

Postdoctoral position in modeling bacterial movement on fungal highways

University of Hawai'i at Mānoa

Summary: Applications are invited for a postdoctoral position to conduct experiments with bacteria swimming in fungal hyphal networks and model their movement and dispersal. The successful candidate will work with both Daisuke Takagi's modeling group and Nhu Nguyen's soil microbial ecology group.

Project description: Fungi form a network of long and slender structures called hyphae that can efficiently transport and redistribute nutrients in soil and across exposed surfaces. This project explores the basic physical mechanisms underlying the transport of nutrients and bacteria across fungal networks. The project is funded by a joint NIH/NSF program at the interface of mathematical and biological sciences.

Job description: Lead the design, conduct, and analysis of laboratory experiments with living bacteria and fungi cultures. Use the resulting data to build mathematical models of bacteria and nutrient transport. Report results in peer-reviewed publications. Work with a multidisciplinary team to mentor graduate and undergraduates students.

Appointment and compensation: The appointment is for two years, with an initial evaluation period within the first year and extension to the second year with good performance. The starting date is ASAP but negotiable. Salary compensation starts at standard NIH postdoctoral rate.

Required qualifications:

- Ph.D. degree in mathematical, engineering, physical or life sciences.
- Demonstrated experience with laboratory experiments (design, conduct, analysis).
- Demonstrated experience in modeling (formulating equations, and computing predictions).
- Strong evidence of productive, compelling, and clear scientific refereed communications.

Desirable qualifications (not necessary but helpful):

- Experience working with fungal and/or bacterial cultures.
- Experience with light (including fluorescent) microscopy.
- Demonstrated scientific creativity with laboratory experiments.
- Demonstrated knowledge of the mathematical and physical principles of microscopic movements of materials (e.g. fluids, cells, particles).
- Highly independent and interested in working with a multidisciplinary team (including graduates and undergraduates).
- Actively contribute to a respectful, collegial, honest, energetic, and productive lab environment.

To apply:

Visit <https://go.hawaii.edu/ijD> and upload your application material.

Please submit a CV, and a cover letter (2-pages max) addressing the following: 1) How your technical training and experiences fit within this project; 2) your interests that could help propel this project forward; 3) how you may contribute to the general lab environment; names/contact information for three referees; For questions, please email Dr. Daisuke Takagi <dtakagi@hawaii.edu>.