

Fully Funded Ph.D. Positions in Advanced Carbon Materials for Energy Storage

Department of Forest Biomaterials | North Carolina State University

Timeline: Positions available starting Spring 2027 or Fall 2027

The Department of Forest Biomaterials at North Carolina State University is seeking highly motivated Ph.D. students to join our research team. The successful candidates will work on high-impact, US-Department of Energy (DOE) funded research projects focusing on the development of sustainable carbon materials derived from lignocellulosic biomass for next-generation energy storage applications. Our team collaborates closely with academic, national laboratory, and industrial partners.

Core Research Areas & Topics

- **Biomass-Derived Battery Materials:** Production and characterization of graphite and hard carbon materials for lithium-ion (Li-ion) and sodium-ion (Na-ion) batteries.
- **Process Development & Optimization:** Scaling and manufacturing optimization of sustainable biocarbon pathways from lignocellulosic biomass and other carbon wastes/residues.
- **Material Science:** Investigation of structure–property–performance relationships to pioneer materials that strengthen domestic clean energy supply chains.

Graduate Support & Benefits

- Full financial support throughout the graduate program
- Competitive stipend, full tuition coverage, and health insurance benefits

Candidate Qualifications

- **Educational Background:** Applicants should possess a strong foundation in chemistry, chemical engineering, materials science and engineering, or a related discipline. A Bachelor's degree with significant research experience is sufficient, though a Master's degree is highly valued.
- **Core Competencies:** Excellent written and verbal communication skills are required, along with a demonstrated ability to work effectively in collaborative team environments.

Why Join Our Group?

Our research group at NC State University is at the international forefront of biomass-derived carbon engineering. We have pioneered methods to produce battery-grade biographite from biomass pyrolysis oil and continue to lead multiple federally funded projects. Students joining our group will have the unique opportunity to work on cutting-edge problems, publish in premier scientific journals, network extensively with national laboratories, and directly contribute to the global clean energy transition.

How to Apply

Review of applications will begin immediately and will continue on a rolling basis until the positions are filled. Interested candidates are requested to email the following documents directly to **Dr. Sunkyu Park** (sunkyu_park@ncsu.edu) with a Curriculum Vitae (CV).

Sunkyu Park, Ph.D.

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