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Eawag Seminar Invitation

Emergence of structural and dynamical properties of ecological mutualistic networks

Speaker **Prof. Amos Maritan**
University of Padua, Italy

When **June 3, 11.00 – 12.00 a.m.**

Where **Forum Chriesbach C20, Eawag Dübendorf**

Abstract

Mutualistic networks are formed when the interactions between two classes of species are mutually beneficial and they are important examples of cooperation shaped by evolution. The topological properties of the ecological interaction networks have been the subject of sparkling research and they indicate non-random pattern of community organization. Indeed, ecologists have collected extensive data on species interactions showing that, independently of species composition and latitude, mutualistic networks (such as plant-pollinator systems) have nested architectures: specialist species, with only few mutualistic links, tend to interact with a proper subset of the many mutualistic partners of any of the generalist species.

Despite sustained efforts to explain observed network structure on the basis of community-level stability or persistence, such correlative studies have reached minimal consensus. It will be show how nested interaction networks emerge as a consequence of an optimization-variational principle. Nested networks also attenuates the impact of the propagation of perturbations on species abundance through localization of the principal eigenvector of the linearized dynamics.