

Call for Papers

The AIAA Structural Dynamics Technical Committee is sponsoring a Special Session on:

Structural Dynamics and Crashworthiness of Unconventional Aircraft

AIAA SciTech 2025

6–10 January 2025
Hyatt Regency Orlando
Orlando, Florida

Exploring unconventional aircraft configurations, including blended wing-body, strut-braced wings, and electric vertical take-off and landing (eVTOL) aircraft, presents significant opportunities for advancing clean aviation. However, these innovative designs introduce fresh challenges in the areas of structural design and crashworthiness analysis. Consequently, this session invites research that contributes to the development of more energy-efficient unconventional aircraft, with a particular emphasis on structural analysis and design. Key areas of focus include dynamic scenarios like flutter, ditching, sloshing, as well as strategies for integrating crashworthiness into structural design and evaluating the crashworthiness of these novel aircraft types.

The committee welcomes submissions from government, industry, academic, and small businesses. All abstracts are peer-reviewed.

Extended abstracts of no less than 1,000 words are due May 23, 2024
Author notification of paper acceptance on or about August 26, 2024
Final manuscript due December 2, 2024

Detailed deadline information, abstract preparation instructions, and policies can be found at:
<https://www.aiaa.org/SciTech/call-for-content/call-for-papers>

Make sure to select the “Crashworthiness of Unconventional Aircraft” topic option under “Structural Dynamics” during submission.

For more information, please contact the session organizer:

Dr. Xuerui (Sherry) Wang
Assistant Professor
TU Delft
X.Wang-6@tudelft.nl

Call for Papers

The AIAA Structures Technical Committee and Structural Dynamics Technical Committee are sponsoring a Joint Session on

Fatigue Loads and Spectrum Generation

AIAA SciTech 2025

January 6-10, 2025

Orlando, FL

The AIAA (American Institute of Aeronautics and Astronautics) Structures Technical and Structural Dynamics Technical Committees solicits papers with recent research, technological advancements, and systems-level perspectives on Fatigue Loads and Spectrum Generation for the AIAA SciTech conference. Applications to all aero-structures, aircraft and spacecraft (such as launch vehicles), are welcome. Potential topics could include but are not limited to:

- Air load determination (statistical, discrete nz, measured strains and loads for gust and maneuver – abrupt and balanced)
- Ground handling load determination (landing impact, taxi., thrust reverse events)
- Spectrum generation (load generation, handling load-to-stress conversion, spectrum event load time history representation)
- Test spectra (analytic loads, clipping and truncating of spectra)

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Make sure to select the “Fatigue Loads and Spectrum Generation” topic option under “Structures” or “Structural Dynamics” technical discipline when prompted during submission.

For more information, contact one of the following organizers:

Rich Manwell
Darin Haudrich

Textron Aviation
The Boeing Company

rmanwell@txtav.com
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Call for Papers

The AIAA Structural Dynamics Technical Committee is sponsoring a Special Session on:

International Collaborations Advancing Materials and Combustion

2025 AIAA SciTech Forum

January 6-10, 2025
Hyatt Regency
Orlando, FL

Advances in materials and combustion technologies have consistently been focus areas of international interest. New and disruptive collaborative research in these areas provide an insight to how interdependencies operate where different physical mechanisms in combustion affect materials and thermal design and how this integrates with the overall engine system performance. Collaborative research outcomes in these areas will lead to the design of optimized combustion performance that need reliable material and thermal systems to enable advanced technologies in aerospace. The integrated focus on the fundamental sciences in materials, heat transfer and combustion will address the key limitations to achieving engine performance goals that interdisciplinary research facilitates. The session will further highlight the benefit of diverse expertise, experimental and simulation facilities that international partnerships have offered in the research topics.

The committee welcomes submissions from government, industry, academic, and small businesses. All abstracts are peer-reviewed.

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Final manuscript due **December 2, 2024**

Detailed deadline information, abstract preparation instructions, and policies can be found at:
<https://www.aiaa.org/SciTech/call-for-content/call-for-papers>

Make sure to select the “International Collaborations Advancing Materials and Combustion” during submission.

For more information, please contact the session organizers:

Dr. Seetha Raghavan
seetha.raghavan@erau.edu
Embry-Riddle Aeronautical University, Daytona Beach, FL

Dr Mark Ricklick
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Embry-Riddle Aeronautical University, Daytona Beach, FL

Call for Papers

The AIAA Structural Dynamics Technical Committee is sponsoring a Special Session on:

NASA LOADS
AIAA SciTech 2025
January 6-10, 2025
Hyatt Regency
Orlando, FL

NASA's aerospace missions, such as the Artemis Program, Commercial Crew Program, International Space Station Program, and X-plane Flight Demonstrators, offer many structural dynamics related challenges. Additionally, discipline advancement efforts to provide enhanced capabilities, such as shock modeling, large structure operational modal analysis, and smart dynamic testing, were made to contribute to mission success. This session will highlight recent structural dynamics experimental, analytical, and computational efforts aimed to advance NASA's aerospace missions. The special session will provide a comprehensive overview of NASA LOADS – Leading Outstanding Aerospace structural Dynamics Solutions with collaboration among academic, government, and industry partners invested in this topic.

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Author notification of paper acceptance on or about **August 26, 2024**
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Detailed deadline information, abstract preparation instructions, and policies can be found at:
<https://www.aiaa.org/SciTech/call-for-content/call-for-papers>

Make sure to select the “Lessons Learned: Day of Launch Loads” topic option under “Structural Dynamics” during submission.

For more information, please contact the session organizers:
Teresa Kinney/ Dr. Dexter Johnson
teresa.l.kinney@nasa.gov / dexter.johnson@nasa.gov
NASA

Call for Papers

The AIAA Structural Dynamics Technical Committee is sponsoring a Special Session on:

Mechanical Shocks Prediction Methodologies Including Challenges in Modeling Fracture and Fatigue of Space Structures

AIAA SciTech 2025

January 6-10, 2025

Hyatt Regency

Orlando, FL

Shock has a significant impact on the loads imparted on systems in aeronautical and aerospace applications. These range from stage separations, fairing separations and ultimately the system separation from missiles to the ejection of stores on military aircraft and separation devices within spacecraft. Characterizing these shock events is paramount for determining test specifications and simulation inputs. Further understanding the effects of these shocks on the system is crucial for system or component qualification. This special session is to address latest shock prediction methodologies. This includes but is not limited to complexities in the areas of fatigue and fracture modeling, and failure mechanisms. This special session seeks papers to address these issues of shock.

The committee welcomes submissions from government, industry, academic, and small businesses. All abstracts are peer-reviewed.

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Detailed deadline information, abstract preparation instructions, and policies can be found at:

<https://www.aiaa.org/SciTech/call-for-content/call-for-papers>

Make sure to select the “Mechanical Shocks, Fracture, and Fatigue” topic option under “Structural Dynamics” during submission.

For more information, please contact the session organizer:

Dr. Ali Kolaini

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Dr. Dexter Johnson, Co-chair

dexter.johnson@nasa.gov, NASA

Call for Papers

The AIAA Structural Dynamics Technical Committee is sponsoring a Special Session on:

Physics-Enhanced Reduced-Order Modeling for Aeroelasticity

AIAA SciTech 2025

January 6-10, 2025

Orlando, FL

The session will focus on the physics-enhanced reduced-order modeling (PEROM) methods for the aeroelastic modeling of aerospace structures, with an emphasis on the incorporation of physical knowledge (e.g., known physical conservation laws) and special mathematical structure (e.g., bilinear Koopman dynamics, graph-based topology). These methods may be applied to different systems: from small unmanned aerial vehicles to rockets, across broad flight regimes (subsonic to hypersonic), where aeroelasticity has significant interactions with controllers, propulsion, materials, and thermal effects. The uniqueness of physics-enhanced methods is to enforce known knowledge in the data-driven model as so to enhance the accuracy and generalizability of the model; this opens up a new venue for efficient and robust aeroelastic and aeroservoelastic modeling, analysis, and optimization of modern aircraft.

Potential topics of study include the model-based and data-driven methods for generating PEROM's, the analysis of PEROM's for system stability, controllability, and observability, as well as the application of PEROMs to the aforementioned scenarios. Investigation on the parametrization of PEROM for different flight conditions and aircraft configurations is of particular interest. This special session will serve as a forum for multidisciplinary researchers from structural dynamics, fluid dynamics, and dynamics and control to disseminate the latest innovations in these domains. The committee welcomes submissions from industry, government, academia, and small businesses.

Make sure to select the “Operator-Theoretic Methods for Reduced-Order Modeling” topic option under “Structural Dynamics” during submission.

For more information, please contact the session co-organizers:

Dr. Daning Huang
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Dr. Yi Wang
University of South Carolina
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