

数学与系统科学研究院

计算数学所学术报告

报告人: **Dr. SiHong Shao**

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报告题目:

**A Variational Model for Two-Phase  
Immiscible Electro-osmotic Flows**

邀请人: 张硕助理研究员

报告时间: **2010年7月26日(周一)**

**下午 16:00~17:00**

报告地点: **科技综合楼三层 311**

**计算数学所报告厅**

## **Abstract:**

**Based on the Onsager principle of minimum energy dissipation, we develop a model for two-phase immiscible electro-osmotic flows in nanofluidic channels which couples the incompressible Navier-Stokes equation for fluid flow, the Nernst-Planck equation for ion transport, a phase-field model of Cahn-Hilliard type for interface motion, and the Poisson equation for electrical potential. In particular, the boundary conditions on the channel walls are variationally derived together with the equations of motion in the bulk, including the generalized Navier boundary condition for moving contact line. Some numerical examples in 2D space have been presented to illustrate the applicability of the variationally derived continuum hydrodynamic model. Wall slip and apparent slip in the electric double layer are both investigated. This is a joint work with Tiezheng Qian.**

**欢迎大家参加!**