

Graduate Assistantships Michigan Technological University

Two graduate research assistant positions at PhD level are available at Michigan Technological University (MTU) School of Forest Resources and Environmental Science (SFRES). The assistantships include full stipend and tuition for 3 years. The applicants selected for the positions will work on one of the following two topics:

- I. Technical lignin-based carbon materials. The student will systematically study the fundamental mechanism on formation of carbon structures during lignin carbonization and its application in making high-performance lignin-based carbon materials. The primary responsibilities of the student include but not limited to preprocessing industrial byproduct lignin, transferring the preprocessed lignin into precursors suitable for making strong carbon materials, carbonizing the lignin precursors to produce carbon products, and characterizing the materials produced at each processing stage.

Preference will be given to applicants with (1) strong background in lignin chemistry and polymer science and engineering; (2) research experience in polymer thermal degradation or carbonization; and (3) demonstrated skills in using analytic instruments, such as TGA, DSC, FTIR, NMR, GPC, SEM, and TEM etc.

- II. Lignocellulosic carbon/polymer composites. The student selected for this topic will work on development of a biomass-based carbon filler for engineering plastics. The student will be expected to study important aspects of the carbon/polymer composites, such as the properties of the carbon as a function of raw materials and carbonization parameters, interphase/interface properties between the carbon filler and the plastic matrixes, compatibility of the carbon/polymer mixture with common plastic processing technologies, physical and mechanical properties of the composites, and environmental impacts of the carbon/polymer composites etc.

Preference will be given to applicants with (1) strong background in polymer composites; (2) research experience in carbon/polymer composites; and (3) demonstrated skills in materials characterization at both macro- and nanometer scales.

Students with a Master degree in materials science and engineering, polymer science and engineering, chemical engineering, chemistry, wood science, and other relevant disciplines are encouraged to apply. To submit your application, create one single PDF file including: (1) cover letter; (2) curriculum vitae; (3) research statement; (4) unofficial transcripts of undergraduate and graduate courses; and (5) contact information of three references. International applicants whose first language is not English must include unofficial TOEFL and GRE scores. In the cover letter, please summarize your qualification, research interest, and research experience related to the position; detailed information should be included in the research statement. Please name the PDF file with your last name and email it to Dr. Xinfeng Xie (xinfengx@mtu.edu). Reviewing of applications will begin immediately and continue until the position is filled. Desirable candidates will be invited to submit their official applications to MTU Graduate School. Contact Dr. Xie for any questions.

The students will be based in Houghton, Michigan within MTU SFRES. MTU is located in Michigan's Keweenaw Peninsula on the south shore of Lake Superior. Houghton, Michigan is a safe and friendly community (see <http://www.mtu.edu/about/> for more about life in the area).