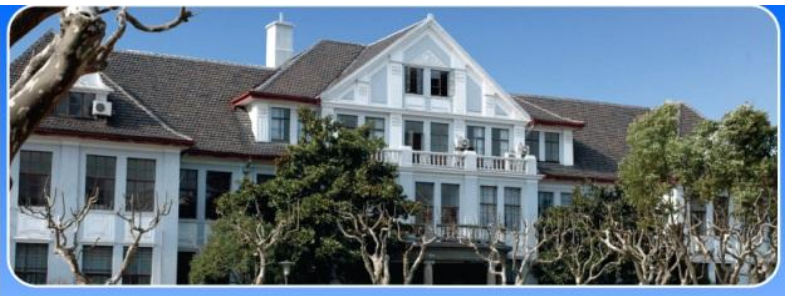


复旦大学数学科学学院
数学综合报告会

报告题目： **Modeling cell fate specification during early embryonic development in mouse**

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报告时间：2017-9-22 周五 14:00-16:00

报告地点：光华东主楼 1801

摘要： During embryonic development, the specification of different cell fates results from interactions between transcription factors. These regulatory networks often exhibit multiple stable steady states (multistability), providing a common dynamical basis for differentiation. I will present here a model for early murine embryogenesis which describes the specification of cells from the inner cell mass (ICM) into epiblast (Epi) or primitive endoderm (PrE). The model incorporates the intracellular gene regulatory network as well as the intercellular interactions involving Erk/Fgf4 signaling pathway. The results are analyzed by means of bifurcation diagrams. The model displays tristability in a range of Fgf4 concentrations, accounts for the self-organized specification process observed in vivo, and predicts that heterogeneities in extracellular Fgf4 concentration play a primary role in the spatial arrangement of the Epi/PrE cells in a salt-and-pepper pattern.

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