



复旦大学数学科学学院 数学综合报告会

报告题目: Insights from liquid crystal models for designing numerical methods of gradient flows

报告人: 徐勘 (中国科学院数学与系统科学研究院)

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地点: 光华楼东主楼 2201

报告摘要:

Liquid crystal models, except a few ones such Landau-de Gennes, usually possess very complicated forms, which seem formidable when discussing numerical schemes and their analyses. However, the complicated forms they possess are able to drive us to figure out the most essential structures in designing numerical methods. Actually, the idea of scalar auxiliary variables is inspired by considering liquid crystal models. Furthermore, we may need to reexamine techniques that have proved to be powerful for gradient flows or other energy dissipative systems in simple forms, such as maximum principle. In addition, liquid crystal models could have highly coupled constraints, such as range of tensors or constraints of an orthonormal frame. They lead to interesting and challenging problems for numerical methods, for which we present some useful approaches.

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