Title:	Magnetic Gear in Dense Bacterial Bath.
Authors:	Mandal, Sayar.
Keywords:	Magnetic Gear in Dense Bacterial Dense Bacterial Bath. Magnetic Gear in Dense Bacteria Bacterial Bath.
Issue Date:	19-Apr-2025
Publisher:	IISER Mohali
Abstract:	A new and exciting class of materials is challenging our traditional classifications of matter – active matter. Unlike their passive counterparts, active materials are composed of self- propelled components that consume energy and convert it into motion at the microscopic level. One of the niches in active matter that has seen recent developments is the active turbulence of bacteria. One of the niches in active matter that has seen recent developments is the active turbulence of bacteria. Many researchers have observed and modelled the active turbulence in Bacillus subtilis (B.subtilis) . However, there are few experiments and even fewer models for quantifying bacterial dynamics inside a swirl flow field. In this thesis, we observe and quantify the dynamics of B. subtilis in its active turbulent state under the influence of a swirl flow field. We have observed the formation of accumulation regions and depletion rings with axial symmetry. The bacterial vortices formed due to active turbulence also show persistence in time and their propagation speeds. Further investigation in this system could help learn new physics about the rheology of active matter systems.
URI:	http://hdl.handle.net/123456789/5750
Appears in Collections:	MS-19

Files in This Item:

File	Description	Size	Format	
Under Embargo period.odt		9.72 kB	OpenDocument Text	View/Open

Show full item record