Friends of the Kavli Institute for Theoretical Physics

Chalk Talk

Detangling the vascular web: Loops, hierarchies, and the quest for Nature's design principles

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Life above a certain size relies on a circulatory system for oxygen and nutrient delivery — without it, no complex animal would be more than a few millimeters big since, by diffusion alone, oxygen would not be able to travel more than 100μm in its tissue. Plants, animals and fungi have developed circulatory systems of striking complexity to solve their problems of nutrient delivery and waste removal. In this talk Professor Katifori will discuss some of Nature's ingenious solutions to the problem of vascular network design. She will explore how, from the reticulate vascular architecture of the leaf, to the hierarchies of the veins and arteries in our brain, common architectural principles appear. You will see how and why organisms evolved vascular systems of unparalleled complexity, and, in the process, will learn valuable lessons applicable to engineered systems.

Eleni Katifori is an assistant professor in the Department of Physics and Astronomy at the University of Pennsylvania.

A native of Greece, she received her Ph.D. from Harvard University, working with David Nelson on problems in statistical mechanics and the elasticity of thin shells.

Professor Katifori is one of the coordinators of the KITP program "SHEETS."

Wednesday, March 9, 2016
Kohn Hall, UCSB
5:30 Courtyard Reception
6:15 - 7:15 Presentation and Discussion

Attendance by Reservation Only
RSVP by Monday, March 7:
On-Line: https://www.kitp.ucsb.edu/chalk-talk-rsvp
Phone: (805) 893-6363 *or* events@kitp.ucsb.edu

Lot 10 parking
As you enter campus from Hwy 217, turn right onto Mesa Rd, merge into the left lane, and at the stop light turn left into Parking Structure 10. Park, buy a permit from the dispenser (near the elevator and stairs), and display the permit on your dashboard. The KITP is right next door to the parking structure.