

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:

**Optimization, Adaptation, and
Initialization of Biological Transport
Networks**

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计算数学所报告厅

Abstract:

Blood vessel systems and leaf venations are typical biological transport networks. The energy consumption for such a system to perform its biological functions is determined by the network structure. In the first part, I will talk about the optimized structure of the network, and show how the blood vessel system adapts itself to an optimized structure. Mathematical models are used to predict pruning vessels in the experiments of zebra fish. In the second part, I will discuss our recent discovery and our mathematical model on the initialization of transport networks. Simulation results can illustrate how a tree-like structure is obtained from a continuum adaptation equation set, and how loops can exist in our model.

欢迎大家参加!