

## Call for Papers

The AIAA Materials Technical Committee is sponsoring a special session on  
**Materials and Design for Additive Manufacturing**

### AIAA SciTech 2020

6–10 January 2020

Hyatt Regency Orlando

Orlando, Florida

The AIAA (American Institute of Aeronautics and Astronautics) Materials Technical Committee is very pleased to announce a call for papers to be presented in special sessions on **Materials and Design for Additive Manufacturing** within the AIAA SciTech conference. These sessions will examine advances in Additive Manufacturing, also sometimes known as 3D Printing. Any materials-related aspect of additive manufacturing that is relevant to aerospace is acceptable for papers, including:

- Materials and material property development (polymers, metals, ceramics, fibers)
- Modeling and experimentation of predictive relationships between the processing parameters, material composition, and resulting microstructure
- Design and innovative applications
- Machines and processing
- Process monitoring and control methods
- In-space additive manufacturing
- Testing and Inspection
- Materials discipline capabilities for certification

To this end, the Materials Technical Committee is soliciting papers with recent research, technological advancements, and systems level perspectives in the above areas. The committee welcomes submissions from government, industry, academic, and small businesses.

Extended abstracts of no less than 1,000 words are due **June 11, 2019**

Author notification of paper acceptance on or about **August 30, 2019**

Final manuscript due **December 2, 2019**

Detailed abstract preparation instructions and policies can be found at

<http://www.aiaa-scitech.org/CallForPapers/>

**Make sure to select the “Special Sessions” option during submission**

Please notify us if you are planning to submit an abstract, so that we can ensure that it is included in these sessions. For more information contact one of the following organizers:

**Dr. Joseph H. Koo**

The University of Texas at Austin

[jkoo@austin.utexas.edu](mailto:jkoo@austin.utexas.edu)

**Dr. Steven Wanthal**

The Boeing Company

[steven.wanthal@boeing.com](mailto:steven.wanthal@boeing.com)

## Call for Papers

The AIAA Structures and Materials Technical Committees are sponsoring a special session on

# Applications of Artificial Intelligence and Machine Learning to Problems in Structures and Materials

## AIAA SciTech 2020

6-10 January 2020

Hyatt Regency Orlando

Orlando, Florida

The AIAA (American Institute of Aeronautics and Astronautics) Structures and Materials Technical Committees are pleased to announce a call for papers to be presented in special sessions on **Applications of Artificial Intelligence and Machine Learning to Problems in Structures and Materials** within the AIAA SciTech Forum.

Artificial Intelligence and machine learning (deep learning included) technologies offer the potential to revolutionize and streamline current processes to develop and qualify materials, as well as improve our design process for aerospace structures. These sessions will examine applications of various artificial intelligence and machine learning technologies to further the development of new materials and structural, along with the associated design and qualification/certification. Abstracts are sought covering recent research, technological advancements, and systems level perspectives in the above areas. The committee welcomes submissions from government, industry, academic, and small businesses.

Extended abstracts of no less than 1,000 words are due **June 11, 2019**

Final manuscript due **December 2, 2019**

Detailed abstract preparation instructions and policies can be found

<https://scitech.aiaa.org/callforpapers>

**Make sure to select the “Special Sessions” option during submission**

Please notify us if you are planning to submit an abstract. For more information contact one of the following organizers:

**Dr. Wenbin Yu**  
Purdue University  
[wenbinyu@purdue.edu](mailto:wenbinyu@purdue.edu)

**Dr. Steven Wanthal**  
The Boeing Company  
[steven.wanthal@boeing.com](mailto:steven.wanthal@boeing.com)

## SciTech 2020 Call for Papers

### Supplemental Information for Survivability

#### **Joint Session, Sponsored by the Survivability and Materials Technical Committees: Materials for Survivability**

Survivability improvements for air and space systems increasingly rely on the development of new materials and composites, which must be lightweight but also satisfy a demanding set of mechanical, thermal, electromagnetic, or other requirements. Examples include: (1) high toughness composite materials for aircraft, (2) impact resistant thermal protection materials for spacecraft, (3) low observability coatings, which reduce optical or radar signatures, (4) smart materials, which support structural health monitoring or self-healing, and (5) additively manufactured materials with properties optimized for specific applications. Abstracts describing analytical, computational, experimental, or design research that address any aspect of the 'materials for survivability' theme are encouraged.

Interested authors may contact Eric Fahrenthold ([epfahren@mail.utexas.edu](mailto:epfahren@mail.utexas.edu)) or Joe Koo ([jkoo@mail.utexas.edu](mailto:jkoo@mail.utexas.edu)).

# Integrated Computational Materials Engineering (ICME) “Celebrating a Decade of ICME at AIAA”

**January 6-10, 2020**  
**Hyatt Regency - Orlando, Florida**

The AIAA (American Institute of Aeronautics and Astronautics) Materials, Structures, Multidisciplinary Design Optimization (MDO), Nondeterministic Approaches (NDA), and Systems Engineering Technical Committees (TCs) are very pleased to announce a coordinated series of special sessions and training events on Integrated Computational Materials Engineering within the [AIAA SciTech Forum 2020](#). ICME initiatives focus on the integration of materials information, captured in computational tools, with engineering product design, optimization, performance analysis and manufacturing process simulation (references: [NAP 2008](#), [NSTC 2011](#)). The coordinated efforts of ICME and the Materials Genome Initiative (MGI), in concert with the [United States Government “Digital Engineering”](#) and [Manufacturing USA](#) initiatives, aim to deliver the required infrastructure and training to accelerate innovation, discovery, development, validation, and use of advanced materials and manufacturing processes as an integral part of next generation multi-disciplinary design/make with a focus on designing for affordability. The presentations addressed in these events are affiliated with and compliment the efforts of ASM International ([AeroMat & Computational Materials Data Network](#)), [TMS](#), [ASME \(Verification & Validation Sub-Committee efforts\)](#), and SciTech short courses for ICME.

To this end, the Materials, Structures, MDO, NDA, and Systems Engineering Technical Committees are soliciting papers with recent research, technological advancements, and systems level perspectives that address issues/challenges involved in the integration of ICME into design systems, manufacturing/production, sustainment/aftermarket systems and structural analysis. The end goal of these sessions is to tabulate challenges and solutions for accelerating implementation of ICME capability across industry, academia and government.

The session organizers welcome submissions & participation from government, industry, academia, and small businesses in the following ICME integration events for [AIAA SciTech Forum 2020](#):

- Lecture
  - “ICME – Success Cases & Lessons Learned”
    - Invited Lecture: John Allison (to be confirmed)
- Cross-TC Coordinated Technical Sessions
  - “Additive Manufacturing Modeling”
    - Chairs: Stephanie TerMaath and Rob Taylor
  - “Verification, Validation & Uncertainty Quantification for ICME”
    - Chair: Barron Bichon
  - “Integrating Composite Manufacturing Modeling with Design”
    - Chairs: Greg Odegard, Wenbin Yu, Josh Dustin, and Marianna Maiaru
- ICME “Lunch & Learn”
  - Speaker: Steve Arnold (to be confirmed)
- Tutorial
  - Verification & Validation Best Practices for ICME
    - Instructors: David Riha, Mark Benedict (to be confirmed)
- ICME Prize 2020 Award
  - [Prize Competition Presentations & Award Selection](#)
    - Contacts: Wenbin Yu, John F. Matlik, Steve Arnold

For more information, review details in links above and/or contact one of the following TC leads:

**Dr. Steve Arnold (Materials TC)**  
National Aeronautics & Space Administration (NASA)  
[steven.m.arnold@nasa.gov](mailto:steven.m.arnold@nasa.gov)

**Dr. Stephen P. Engelstad (Structures TC)**  
Lockheed Martin Aeronautics Company  
[stephen.engelstad@lmco.com](mailto:stephen.engelstad@lmco.com)

**Dr. H. Alicia Kim (MDO TC)**  
University of California, San Diego (UCSD)  
[alicia@ucsd.edu](mailto:alicia@ucsd.edu)

**Dr. Barron J. Bichon (NDA TC)**  
Southwest Research Institute  
[barron.bichon@swri.org](mailto:barron.bichon@swri.org)

**Mat French (Systems Engineering TC)**  
Rolls-Royce Corporation/LibertyWorks™  
[Mat.French@liberty.rolls-royce.com](mailto:Mat.French@liberty.rolls-royce.com)