



سمینار هفتگی ماده چگال نرم

Mechanics, Dynamics and Rheology of Active Suspensions in Viscoelastic Media

Abstract

Motivated by the ubiquitous microbial systems in biological fluids, we analyze the impact of non-Newtonian fluids on the rheological response of active suspensions to steady shear flows. We show that activity from elongated swimmers not only modifies the well-known Jeffery orbits, but pushers (representative of *E. coli*) can even resist the flow-induced rotation and align themselves at an angle with the flow. Furthermore, we study an ensemble of a dilute suspension of such swimmers in the presence of stochastic noise from bacterial tumbling and rotary diffusion. In comparison to Newtonian media, the polymeric elastic stresses alter the swimmer-induced viscosity in a manner that aids in superfluid transition of pusher suspensions and reduces the viscosity provided by puller suspensions.

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مکان: کلاس مجازی دکتر اجتهادی

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