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## Phase transition solutions to a hyperbolic-parabolic system modeling vascular networks

**报告人:** 王治安 副教授 (香港理工大学)

**报告时间:** 2020年11月30日上午10:00-11:00

**腾讯会议 ID:** 706 619 494

**链接入会:** <https://meeting.tencent.com/s/luoRZXLxT90L>

**报告摘要:** Blood vessel network formation in vitro demonstrates that endothelial cells randomly dispersing on a gel substrate (matrix) can spontaneously organize into connected capillary networks with phase transitions. This phenomenon has been called in vitro angiogenesis - a major factor of tumor growth. How endothelial cells self-organize geometrically into capillary networks and how individual cells cooperate to form the coherent patterns remain poorly understood biologically up to date. These coherent network patterns cannot be explained by the macroscopic chemotaxis models that lead to point-wise blowup or rounded aggregates, nor by the microscopic chemotaxis models that describe single cell behaviors. However the damped hydrodynamic (hyperbolic-parabolic) chemotaxis model can numerically reproduce the key features of remarkable networking patterns. In this talk, we shall report a result on the stability of phase transition steady states to this hyperbolic-parabolic system in the half space with Dirichlet boundary conditions under some structure assumptions on the pressure function.

### 报告人简介:

王治安，香港理工大学应用数学系副教授，华中师大本科硕士，加拿大艾伯塔大学应用数学博士，美国明尼苏达大学应用数学所博士后。从事与生物数学相关的偏微分方程研究，主要研究方向是趋化及其相关模型的建模及理论分析与数值模拟。现担任杂志 DCDS-B 编委和香港数学会秘书长，曾获香港数学会颁发的青年学者奖以及 JMAA 杂志最佳论文奖。

欢迎各位老师和同学参加!

西北大学数学学院

2020年11月25日