

1st International Symposium on
Constructal Tree-Shaped Flow Architectures for Heat and Fluid Flow

Tentative dates: 9-10 October 2006,

Venue: Shanghai Jiaotong University, Shanghai

Symposium Chair: Prof. Ping Cheng (Shanghai Jiaotong University)

Symposium Co-Chair: Prof. Adrian Bejan (Duke University)

Objective: Dendritic (tree-shaped) flow vasculatures are rapidly invading the fields of heat and mass transfer and fluids engineering. The reason is clear: as in animal design, tree-shaped vascularization offers considerably greater compactness (density of transport) than conventional architectures such as arrays of parallel channels. Tree-shaped architectures have multiple scales, which are organized hierarchically and distributed optimally (nonuniformly) through the available space. Applications of dendritic architectures cover all the length scales, from the micro of packages of electronics, to the macro of fuel cells, urban design and globalization.

This Symposium brings together for the first time the world's leading developers of tree-shaped flow architectures for heat and mass transfer and fluid flow. The focus is first on fundamentals and methodologies—how the dendritic architectures are generated from the global maximization of flow access (constructal theory), and from the use of fractal and evolutionary algorithms. Emphasis is placed on what unites these methodologies, and how wide open and promising their domains of application are. The future of flow structures belongs to the vascularized.

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