数学与系统科学研究院

计算数学所网络学术报告

报告人： **Prof. Apala Majumdar**

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报告题目：

A survey of solution landscapes for confined nematic systems

邀请人： 许现民 副研究员

报告时间：2021 年 4 月 21 日（周三）

下午 **17:00-18:00**

报告工具：**Zoom 会议**（**ID**：**6625 6269 664**）

入会密码：**190210**

Abstract：

Nematic liquid crystals are classical examples of partially ordered soft materials that combine fluidity with long-range orientational order. Nematics are directional materials and their direction-dependent response to light and external fields make them the working material of choice for a variety of electro-optic applications. We review the powerful continuum Landau-de Gennes theory for nematic liquid crystals and mathematically model confined nematics in prototype situations. Notably, we discuss new results on the defect sets and multistability of nematics in regular two-dimensional polygons, illustrating the effects of geometry, material properties and temperature on the solution landscape. We investigate saddle-point solutions that connect distinct stable equilibria and novel transition pathways mediated by high-index saddle points. These detailed investigations of nematic solution landscapes on regular polygons can be generalised to three-dimensional scenarios and offer novel prospects for tailored multistability and switching mechanisms for applications. All collaborators will be acknowledged during the talk.

欢迎大家参加！