复旦大学数学科学学院
数 学 综 合 报 告 会
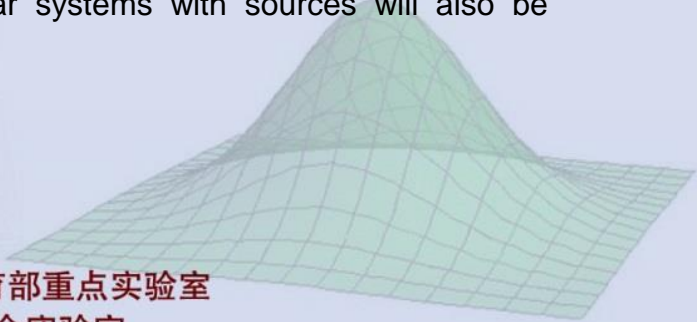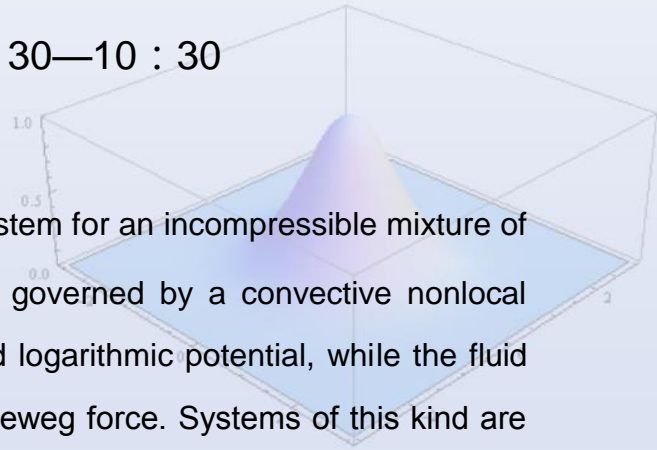
报告题目：Some Recent Results on Cahn-Hilliard-Darcy Systems with Singular Potential

报告人：Prof. Cecilia Cavaterra（Universita degli Studi di Milano）

报告时间：2024 年 5 月 14 日星期二，9：30—10：30

报告地点：光华东主楼 2001

报告摘要：We consider a Cahn-Hilliard-Darcy system for an incompressible mixture of two fluids. The relative concentration difference is governed by a convective nonlocal Cahn-Hilliard equation with degenerate mobility and logarithmic potential, while the fluid velocity obeys a Darcy's law depending on the Korteweg force. Systems of this kind are used to describe fluid flow in a porous medium as well as to model solid tumor growth through diffuse interfaces. We will report a series of results obtained in collaboration with S. Frigeri and M. Grasselli. Besides the existence of a global weak solution which satisfies an energy identity, we will discuss the existence of a strong solution, regularity properties, and uniqueness issues. Further works on similar systems with sources will also be mentioned.

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