Opportunity Title: Material response modeling
Opportunity Reference Code: 0097-NPP-JUL22-ARC-TechDev

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0097-NPP-JUL22-ARC-TechDev

How to Apply All applications must be submitted in Zintellect

Application Deadline 7/1/2022 6:00:00 PM Eastern Time Zone

Description **Description:**

In order to design the thermal protection systems (TPS) used in NASA missions, accurate material response modeling is essential. Modeling TPS materials requires analysis at both the micro- and macroscale due to the highly porous nature of the materials. At NASA Ames Research Center there is an ongoing research effort to develop models and computational tools to predict material properties and thermomechanical response based on the material's microstructure. The research effort is closely tied to predict material response of the next generations of NASA TPS materials.

The candidate will contribute to the development of high-fidelity modeling techniques for the material response of NASA TPS at the macro-scale, with a particular focus on elemental conservation, species transport, and finite-rate reaction rates, as well as chemical and structural processes occurring in porous materials. Current methods used in TPS modeling decouple the flow from the material, simplifying the physics at the interface. New physical models that increase the fidelity of the coupling between fluid and material will be designed and implemented.

Field of Science: Technology Development

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Applications with citizens from Designated Countries will not be accepted at this time, unless they are Legal Permanent Residents of the United States.
A complete list of Designated Countries can be found at:
https://www.nasa.gov/oiir/export-control.

Eligibility is currently open to:

- U.S. Citizens;
- U.S. Lawful Permanent Residents (LPR);
- Foreign Nationals eligible for an Exchange Visitor J-1 visa status; and,
- Applicants for LPR, asylees, or refugees in the U.S. at the time of application with 1) a valid EAD card and 2) I-485 or I-589 forms in

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pending status

Eligibility Requirements

- **Degree:** Doctoral Degree.