

Opportunity Title: Development of Aerogels for Use at High Temperatures

Opportunity Reference Code: 0018-NPP-NOV23-GRC-TechDev

Organization National Aeronautics and Space Administration (NASA)

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

Description The objective of this research is to develop advanced aerogels and their composites for use at temperatures $> 700^{\circ}\text{C}$. Potential applications for technology developed under this task include high temperature thermal insulation and compliant seals for aircraft and space vehicles. Areas of investigation include the development of synthesis techniques for inorganic aerogels in the alumina, aluminosilicate, yttria stabilized zirconia and related chemistry systems, and techniques for incorporating the aerogels into fiber reinforced composites. This work encompasses research activities in characterizing the as-synthesized aerogels and establishing their thermal stability at elevated temperatures for prolonged times. The research is directed both at gaining a fundamental understanding of the relationship between synthesis and aerogel morphology and pore stability and understanding how to tailor these properties for NASA applications. This research is well supported by state-of-the-art characterization facilities including Fourier transform infrared spectroscopy, thermal analysis, x-ray diffraction and electron optics, as well as facilities for evaluating composite permeability and thermal and mechanical performance of thermal barrier prototypes.

Location:

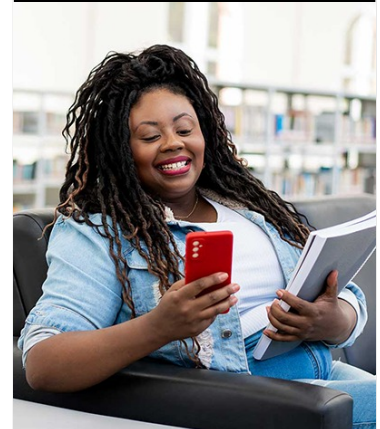
Glenn Research Center
Cleveland, Ohio

Field of Science: Technology Development

Advisors:

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



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