Graduate Assistantship at the School of Forest Resources, University of Maine

Funding is available at the BioEnergy Laboratory of the School of Forest Resources (SFR), the University of Maine, to support one or two highly qualified M.Sc. or Ph.D. students to start in Fall 2022 or Spring 2023.

The graduate student(s) will work on a project regarding a 3D dry thermoforming technology to make molded paper products. The research will be mainly focused on a dry thermoforming process optimization and modeling to avoid fracture or other defects occurred during the thermoforming, especially in the case of deep thermoforming. The research activities will include:

- Assist designing and fabricating paperboard materials with barriers to select gases, vapors, and liquids; ;
- Develop optimal thermoforming parameters to mold paperboard materials into recyclable paper products;
- Characterize the molded paper products and the influence of PFAS-free coating materials on the processing efficiency and product quality; and
- Model the thermoforming process to correlate materials, processing, and products, informing thermoforming paper products development and predicting product performance.

This project is collaborated among the USDA Forest Products Laboratory (FPL), University of Maine's SFR BioEnergy Laboratory, Process Development Center, and an industrial partner (a pulp and paper producer based in Maine, USA). The student(s) will work closely with professors, research scientists, and industrial partners at the three institutions to develop an innovative high-efficient 3D dry molding technology to produce PFAS-free food containers made of nanocellulose coated paperboard materials. For applicants who are pursuing a Ph.D. study, they would have an opportunity to apply for an interdisciplinary Ph.D. (I-PhD) in Materials Science and Engineering program (https://umaine.edu/graduate/program/materials-science-engineering/) after consulting with Dr. Ling Li (ling.li@maine.edu) about their research interests and career plan.

Qualifications:
- Material science, Engineering, Wood or Paper Science, Chemical Engineering, or closely related to fields with a focus on pulp and paper manufacturing processes;
- Ability to work independently, plan and carry out complex tasks, and be a part of a large, dynamic group;
- Excellent written and verbal communication skills with a good record of publication.
- GRE scores are used as references. International students must have acceptable TOEFL scores

Assistantship:
An annual stipend (about <u>$21,000</u> for a master's student, about <u>$24,000</u> for a Ph.D. student) paid in 12 monthly installments plus a <u>full</u> the Annual Health Insurance fee and <u>full</u> tuition waiver (up to 9 credits per semester) will be provided for an expected 20 hours per week appointment. Operating funds for conducting research and travel for attending the conference will also be available. For any inquiries or questions, please contact Dr. Ling Li at <u>ling.li@maine.edu</u>.

About the University of Maine School of Forest Resources (SFR, <u>http://forest.umaine.edu</u>):

With almost 90% of the state covered by forest, forest resources are central to Maine's quality of life and economy. The SFR provides essential forestry education and research and is a signature area of the University of Maine. Over 40 graduate students are currently enrolled in M.F., M.S., and Ph.D. programs within the SFR. The University has over 12,000 students and is the state's flagship research institution.

How to apply:

Interested candidates should send a copy of their statement of research interest, CV, contact information of three references, transcripts and TOEFL/GRE scores to both Dr. Jinwu Wang at <u>jinwu.wang@usda.gov</u> and Dr. Ling Li at <u>ling.li@maine.edu</u>.