

## Call for Papers

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

### Fatigue Loads and Spectrum Generation and Application

**AIAA SciTech 2024**

January, 2024

Orlando, FL

The session will focus on the various methods and aspects to fatigue load generation across the life cycle of an aircraft and different mission profiles (commercial, Navy, Air Force) and the application of those loads to create fatigue spectrum and allowables. Potential aspects to be discussed include time history versus max/min or peak/valley load generation, component versus elemental loads, mixture of maneuver, gust, ground and buffet or other repeated load creation and spectrum generation. Aspects of mission profile utilization and damage spectrum generation are to be discussed. Focusing on utilization of fatigue loads at different stages of design (from conceptual to service life extension) or various load cycles is of interest. Expectation is that this special session will be a mixture of the loads and dynamics communities and fatigue communities. The committee welcomes submissions from industry, government, academia, and small businesses.

**Make sure to select the “Fatigue Loads Generation and Application” topic option under “Structural Dynamics” during submission.**

For more information, please contact the session organizers:

Darin Haudrich & Ted Bartkowicz

The Boeing Company

[Darin.p.haudrich@boeing.com](mailto:Darin.p.haudrich@boeing.com)

[Ted.Bartkowicz@boeing.com](mailto:Ted.Bartkowicz@boeing.com)

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## Call for Papers

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

### Advances in Whirl Flutter Testing and Prediction

AIAA SciTech 2024

January 8-12, 2024

Hyatt Regency

Orlando, FL

Whirl flutter is a dynamic aeroelastic instability caused by interactions between the aerodynamic and gyroscopic forces on a rotor or propeller and a flexible support (e.g., nacelle, wing). Future vertical lift and electric vertical takeoff-landing configurations require new research efforts in whirl flutter testing and prediction. This session will highlight recent experimental and computational efforts aimed to advance the fundamental understanding of whirl flutter instabilities and support the design of novel aerospace vehicles affected by these dangerous phenomena. The special session will provide a comprehensive overview of the state of whirl flutter research and ease collaboration among academic, government, and industry partners invested in this topic.

**Make sure to select the “Advances in Whirl Flutter Testing and Prediction” topic option under “Structural Dynamics” during submission.**

For more information, please contact the session organizer:

Dr. Cristina Riso  
criso@gatech.edu  
Georgia Tech, Atlanta

## Call for Papers

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

# Operator-Theoretic Methods for Reduced-Order Modeling in Structural Dynamics and Aeroelasticity

**AIAA SciTech 2024**

January, 2024  
Orlando, FL

The session will focus on the operator-theoretic reduced-order modeling (OTROM) methods based on the Koopman theory for the aeroelastic modeling of nonlinear structures and the application of these methods 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 operator-theoretic methods is to transform a nonlinear controlled system to a linear one without introducing errors, which opens up a new venue for efficient and robust aeroelastic and aeroservoelastic modeling and analysis of modern aircraft.

Potential topics of study include the model-based and data-driven methods for generating OTROM's, the analysis of OTROM's for system stability, controllability, and observability, as well as the application of OTROMs to the aforementioned scenarios. Investigation on the parametrization of OTROM 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.

For more information, please contact the session organizer:

Dr. Daning Huang  
Pennsylvania State University  
daning@psu.edu  
+1-734-709-8945

Potential author list:

Daning Huang (Penn State)  
Puneet Singla (Penn State)

Yi Wang (University of South Carolina) – Can serve as co-chair as well  
Urban Fasel (University of Washington)  
Jiaqing Kou (RWTH Aachen University)

## Call for Papers

The AIAA Structural Dynamics Technical Committee is sponsoring a Special Session on:  
**Structural Dynamics and Crashworthiness of Unconventional Aircraft**

**AIAA SciTech 2024**

8–12 January 2024

Hyatt Regency Orlando

Orlando, Florida

Unconventional aircraft configurations such as blended wing-body, strut-braced wing, and electric vertical take-off and landing (eVTOL) aircraft have great potential for achieving clean aviation. However, they also raise new research questions in structural design and crashworthiness analysis. Therefore, this session welcomes contributions enabling more energy-efficient unconventional aircraft. The main focus is on structural analysis and design considering dynamic scenarios such as flutter, ditching, sloshing; and on the crashworthiness-aware structural design and crashworthiness assessment of unconventional aircraft.

**Make sure to select the “Structural Dynamics and 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](mailto:X.Wang-6@tudelft.nl)

## Call for Papers

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

### Dr. Dave Ewins Memorial Session

AIAA SciTech 2024

January 8-12, 2024

Hyatt Regency

Orlando, FL

This memorial session will celebrate Dr. Ewins contributions to the area of structural dynamics. Dr. Ewins developed the standard for modal correlation that was foundational for NASA and many aerospace companies for decades. The methodologies and goals he documented in his book have been used for developing coupled loads models for many NASA programs, including Spacelab shuttle payloads, ISS modules and ISPR racks, Constellation Ares I-X flight test launch vehicle, Commercial Crew Program spacecraft, and Artemis launch vehicle elements and assembly. His analytical approaches to complicated loads issues, such as DART and X-plane demonstrator, and pallet mounted decks and benches with massively redundant load paths, were of great value to those missions. The special session will honor Dave's contribution to the field of structural dynamics.

**Make sure to select the “Dr. Dave Ewins Memorial Session” topic option under “Structural Dynamics” during submission.**

For more information, please contact the session organizer:

Teresa Kinney/ Dr. Dexter Johnson

[teresa.l.kinney@nasa.gov](mailto:teresa.l.kinney@nasa.gov) / [dexter.johnson@nasa.gov](mailto:dexter.johnson@nasa.gov)

NASA

## Call for Papers

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

### Structural Dynamic Aspects of Shocks

AIAA SciTech 2024

January 8-12, 2024

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 new areas and current best practices for the structural dynamic's applications of shocks. This includes but is not limited to the loads analysis, testing and simulation methodologies, shock data quality assessment, failure mechanisms, margin assessment, and uncertainty and quantification. This special session seeks papers to address these issues of shock.

**Make sure to select the “Structural Dynamic Aspects of Shocks” topic option under “Structural Dynamics” during submission.**

For more information, please contact the session organizer:

Daniel Kaufman and Dr. Ali Kolaini

[ali.r.kolaini@jpl.nasa.gov](mailto:ali.r.kolaini@jpl.nasa.gov) & [ali.r.kolaini@jpl.nasa.gov](mailto:ali.r.kolaini@jpl.nasa.gov)

NASA

## Call for Papers

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

### NASA LOADS

### AIAA SciTech 2024

January 8-12, 2024

Hyatt Regency

Orlando, FL

NASA's aerospace missions, such as the Artemis Program, Commercial Crew Program, Double Asteroid Redirect Test, 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.

**Make sure to select the “NASA Loads” topic option under “Structural Dynamics” during submission.**

For more information, please contact the session organizer:

Teresa Kinney/ Dr. Dexter Johnson

[teresa.l.kinney@nasa.gov](mailto:teresa.l.kinney@nasa.gov) / [dexter.johnson@nasa.gov](mailto:dexter.johnson@nasa.gov)

NASA

## Call for Papers

The “AIAA Adaptive Structures” and the “Structural Dynamics” Technical Committees are sponsoring a Special Session on:

### Mr. Martin Brenner Memorial Session

AIAA SciTech 2024

January 8-12, 2024

Hyatt Regency

Orlando, FL

This memorial session will celebrate Mr. Martin Brenner contributions to the area of aeroservoelasticity. Over the last thirty plus years, Marty worked many projects including the X-29, F-18 HARV, NASP, X-53, Aerostructures Test Wing and X-56, becoming known as an expert in aeroservoelasticity and performing pioneering research in “fly by feel” (measuring the aerodynamics forces directly on vehicle surfaces) for control of flexible structures. He retired from NASA in 2017.

Marty has pioneered advances in aeroservoelasticity, authoring around 120 papers, three book chapters, and an entire book on “Robust Aeroservoelastic Stability Analysis”. He also holds a patent for a novel flutter prediction methodology, called “Flutterometer”. Throughout his career, Marty had been an advisor and mentor to countless DFRF/DFRC/AFRC engineers.

**Make sure to select the “Mr Martin Brenner Memorial Session” topic option under “Adaptive Structures” or “Structural Dynamics” during submission.**

For more information, please contact the session organizers:

Alexander Chin / Dr. Ruxandra Botez

[alexander.w.chin@nasa.gov](mailto:alexander.w.chin@nasa.gov) / [ruxandra.botez@etsmtl.ca](mailto:ruxandra.botez@etsmtl.ca)

## Call for Papers

The “AIAA Adaptive Structures”, “Structural Dynamics” and “Modeling and Simulation” Technical Committees are sponsoring a Special Session on:

### Mr. Martin Brenner Memorial Session

AIAA SciTech 2024

January 8-12, 2024

Hyatt Regency

Orlando, FL

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**Make sure to select the “Mr Martin Brenner Memorial Session” topic option under “Adaptive Structures”, “Structural Dynamics” or “Modeling and Simulation” during submission.**

For more information, please contact the session organizers:

Alexander Chin / Dr. Ruxandra Botez

[alexander.w.chin@nasa.gov](mailto:alexander.w.chin@nasa.gov) / [ruxandra.botez@etsmtl.ca](mailto:ruxandra.botez@etsmtl.ca)

## Call for Papers

The AIAA Structural Dynamics Technical Committee is sponsoring a Special Session on:  
**International collaborations advancing materials and combustion**

**AIAA SciTech 2024**

January 8-12, 2024

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 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 systems to enable advanced technologies in aerospace. The integrated focus on the fundamental sciences in materials 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.

**Make sure to select the “International collaborations advancing materials and combustion” during submission.**

For more information, please contact the session organizer:

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