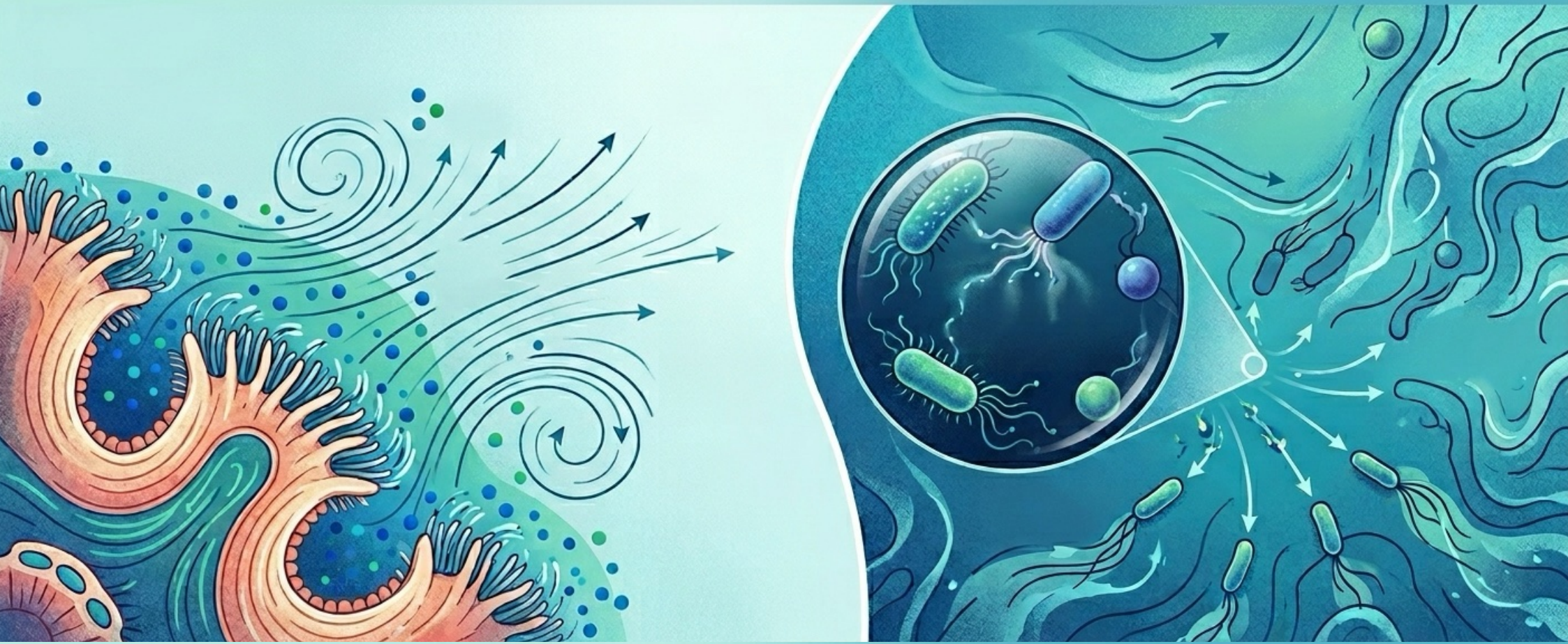


Special Seminar

Nutrient transport in dynamic microenvironments



The capacity for organisms to exchange nutrients with one another and their surroundings underpins microbial symbioses, biogeochemical cycling in the ocean, and the healthy functioning of corals. Here, we explore three-dimensional active transport by ciliary arrays around coral surfaces, using a combination of mathematical modelling, non-invasive measurements of ciliary distributions, and quantification of flow fields and spatial oxygen profiles. We also examine how individual bacteria are capable of exchanging nutrients through chemotactic tracking of fine-scale chemical trails exuded by cells and highlight how nutrient transport and chemical partnerships are influenced by fluid flows.



Thursday, 07.05.2026 | 11:15

Lecture Hall B0.14
Faculty of Physics UW

Prof. Douglas R. Brumley

University of Melbourne