



CLARK ATLANTA UNIVERSITY

Job Description

Position Title:	Postdoctoral Research Associate
Department:	Chemistry
Reports To:	Drs. Ishrat Khan and X.-Q. (Larry) Wang

The following statements are intended to describe the general nature and level of work to be performed and are not intended to be construed as an exhaustive list of all responsibilities, duties, and skills required of personnel so classified. All duties listed are essential functions for the position. It is understood that other related duties may be assigned.

General Function (Description):

Overview:

We are seeking a Postdoctoral Research Associate who will focus on synthesizing, characterizing and studying assembly properties of functional polymers to develop fundamental knowledge necessary to design next-generation advanced materials with the consideration of end-of-life features, *i.e.*, multiple uses of advanced polymer and polymer composites. The goal of the project is to develop polymers and composites which are amenable to recovery and reprocessing of the material followed by repurposing for reuse in advanced material systems. Elements of recovery and reprocessing will be designed into the polymers and polymer composites.

The postdoctoral research associate will carry out synthesis of functional block copolymers, hairy nanoparticle and polyimide systems utilizing a combination of living vinyl polymerization and polycondensation reactions. Characterization of the polymers and polymer composites will be carried out by multiple methods e.g. NMR and FT-IR spectroscopy, DSC (differential scanning calorimetry), TGA (thermogravimetric analysis), GPC (gel permeation chromatography). Self-assembly and polymer morphology will be studied by SEM (scanning electron microscopy) and AFM (atomic force microscopy)

We are looking for applicants with a demonstrated research background in organic/polymer chemistry synthesis and characterization. Background in instrumental characterization in several of the instruments identified in the previous paragraph is desired. The Research Associate will also work within a multidisciplinary team involving specialists in theory, synthesis, and advanced material applications. Experience with computational modeling will be considered a plus.

Major Duties and Responsibilities:

- Work with a diverse team of scientists seeking to advance scientific understanding of advanced structural, electronic and optical properties of polymeric in particular with packing patterns of hairy nanoparticles.
- Carry out synthesis, characterization and processing of functional polymers and polymer composites
- Independently plan and conduct theoretical simulations and collaborate with other researchers to identify the best methodology for electronic structure calculations of materials of interest.
- Participate in project planning and execution; as well as, write progress reports.
- Present research results at meetings/conferences and publish scientific results in peer-reviewed journals in a timely manner.
- Work closely with graduate and undergraduate students on the execution of the project.

Knowledge, Skills and Abilities:

This position requires knowledge of the general area of Organic Polymer Science (synthesis and characterization) via a background in doctoral level research in the Chemical, Physical and Materials sciences. Prior experience of working within a University community is highly desired. Must have excellent written and oral communication skills. Candidates must be computer literate including Microsoft Office. Familiar with laboratory safety and hygiene is necessary. Successful use of advanced scientific instruments (e.g. SEM, AFM, FT-IR, TGA, NMR etc.) is required.

Minimum Hiring Standards:

Education	Earned doctorate in Chemical, Physical or Materials Sciences. Candidates who have successfully defended their Dissertation will be considered but must provide signed completion of Dissertation Defense from the Chair of their Departments.
Years of Experience	Two years of research, doctoral dissertation research will count
Years of Management/Supervisor Experience	Not required

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