

Opportunity Title: Advanced Engineered Multifunctional Ceramic Materials for Aerospace Applications

Opportunity Reference Code: 0030-NPP-MAR22-GRC-AeroEng

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0030-NPP-MAR22-GRC-AeroEng

Application Deadline 3/1/2022 6:00:00 PM Eastern Time Zone

Description Future NASA aerospace and planetary exploration missions will require development of advanced functional materials with tailored properties in support of aeronautics and aerospace research programs. Materials Chemistry and Physics Branch at NASA Glenn Research Center is seeking a Senior Postdoctoral Researcher to boost the Branch and Center capabilities in advanced engineered multifunctional ceramic materials. Specific properties of interest are high thermal conductivity, electrical insulation and multi-functional structures for applications of high voltage power transmission.

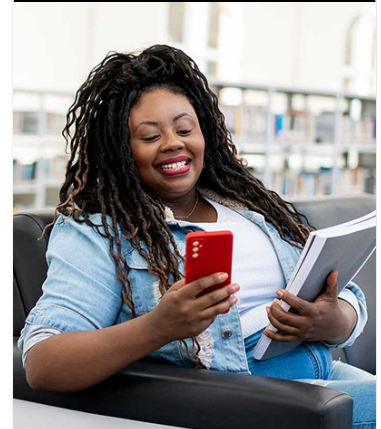
This position requires developing methods for fabricating test articles based on expertise in synthesis, processing and fabrications of solid-state nanomaterials and devices with multifunctional properties. Required expertise includes but are not limited to the preparation of polymer/ceramic, ceramic/ceramic composites, synthesis and development of nanocomponents, knowledge and expertise with common ceramic powder processing techniques such as powder preparation, slurry and ink formulation. The preparation of these materials might require chemical functionalization of boron nitride nanomaterials. These position requirements also include developing mini-ceramic matrix composites and/or composites which incorporate nanofibers or nanoparticles for multiple applications that require a combination of high thermal conductivity and low electrical conductivity properties.

The candidate is expected to determine root cause of any fabrication problems and to provide a solution and is asked to work as a part of a research team in determining any composition or microstructure related performance issues of test articles. Research activities require familiarity with materials characterization techniques such as optical and scanning electron microscopy, particle size measurement, porosimeter, TGA/DTA, XRD, Raman, FTIR, and common electrochemical and mechanical analytical techniques. This research is strongly supported by state-of-the-art analytical and computational analysis facilities for chemical, thermal, and physical analyses and material characterization; electrochemical instrumentation for fundamental studies; and inert atmosphere glove boxes for sensitive material synthesis and handling.

Location:

Glenn Research Center
Cleveland, Ohio

Field of Science: Aeronautics, Aeronautical or Other Engineering



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Advisors:

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