

Postdoctoral positions on "Microscale Microbial Oceanography"

100%, Zurich, fixed-term

The **Environmental Microfluidics Group** of Prof. Roman Stocker at the Institute of Environmental Engineering at ETH Zurich is seeking **up to two dynamic and motivated postdoctoral researchers with expertise in microbial oceanography**. You will have the opportunity to work on one or more projects in the context of PriME (Principles of Microbial Ecosystems), an international collaboration funded by the Simons Foundation. These projects address important open questions on either the biological pump, looking at bacteria-particle interactions, or the psychosphere, looking at bacteria-phytoplankton interactions. They offer you the possibility to do laboratory and field work, of using cutting-edge microfluidic and imaging technology, and of interacting with a highly interdisciplinary network of scientists in the Stocker lab and in PriME.

Project background

In recent years, it has become clear that the microscale interactions of bacteria with particles and other organisms in the ocean often play an outsized role in marine ecology. One example of this is marine particles, which are responsible for a large export of carbon to the oceans' depths, a flux that is strongly modulated by marine bacteria that encounter, colonize and degrade particles. How different species of marine bacteria interact on particles, how their interactions affect particle degradation rates, and how these processes are affected by the particles' characteristics including size, composition and sinking rate, remain fundamental open questions whose study can benefit from microscale approaches, including microfluidics and imaging. These same approaches can help shed light on a second ubiquitous process in the ocean: the interaction between bacteria with phytoplankton. This interaction takes on a great many facets. One that we find of particular interest is the continuum between bacteria-phytoplankton interactions and bacteria-particle interactions. As they die, phytoplankton cells aggregate to form particles, which then sink to depth. Thus, the earliest bacterial colonizers of marine particles are bacteria that previously interacted with and resided on dying phytoplankton cells. This continuum awaits exploration and will shed light on how traditionally distinct microscale processes are linked in the ocean.

Job description

The above examples illustrate opportunities for cutting-edge research in microbial oceanography that you can pursue. While work along these lines of investigation will be favoured, you will have the opportunity to significantly shape your research projects. A broad range of microfluidic and imaging technologies will be available, as will opportunities to conduct field research.

Your profile

- You have strong expertise in microbial oceanography and have conducted either laboratory or fieldwork as part of your PhD.
- Your background can be in biology, environmental sciences, ecology, but also physics or engineering.
- You have a strong desire to work in a highly interdisciplinary environment, in a group that works at the interface between microbial ecology and physics, and to learn new skills.
- You will have the opportunity to work in a cutting-edge, fast-paced research environment, interact with researchers from many different disciplines, learn about fundamental biophysical and ecological processes in microorganisms and interact with world-class collaborators.
- The ability to work both independently and also collaboratively, to come up with creative and innovative ideas, and to communicate clearly and effectively will be fundamental.

Your workplace



We offer

ETH Zurich is a family-friendly employer with excellent working conditions. You can look forward to an exciting working environment, cultural diversity and attractive offers and benefits.

> [Working, teaching and research at ETH Zurich](#)

We value diversity

In line with our values, ETH Zurich encourages an inclusive culture. We promote equality of opportunity, value diversity and nurture a working and learning environment in which the rights and dignity of all our staff and students are respected. Visit our [Equal Opportunities and Diversity website](#) to find out how we ensure a fair and open environment that allows everyone to grow and flourish.

Curious? So are we.

We look forward to receiving your online application including:

- a CV
- full transcripts from undergraduate studies (both Bachelor and Masters)
- a brief (1-2 page) statement of research interests
- at least 2 (preferably 3) letters of reference
- 2 selected papers

Please note that we exclusively accept applications submitted through the ETH online application portal. Applications via email or postal services will not be considered.

For questions regarding the position, please contact Joelle Robinson by email at joeller@ethz.ch (no applications).

The review of applications will begin on **February 15, 2023**, with the position to start as early as April 1, 2023, or as soon as filled.

About ETH Zürich

ETH Zurich is one of the world's leading universities specialising in science and technology. We are renowned for our excellent education, cutting-edge fundamental research and direct transfer of new knowledge into society. Over 30,000 people from more than 120 countries find our university to be a place that promotes independent

thinking and an environment that inspires excellence. Located in the heart of Europe, yet forging connections all over the world, we work together to develop solutions for the global challenges of today and tomorrow.