2 M)

U.S. Department of Transportation  
Federal Aviation Administration  
February 14, 2019

Office of the Administrator  
200 Independence Ave., SW  
Washington, DC 20515

**ACTION MEMORANDUM TO THE SECRETARY**

From: Daniel K. Elwell, Acting Administrator  
2051511

Prepared by: Pamela Whitley, Acting Assistant Administrator, NUS&N  
207111

Subject: Grant Awards to a Competitively Established, Air Transportation Joint Center of Excellence (COE) for Advanced Materials and Structures (JAMS) for Fiscal Year 2019

**ACTION REQUIRED**

The Federal Aviation Administration (FAA) requests that the Secretary approve 11 grant awards to the university members comprising the FAA's Air Transportation Joint Center of Excellence (COE) for Advanced Materials and Structures (JAMS).

**SUMMARY**

In accordance with Public Law 101-508, Sec. 9209 and 49 U.S.C. § 44513, FAA has competitively established COEs with intent of geographically diverse universities throughout the United States to conduct research in critical aviation topic areas. The FAA's COE for JAMS was competitively awarded in 2007 to support the FAA needs across diverse program areas including fatigue and damage tolerance of composites; composite maintenance practices; environmental effects of composite; structural integrity of adhesively bonded structure; additive manufacturing; and certification of composites. The proposal grants to the COE university members align with the COE's research scope and are fully supported by the FAA Office of NUS&N.

The following chart summarizes the 15 proposed grant awards for 15 projects. The total amount of the proposed grants is \$5,200,786. If approved, these grants will bring the Fiscal Year (FY) 2019 year-to-date award amount to this COE to \$5,200,786 out of an expected annual total of \$12,000,000. Congress requires FAA to use these funds to support advanced research needs.

The FAA's Office of the Chief Financial Officer has reviewed these transactions and awards and has confirmed that funds are available to make the awards. In addition, the FAA Chief

**RECOMMENDATION**

The FAA recommends that the Secretary approve 15 grant awards to the university members comprising the FAA's Air Transportation Joint Center of Excellence for Advanced Materials and Structures.

The Secretary  
APPROVED: *Just Chao*  
DISAPPROVED: \_\_\_\_\_  
COMMENTS: \_\_\_\_\_  
DATE: 3-1-19

**ATTACHMENTS**

- Attachment 1 – Position List of Personnel used in Progressive Damage Models (incl. Research Institutions) (New Project)
- Attachment 2 – Development and Validation of Fracture Mechanics Test Methods for Sandwich Composites (incl. Request to Develop Existing Projects)
- Attachment 3 – Composite Aircraft's Health & (PHM-7) (incl. Request Information on Existing Project)
- Attachment 4 – Development and Safety Management of Composite Certification Guidance (incl. Request Information on Existing Project)
- Attachment 5 – Resin Infused Tape Reinforced Structural Qualifiers for Aircraft Design and Certification (incl. Request Information on Existing Project)
- Attachment 6 – Polymer Matrix Additive Manufacturing (PBAO) Guidelines for Aircraft Design and Certification (incl. Request Information on Existing Project)
- Attachment 7 – Composite Repair Methods Guidance for Aircraft Maintainability and Safety Assessment (incl. Request Information on Existing Project)
- Attachment 8 – Composite Matrix Composite (CMC) Material Production for Aircraft Design and Certification (incl. Request Information on Existing Project)
- Attachment 9 – Aircraft Fiber Reinforced Polymer Composite Material Guidance for Aircraft Design Certification (incl. Request Information on Existing Project)
- Attachment 10 – Additive Quality Assurance for Aircraft Design and Certification (incl. Request Information on Existing Project)
- Attachment 11 – Additive Bond Qualification Guidance for Aircraft Design and Certification (incl. Request Information on Existing Project)

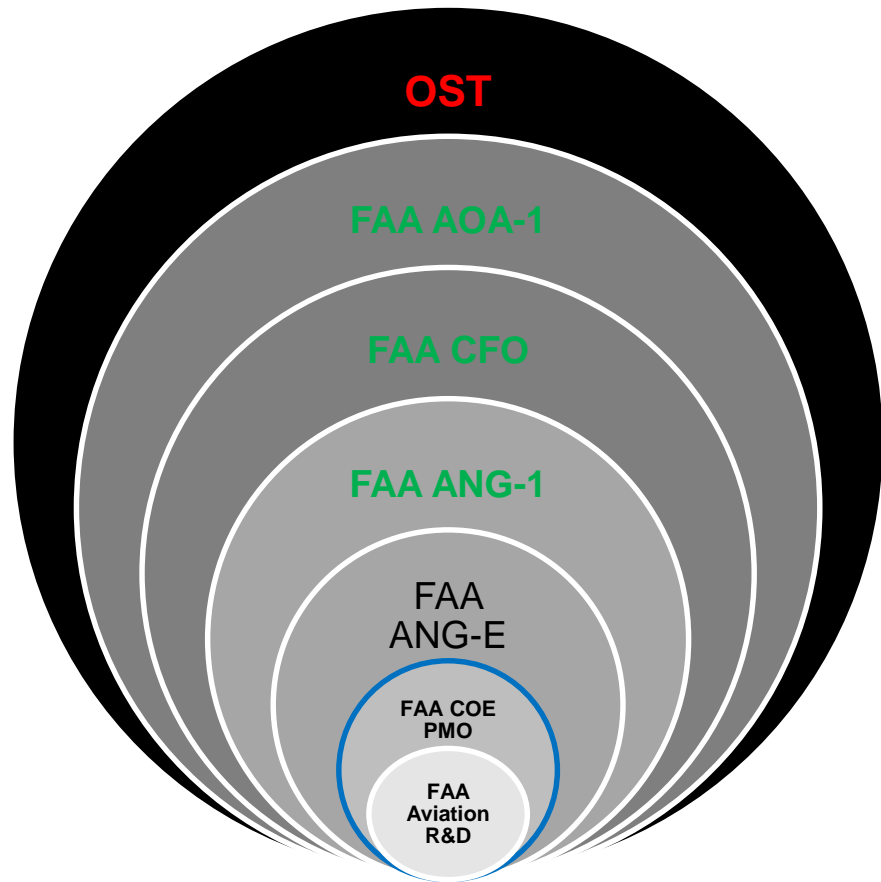
# COE Grant Review & Approval Process

## Past Process (up to and including 2017)

- FAA Aviation Research (ANG-E2) reviews and approves grant request
- FAA COE Program Office awards grant request

## Current Process (Since 2018)

- Past Process +
  - FAA ANG-E Review/Concurrence
  - FAA Assistant Administrator
  - FAA Chief Financial Officer
  - FAA Administrator
  - **Secretary of Transportation**
- FAA Tech Center
- FAA HQ in DC
- DOT





# Important Dates for Grant Requests

**October 1, 2019:** Estimated earliest award date for this years COE grant requests.

## Continuation or New Start:

- If additional/new **funds are needed in 2019**, then
  - coordinate your draft proposals with FAA by **June 14, 2019**
  - Submit your final proposal package to grants.gov by **June 21, 2019**

# After Execution of Award

- **Detailed Research Plan** (DRPs) due within 30 days of award execution:
  - Tasks, Milestones, Deliverables, and Estimated Completion Dates
- **Kickoff meeting** (or teleconference) with FAA tech monitor, sponsor, and PI
  - DRP will be reviewed
- **Monthly teleconference** with the tech monitor and sponsor to review research status
- **Annual technical report** based on work performed in that year



# Research Reports

## Monthly Status Reports

- Monthly reports are very important for the FAA Team to keep track of ongoing research
- We are in the process of revising the template and will set up a teleconference

## Annual Technical Reports

- Technical Reports published by the FAA Tech Center are the main tangible output of the JAMS program for FAA.
- We have moved to a system where we request every open JAMS project submit a Technical Report at the end of each fiscal year.
  - Interim technical report for ongoing tasks
  - Final report for ending tasks
- **Important Dates:**
  - Initial outline with some early draft content due **July 30, 2019**.
  - Final draft due **October 1, 2019**

# Invoicing

- Spend old money before spending new funds.
- Use correct charge codes.
- Charge against correct award/amendment.
- We may ask additional info to be included with JAMS invoices in the near future.

# Roles, Responsibilities, and Expectations

- **For research related questions and concerns**
  - **Your FAA Technical Monitor is the primary point of contact**
    - Update your FAA TM about research status on a regular basis by setting up telecoms/meetings. Keep the PM in the loop, too.
    - TM will coordinate with our FAA Program Sponsors
    - Inform your TM and PM about any meeting/telecom that you participate to discuss your FAA-funded research.
      - especially, if there is a potential impact on research direction

**FAA Tech Monitors for JAMS Research**  
**Ahmet, Allan, Danielle, Dave, and Lynn**

# Roles, Responsibilities, and Expectations

- For funding and/or grant request related questions and concerns
  - JAMS Program Manager is your primary point of contact
    - Inform any issues impacting research schedule promptly to the PM and your TM
      - Including personnel change
    - Let the PM know about your No-Cost Extension requests at least 60 days in advance of the end of the current period of performance.

**FAA JAMS COE  
Program Manager**

Ahmet Oztekin

[ahmet.oztekin@faa.gov](mailto:ahmet.oztekin@faa.gov)

(609) 485 6809

# Thank You!

