



Faculty Colloquium

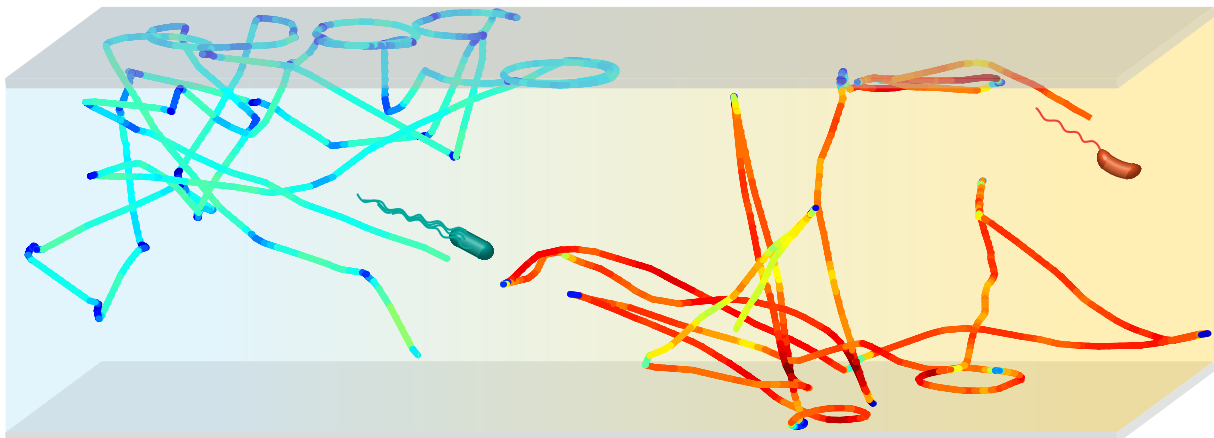
Tuesday, 27 May 2025 at 16:30

Inauguration Lecture: Prof. Dr. Katja Taute

How bacteria navigate their world

Bacteria may be the simplest and smallest organisms on our planet, yet they are capable of complex tasks such as navigation and have therefore emerged as key model organisms for elucidating the physical basis of behavior.

Navigation encompasses environmental sensing and information processing on the one hand, a motility mechanism with a control knob on the other hand, and an intelligent strategy for connecting both to produce directed movement. I will review the physical and ecological challenges encountered by navigating bacteria and discuss how physics both constrains and enables behavioral strategies. I will spotlight our work using high-throughput 3D bacterial tracking of individual swimming bacteria to determine, discover, and evaluate behavioral strategies in ecologically relevant scenarios recreated in microfluidic chambers. In combination with population-level experiments and physical models, we are able to directly probe the impact of behavioral strategies on ecological dynamics. I will discuss how our efforts relate to scientific fields ranging from active matter physics to infection biology and ecology and argue in favor of the unity of the natural sciences.



Venue: Universität Leipzig, Faculty of Physics and Earth Sciences

04103 Leipzig, Linnéstraße 5, Small Lecture Hall

Everyone is welcome to a reception with coffee, drinks and cookies in the Aula following the talk.

For an up-to-date semester program, sign-up for the physics colloquium mailing list, and subscription to the digital calendars in CalDAV format, head to the colloquiums web page <https://www.physes.uni-leipzig.de/fakultaet/veranstaltungen>.

