

数学与系统科学研究院

计算数学所学术报告

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报告题目:

Modeling and simulation of an active swimmer in nematic liquid crystal

邀请人: 袁礼 研究员

报告时间: 2019 年 8 月 22 日 (周四)

上午 10:00-11:00

报告地点: 数学院南楼七层

702 教室

Abstract:

Living liquid crystal (LLC) is a class of active matter that combines active particles such as swimming bacteria with a lyotropic liquid crystal. The interaction of active motion with orientation order of liquid crystal (LC) leads to striking optical, hydrodynamical, and electrical properties of LLC, as well as collective behavior and emergence of intriguing patterns. In this work, we aim to understand how the orientation order of liquid crystal affects the motion of a single swimmer. We study a nonlinearly coupled PDE model which combines the well-known Edwards-Beris model for liquid crystal hydrodynamics with a squirmer model describing active swimmer. Numerical results show how the anchoring and force dipole strengths affect the stable squirming direction. This is a joint work with Hai Chi, Leonid Berlyand, and Igor Aronson.

欢迎大家参加！