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：

Threshold dynamics method for topology optimization for fluids

邀请人：　黄记祖 副研究员

报告时间：**2019** 年 **6** 月 **12** 日（周三）

下午 **14:30-15:30**

报告地点：　数学院南楼七层

702 教室

Abstract:

In this talk we will introduce an efficient threshold dynamics method for topology optimization for fluids modeled with the Stokes equation. We aim to minimize an objective energy function that consists of the dissipation power in the fluid and the perimeter approximated by nonlocal energy subject to a fluid volume constraint and an incompressibility condition. In order to solve the problem in the whole domain, a one-domain approach for fluids over porous media will be introduced. Then we show that the minimization problem can be solved with an iterative scheme in which the Stokes problem is approached with a Brinkman problem. The indicator functions of the fluid-solid regions are then updated according to simple convolutions followed by a thresholding step. The total energy decaying property of the iterative algorithm can be obtained. Some numerical results will be shown to verify the efficiency of the proposed algorithm.

欢迎大家参加！