

数学与系统科学研究院  
计算数学所网络学术报告

报告人: **Dr. Yiwei Wang**

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报告题目:

**An energetic variational approach for wormlike micelle solutions: Coarse graining and dynamic stability**

邀请人: 徐劼 副研究员

报告时间: 2021 年 6 月 15 日 (周二)

上午 9:00-10:00

报告工具: 腾讯会议 ID: (323 742 366)

会议链接:

<https://meeting.tencent.com/s/5wEwuaDcSyVf>

## **Abstract:**

**Wormlike micelles are self-assemblies of polymer chains that can break and recombine reversibly. In this talk, we present a thermodynamically consistent two-species micro-macro model of wormlike micellar solutions by employing an energetic variational approach. The model incorporates a breakage and combination process of polymer chains into the classical micro-macro dumbbell model of polymeric fluids in a unified variational framework. The modeling approach can be applied to other reactive or active complex fluids. Different maximum entropy closure approximations to the new model will be discussed. By imposing a proper dissipation in the coarse-grained level, the closure model, obtained by “closure-then-variation”, preserves the thermodynamical structure of both mechanical and chemical parts of the original system. The same modeling approach can be applied to many active or reactive systems found in biology. This is joint work with Prof. Chun Liu (IIT) and Dr. Teng-Fei Zhang (CUG).**

**欢迎大家参加！**