

PhD Assistantships in Plant Microbe Interactions

Two funded PhD positions are available in the Department of Biological Sciences and Great Lakes Research Center at Michigan Technological University. These include: (1) Plant-microbe interactions and molecular microbial ecology in the Techtmann lab and (2) Plant-metal interactions, hyperaccumulation, and abiotic stress in Datta lab. We are generally interested in the combined applications of phytotechnologies, and microbial communities to address environmental and biotechnological issues. Both students will have an opportunity to work as a part of an interdisciplinary team which will include geochemists, biotechnologists, and sustainability experts in addition to environmental microbiologist and plant biologist.

- The ideal candidate should communicate effectively, be reliable, well-organized and interested in contributing to a cohesive lab environment.
- Should have the ability to work independently as well as in diverse research groups, and the ability to manage time well for individual and team tasks.

Position 1: Techtmann lab is seeking a highly motivated and disciplined PhD student. The student will work as part of a project aimed at developing synthetic microbial consortia to stimulate plant growth and metal uptake. This is part of an interdisciplinary project focused on plant-mediated metal uptake for recovery of metals. This student will participate in projects focused on assembling synthetic rhizosphere microbial consortia for increased plant growth and solubilization of metals from soils. Potential projects involve characterization of plant growth and metal solubilizing microorganisms as well as characterizing rules governing plant-microbe and microbe-microbe interactions in synthetic consortia to engineer and assemble use-driven microbial consortia.

Position 1 Qualifications

1. M.S. degree in biology, microbiology, environmental engineering, or closely related field, with evidence of research success in the form of a thesis and/or publications is strongly preferred. Alternatively, a B.S. degree in biology, microbiology, environmental engineering, or closely related field demonstrated research excellence and experience at the undergraduate level may substitute for the M.S. degree.
2. Experience and interest in environmental microbiology, molecular biology, and genomics in addition to at least one of the following: data/statistical analysis in R, bioinformatics, microbial growth assays, microbial physiology.

Position 2: Datta lab is seeking a PhD student to work on plant metal uptake, mechanisms of metal hyperaccumulation and metal tolerance in marginal soils, improving soil health to

facilitate plant growth and metal uptake, and biochemical mechanisms of abiotic stress response in plants.

Position 2 Qualifications:

1. M.S. degree in plant biology, horticulture, agriculture/agronomy, environmental engineering, or a closely related field, with evidence of research success in the form of a thesis and/or publications is strongly preferred; demonstrated undergraduate research excellence and experience may substitute for the M.S. degree.
2. Experience in greenhouse experiments, plant-metal interactions, phytoextraction, abiotic stress, nutrient management, plant health will be preferred.

How to Apply:

The preferred start date is January 2025, with some flexibility for qualified candidates. The position will remain open until filled with priority given to candidates that apply before October 31, 2024. Interested candidates should contact Dr. Steve Techtmann (smtechtm@mtu.edu) or Dr. Rupali Datta (rupdatta@mtu.edu) with the subject line “Plant-Microbe PhD Application” and the following items compiled into a single PDF.

1. A one-page cover letter that describes your experience and interests and addresses the required/desired position qualifications as well as your availability
2. A current resume or CV that lists past education, publications, and research experience.
3. Contact information for three professional references
4. Most recent academic transcripts (official or unofficial).

All qualified applicants will receive consideration, however, **only candidates selected for interviews will be contacted**. Potential candidates are required to gain acceptance into either the Biological Sciences graduate program (<http://www.mtu.edu/biological/graduate/bio-sci/>) or the PhD program biochemistry and molecular biology (<http://www.mtu.edu/biochemistry/>).

About Us:

Michigan Technological University is a research-intensive university located in Michigan’s beautiful Upper Peninsula, near the shore of Lake Superior, with many excellent recreational opportunities. Housed in the Department of Biological Sciences and the Great Lakes Research Center at Michigan Tech, the Techtmann lab studies the applications of natural and synthetic microbial communities. We use a combination of microbial physiology, ecology, computational biology, and biochemistry to gain a systems-level understanding of microbial communities and how to apply and engineer them. Visit our lab webpage for more information on us: <https://bio.sites.mtu.edu/techtmann/>