



Channing Network Science Seminar

April 1, 2016, 11am @ 5th floor conference room



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How do ecological systems respond to environmental variations?

The effects of environmental change are modifying the abundance, physiology and geographic range of individual species, threatening the persistence of whole ecological systems. Numerical analysis has shown that the tolerance of ecological systems to external perturbations is completely dependent on the direction and strength of these variations. Then how do ecological systems face environmental variations? In this talk, I will explain recent developments in the area of structural stability applied to ecological networks that are helping to answer this question. In particular, I will present evidence showing that observed changes in ecological networks can minimize the impact of environmental variations on the range of conditions compatible with species coexistence. Overall, these results suggest that changes of ecological networks can reveal the external pressures acting on these systems.

Bio: Serguei is an Assistant Professor at MIT at the Department of Civil and Environmental Engineering. He obtained his PhD in Engineering Science from Oxford University (UK). This was followed by postdoctoral appointments at the Northwestern University Institute on Complex Systems (USA), Integrative Ecology Group at Doñana Biological Station (Spain), and Department of Environmental Systems Science at ETH (Switzerland). His work is at the intersection between the fields of community ecology and complex networks. His research goals are directed towards biodiversity sustainability by studying the principles shaping both the persistence and variations of ecological systems.

Hosted by Yang-Yu Liu