

HASEGAWA LAB.

[Prediction and Control of Transport Phenomena]

Centre for Research on Innovative Simulation Software

<http://www.ysklab.iis.u-tokyo.ac.jp>

Interfacial Transport Engineering

Mechanical Engineering

Inverse Problems in Thermo-Fluids

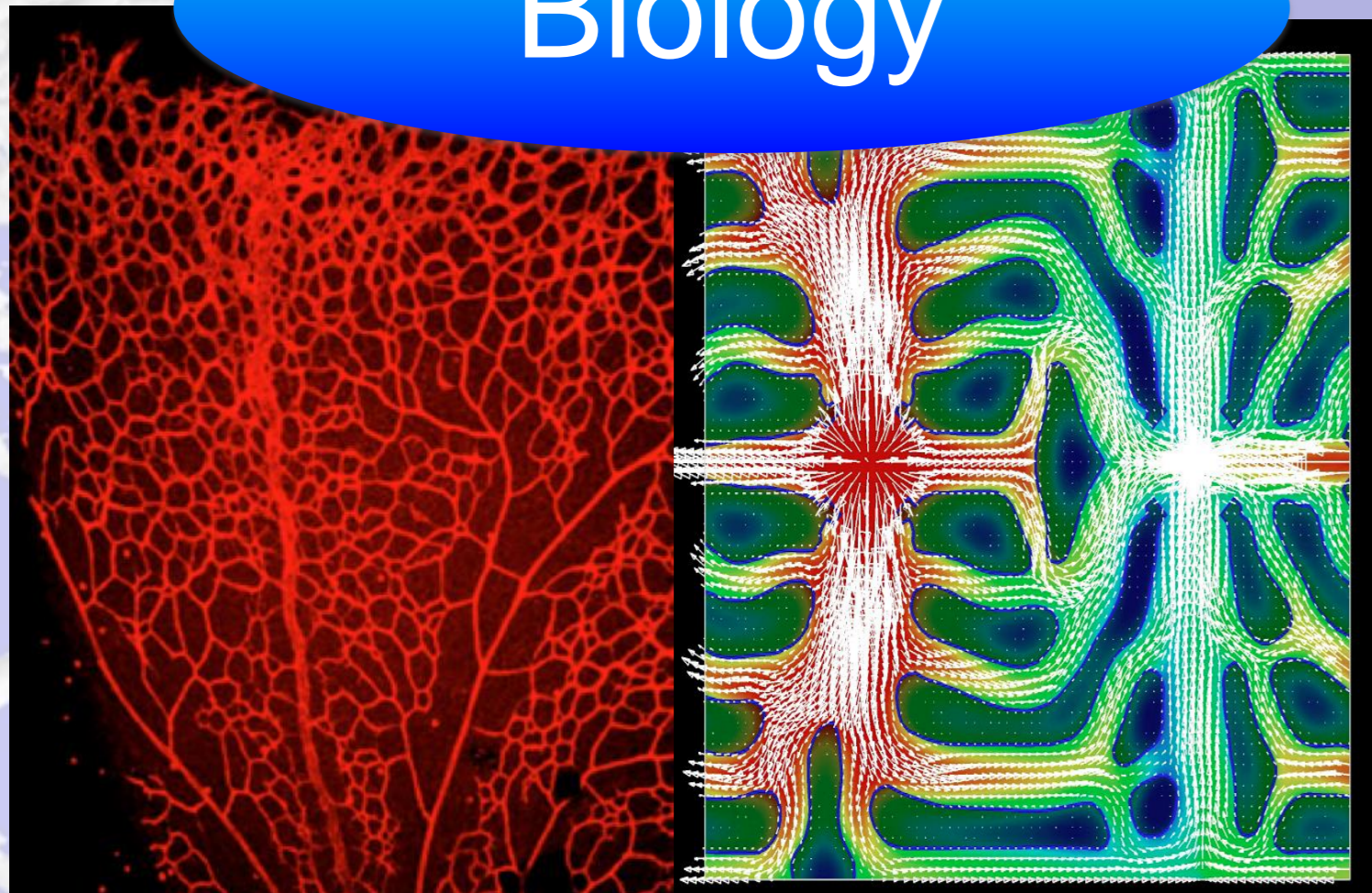
Engineering
 Due to rapid development of computational capability, it becomes possible to simulate complex transport phenomena in thermo-fluids systems. However, it is still difficult to extract major factors and effective design strategies from obtained results. Our group aims at adding new values to large-scale simulations by applying advanced optimization techniques. Specifically, we are working on optimal control of turbulent transport phenomena, shape optimization of complex interfaces and estimation of thermal and flow fields based on noisy sensing signals. We also investigate coating and drying of complex fluids for developing fabrication processes of energy devices.

Energy



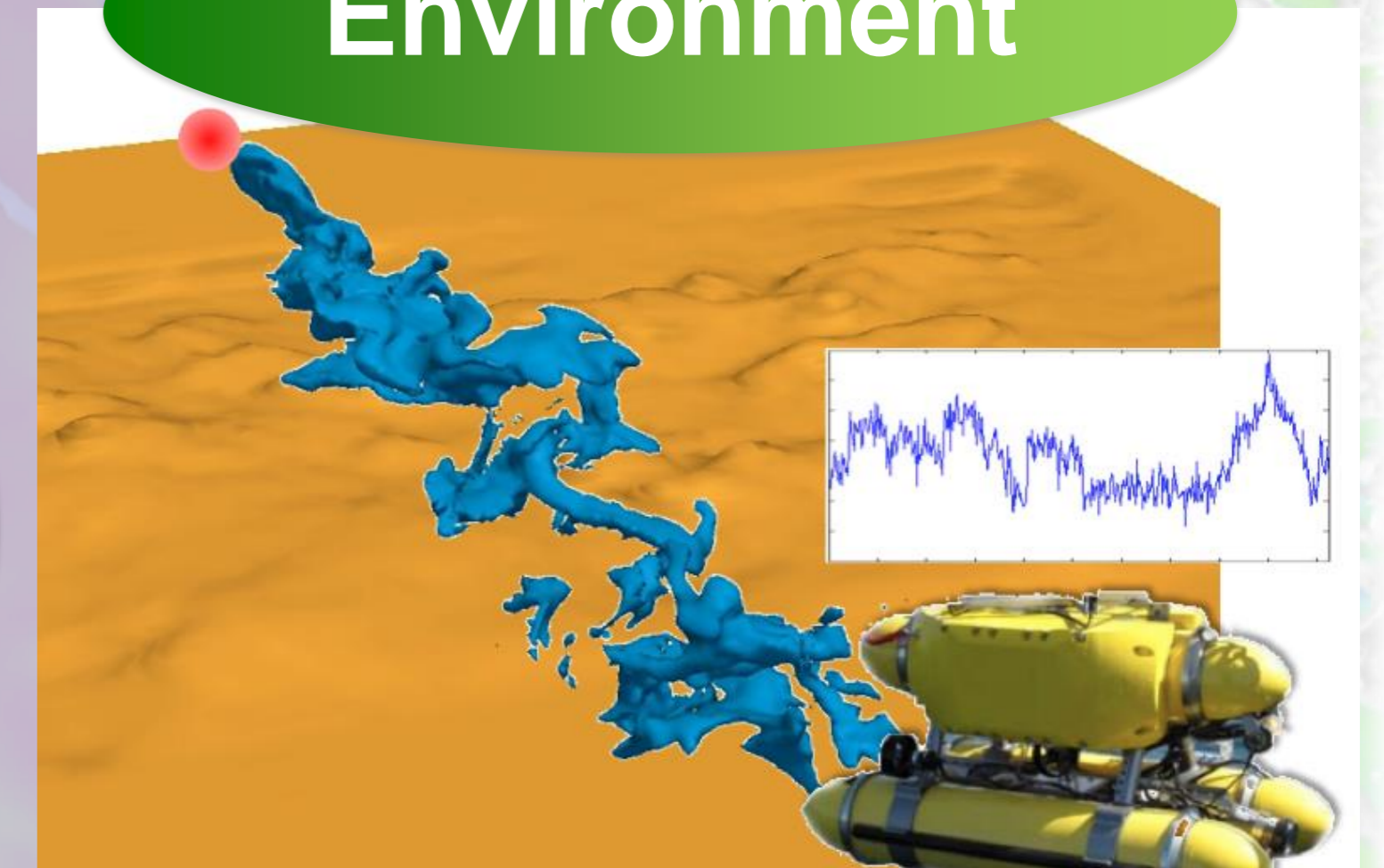
Optimal Design of Energy Systems

Biology



Remodling of Vascular Network in Biological Systems

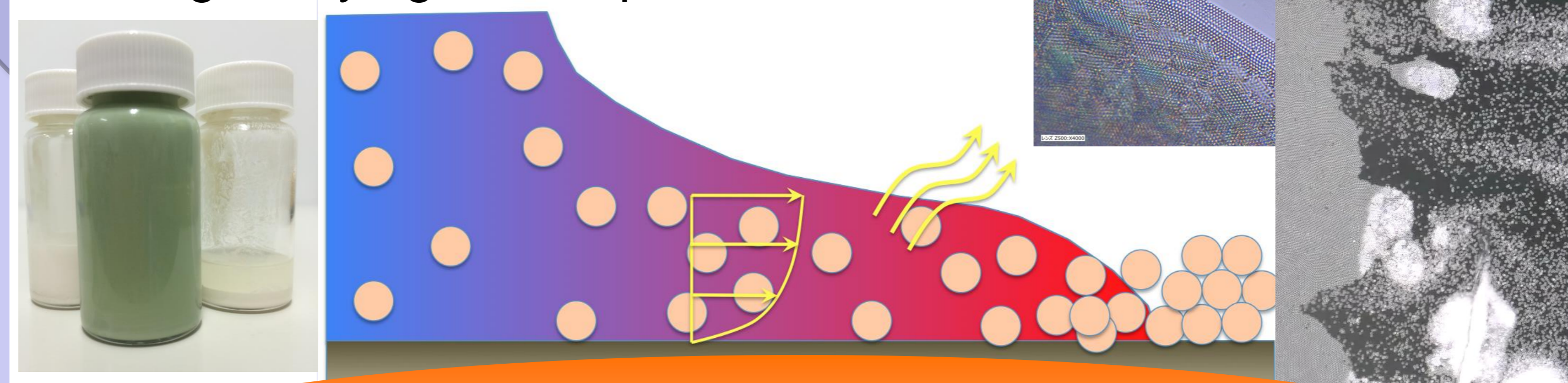
Environment



Estimation of thermal and flow fields based on sensing signals

Flow Physics
 X
 Optimal Control

Coating & Drying of Complex Fluids



Production Technology