

**Biomass Preprocessing and Biobased Composite
Recycling for Circular Bioeconomy Systems
University of Tennessee**

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Posted Sep. 30, 2024, set to expire Jan. 30, 2025

Job Title	Biomass Preprocessing and Biobased Composite Recycling for Circular Bioeconomy Systems
Department	UT-Oak Ridge Innovation Institute https://utorii.com/
Institution	University of Tennessee Oak Ridge, Tennessee
Date Posted	Sep. 30, 2024
Application Deadline	Open until filled
Position Start Date	Spring 2025
Job Categories	Research Professor
Academic Field(s)	Mechanical Engineering Chemical/Petroleum Agricultural Engineering - Other
Apply Online Here	https://apply.interfolio.com/154632
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Job Description	

Description

The University of Tennessee-Oak Ridge Innovation Institute (UT-ORII) seeks highly qualified research faculty candidates to advance the fundamental science and engineering of chemical, biological, and/or mechanical preprocessing and recycling of biomass and biobased materials and composites. The goal is to develop innovative and efficient technologies for implementation in biorefineries. Research

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interests for this position include:

- Elucidating complex interactions between constitutive elements in man-made or natural polymeric composites (e.g., lignocellulosic biomass).
- Developing new tools to experimentally measure mechanical properties of these materials during preprocessing and recycling in relevant industrial systems.
- Enhancing the engineering knowledge required to design reliable preprocessing and recycling systems for biomass and biobased materials and composites.
- Creating efficient and sustainable approaches to chemically and/or biologically preprocess and recycle biopolymers back into their monomers.
- Advancing our ability to biologically and/or thermochemically recycle biobased composites into high-value products.

Roles and Responsibilities

The successful candidate will be expected to:

- Develop a nationally and internationally recognized research program with interdisciplinary connections across the UT-ORII Circular Bioeconomy Systems (CBS) Convergent Research Initiative (CRI) network at UT and ORNL.
- Innovate in biomass and biobased materials and composites preprocessing and recycling within the context of circular bioeconomy systems.
- Explore and develop new approaches and technologies for preprocessing and recycling biomass and biobased materials from various industrial streams, enabling the realization of a Circular Bioeconomy System.
- Interface with UT-ORII programs to support UT-ORII CBS CRI's mission and goals.
- Expand activity in renewable carbon materials development through the recently established Institute of Advanced Materials and Manufacturing (IAMM).
- Build partnerships and collaborations through the Institute for Advanced Composites Manufacturing Innovation (IACMI), the Office of Research Innovation and Economic Development (ORIED), Global Energy Ecosystems (GE2), and current and future industrial partners.

As a UT-ORII research faculty member, the successful candidate will collaborate with designated UT departments and researchers as well as ORNL researchers to address current and future low-emission and high-efficiency requirements for CBS. This includes conducting research, preparing and submitting proposals, supporting existing research projects, and mentoring graduate and undergraduate students.

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Qualifications

Required Qualifications:

- PhD in engineering or science disciplines related to chemical, biological, mechanical, or other engineering fields.
- A track record of funding, publications, and student mentoring.
- Research experience in areas supporting UT-ORII's Circular Bioeconomy Systems mission, including but not limited to:
 - Preprocessing and fractionation of various agricultural and forestry biomass feedstocks for further upgrading to value-added chemicals and materials for CBS and other systems in the bioeconomy.
 - Novel characterization tools and techniques to identify underlying chemical and physio-mechanical properties of preprocessed and recycled materials at various stages of the CBS loop.
 - Chemical, biological, and/or thermochemical recycling of biobased polymers and composites.
- Demonstrated research track record supporting the candidate's potential to establish a nationally and internationally recognized research program aligned with UT-ORII's mission and goals.
- Demonstrated evidence of graduate and undergraduate student mentoring or the potential to successfully mentor students.
- Strong communication skills and the ability to work collaboratively in a team environment.
- A clear path to independence as a researcher is desired, though collaboration with more senior investigators is also encouraged.

Preferred/Desired Qualifications:

- Experience in more than one discipline or interest in collaboration across these disciplines.
- Knowledge of or experience conducting technoeconomic analysis and life cycle assessment of preprocessing and recycling processes and technologies relevant to biorefineries and UT-ORII's CBS CRI.
- Working knowledge and/or experience using artificial intelligence and machine learning tools to enable process optimization.

Additional Information

- This is a 12-month, non-tenure track position.

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- The appointment will be with the University of Tennessee, Knoxville.
- This position's primary work location is on the UTIA campus in Knoxville, but it may also include visits to collaborator sites on the ORNL and UTK campuses.
- The position will be implemented as an initial three-year contract with full salary support for the first year, followed by a gradual decrease in salary coverage such that the successful applicant will receive 50% salary support in year 5 (if renewed) and is expected to receive extramural funding by year three or earlier.
- The applicant will be expected to recruit multiple graduate students by year three.
- A competitive startup package, including funds for graduate students and equipment, will be offered.
- Salary and title/rank will be determined commensurate with experience.
- Benefits will be typical of exempt employees at the University of Tennessee.

Application Instructions

Application reviews will begin immediately and continue until the position is filled. All required application materials must be submitted to Interfolio at <http://apply.interfolio.com/154632>.

Review of applications will begin immediately and will continue until the position is filled.

Applications must include:

- a letter of interest;
- a comprehensive curriculum vitae;
- research plan
- names, addresses, and telephone numbers of at least three professional references.

EEO/AA Policy

All qualified applicants will receive equal consideration for employment and admission without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, genetic information, veteran status, and parental status, or any other characteristic protected by federal or state law. In accordance with the requirements of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the

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Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990, the University of Tennessee affirmatively states that it does not discriminate on the basis of race, sex, or disability in its education programs and activities, and this policy extends to employment by the university. Requests for accommodations of a disability should be directed to the Office of Equal Opportunity and Accessibility, 1840 Melrose Avenue Knoxville, Tennessee 37996-3560 or eo@utk.edu or (865)974-2498. Inquiries and charges of violation of Title VI (race, color and national origin), Title IX (sex), Section 504 (disability), the ADA (disability), the Age Discrimination in Employment Act (age), sexual orientation, or veteran status should be directed to the Office of Investigation & Resolution 216 Business Incubator Building 2450 E.J. Chapman Drive Knoxville, Tennessee 37996 or (865)974-0717 or investigations@utk.edu.

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact

UT-Oak Ridge Innovation Institute
University of Tennessee
Oak Ridge, TN