

The University of Delaware Center for Composite Materials is seeking a US citizen or permanent resident for a Postdoctoral Researcher position to conduct research in the area of ballistic fiber and film processing/structure/property/performance relationships. This is a soft funded position located at the Army Research Laboratory (ARL), Aberdeen Proving Ground in Maryland.

Context of the Job and Major Responsibilities:

Under the direction of the ARL principle investigator (PI), the Postdoctoral Researcher conducts collaborative research in the PI's funded research program(s) with professional staff and Army and industrial partners. The Postdoctoral Researcher will develop materials structures and methodologies to test these structures processed within high-performance (anti-ballistic) polymer fibers and films. These newly developed mechanical, thermal, and spectroscopic techniques developed will enable material processing-structure-property-performance assessment of these materials for Army relevance. Current examples of test methods include: novel sample preparations (e.g. using the focused-ion beam), nano-indentation, and unique nano-mechanical approaches including in situ atomic force microscope (AFM)/tensile testing.

- Obtain and prepare aramid and UHMWPE fibers/films for testing
- Structural testing of fibers/films using various methods such as AFM, focused-ion beam, scanning electron microscopy, laser-scanning optical microscopy, and X-ray scattering and analysis
- Mechanical and thermal property testing of fibers/films using various methods such as AFM, single-fiber tensile testing, and differential scanning calorimetry
- Develop structure/property models and feedback to processing to enable new structures with improved properties and performance
- Present work including theory, approach, results, and conclusions at ARL review meetings; report findings via government publications (technical reports), peer-reviewed publications, and conference presentations
- Perform miscellaneous job-related duties as assigned

Qualifications:

- US Citizen or permanent resident
- Ph.D. in Materials Science, Mechanical Engineering, or Chemical Engineering
- Experience with various nano-mechanical characterization methods (AFM, nano-indentation)
- Experience with polymers, high performance fibers or films, or related materials
- Strong background in polymer physics & polymer chemistry
- Experience/aptitude for laboratory instrumentation such as: SEM, focused-ion beam, universal testing machines, spectroscopic analysis (SAXS, XRD, IR, micro-RAMAN)

Qualified candidates, please email your resume and at least two (2) references to Corinne Hamed hamed@udel.edu.