Opportunity Title: Aerothermodynamics of Turbomachinery
Opportunity Reference Code: 0001-NPP-NOV23-GRC-AeroEng

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0001-NPP-NOV23-GRC-AeroEng

Application Deadline 11/1/2023 6:00:59 PM Eastern Time Zone

Description **Opportunity Open to U.S. Citizens and Permanent Residents**

Turbomachinery aerothermodynamics research focuses on developing a basic understanding of the aerothermodynamic environment associated with turbomachinery. Configurations of interest include axial-flow fans, axial- and centrifugal-flow compressors, axial- and radial-flow turbines, and high-speed single and counter-rotating propellers. Models for both the time-averaged and unsteady flows in these devices are developed. This activity includes modeling of inlet distortion, blade-row interactions, and turbine heat transfer. The mathematical equations associated with these models are solved by analytical methods or by numerical procedures.

Current research activities include the development of models and associated computer codes for predicting unsteady flow phenomena associated with blade-raw interaction, turbulence and other unsteady flow phenomena such as transition and separated flows that may exist in fans, compressors, film-cooled high pressure turbines and highly-loaded low pressure turbines.

Location:
Glenn Research Center
Cleveland, Ohio

Field of Science: Aeronautics, Aeronautical or Other Engineering

Advisors:
Mark L. Celestina
mark.celestina@nasa.gov
216-433-5938

Eligibility Requirements

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