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Opportunity Title: Deformation and Damage Mechanics
Opportunity Reference Code: 0005-NPP-MAR25-GRC-Aero

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0005-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 Restricted to US Citizens and Lawful Permanent Residents

Research focuses on developing (1) advanced constitutive equations, (2) numerical algorithms for analysis and design, and (3) experimental validation of proposed theories and characterization of material response. Materials under investigation include advanced metallics, polymeric matrix composites, metal and intermetallic matrix composites, ceramic matrix composites, cellular materials, smart materials, and multifunctional materials. The aim is to develop analysis and design methods, which predict useful life in components subjected to extreme thermomechanical loading conditions. Deformation mechanisms of interest include those influencing time-dependent and time-independent reversible and/or irreversible material response behaviors, e.g., plasticity, creep, and relaxation. A material's response is further complicated by the presence of multiaxial stress states and complete mission cycles. Damage evolution and failure definition under these conditions are component specific and material specific, and proper consideration needs to be given to thermomechanical effects, environmental effects, and their possible interaction. The theoretical work is supported by research at the microstructural level to develop a detailed understanding of key deformation and damage mechanisms.

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Location:
Glenn Research Center
Cleveland, Ohio

Field of Science: Aeronautics

Advisors:
Steven Arnold
steven.m.arnold@nasa.gov
216-433-3334

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

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree.