

LadHyX Seminar – May 11, 14:00 – LadHyX library

Anke Lindner,
PMMH/ESPCI

Bacteria transport close to surfaces: from rheotaxis to upstream contamination

Individual bacteria transported in viscous flows, show complex interactions with flows and bounding surfaces resulting from their complex shape as well as their activity. Understanding these transport dynamics is crucial, as they impact soil contamination, transport in biological conducts or catheters, and constitute thus a serious health threat.

Here we investigate the trajectories of individual E-coli bacteria in confined geometries under flow, using microfluidic model systems in bulk flows as well as close to surfaces using a novel Lagrangian 3D tracking method. Combining experimental observations and modeling we elucidate the origin of upstream swimming, lateral drift or persistent transport along corners.