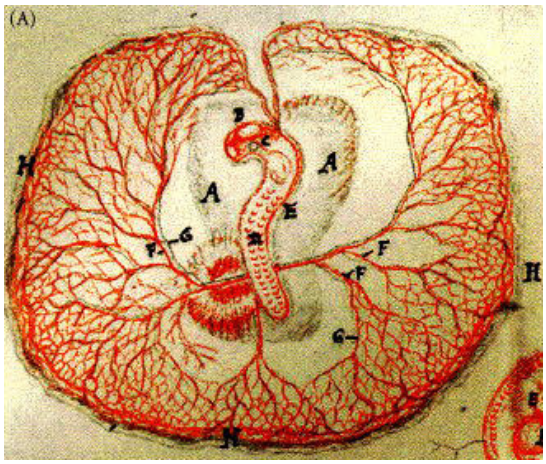
Invitation to Seminar (SS 2014)

Biology and Mathematics of Vascular Development



Marcello Malphigi , 1673

OBJECTIVE:

Blood vessel networks are among the most prominent examples of tissue patterns. Understanding the principles and mechanisms behind vascular patterning is a fundamental problem of developmental biology as well as for biomedicine and tissue engineering. Vascular patterning is a multifaceted process involving biochemical signaling, mechanical processes as well as cell collective behaviors. Mathematical modeling and computer simulations are used to unravel key mechanisms and explore new biological concepts and hypotheses. Increasingly, models are combined with quantitative data from wet-lab experiments to provide testable predictions.

In the seminar, we review key mathematical models of vascular development and focus on recent advances of quantitative modeling in the field. By means of talks and discussions, participants are introduced to a highly interdisciplinary application field. The seminar is intended for graduates in physics, mathematics, computer science and biology.

TIME AND LOCATION:

The seminar will take place on 4 Monday afternoons **13:00-16:00**:
26 May, 2 June, 30 June, 7 July
Location: Room INF-1096, Computer Science Dept. of TU Dresden at Nöthnitzer Str. 46
A **kickoff meeting on April 28, 14:00-15:00** will be used to distribute the topics of the seminar among the participants.

ORGANIZERS:

Alvaro Köhn-Luque, Water de Back, Oleksandr Ostrenko and Andreas Deutsch
ZIH, TU Dresden