Opportunity Title: Propulsion Aeroelasticity and Structural Dynamics
Opportunity Reference Code: 0009-NPP-MAR25-GRC-Aero

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0009-NPP-MAR25-GRC-Aero

How to Apply All applications must be submitted in Zintellect

Please visit the NASA Postdoctoral Program website for application instructions and requirements: How to Apply | NASA Postdoctoral Program (orau.org)

A complete application to the NASA Postdoctoral Program includes:

1. Research proposal
2. Three letters of recommendation
3. Official doctoral transcript documents

Application Deadline 3/1/2025 6:00:59 PM Eastern Time Zone

Description **About the NASA Postdoctoral Program**

The NASA Postdoctoral Program (NPP) offers unique research opportunities to highly-talented scientists to engage in ongoing NASA research projects at a NASA Center, NASA Headquarters, or at a NASA-affiliated research institute. These one- to three-year fellowships are competitive and are designed to advance NASA's missions in space science, Earth science, aeronautics, space operations, exploration systems, and astrobiology.

Description:

Opportunity is Restricted to U.S. Citizens Only

An analytical and experimental research program in aeroelasticity and structural dynamics of turbomachines is being conducted in order to understand the basic mechanisms involved in flutter, forced response, vibration, and control of vibration. Our objective is to apply the results directly to current and future-generation turbomachines and their components in order to improve their aeroelastic characteristics, and their performance and design. Current research includes development of models and computer codes to predict flutter, forced response, nonlinear vibrations, and passive and active vibration control in turbomachinery components of propulsion systems. The analytical models account for variations in blade properties (mistuning), nonlinear frictional contacts, and complex unsteady flowfields based on computational fluid dynamics so that the models are applicable to fan, compressor and turbine blades of advanced propulsion systems.

Vibration and aeroelastic experiments are conducted to guide the development of analytical models, to verify them, and to check the designs. Experimental research includes measurements of steady-state and unsteady blade deflections and stresses, vibration frequencies, structural damping, flutter, and forced response. We are interested in analytical and experimental research to control vibrations, reduce vibratory stresses,

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improve operability and increase fatigue life of turbomachinery blades. Passive and active damping concepts are being investigated.

Location:
Glenn Research Center
Cleveland, Ohio

Field of Science: Aeronautics

Advisors:
Milind Bakhle
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216-433-6037

Questions about this opportunity? Please email npp@orau.org

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.