UNIVERSITÀ DI PAVIA
Dipartimento di Fisica
"Alessandro Volta"

**Dottorato di Ricerca in Fisica**

# COLLOQUIA DI DOTTORATO, A.A. 2025/2026

A101, Dipartimento di Fisica

**Giovedì 11 dicembre 2025 ore 16:00**

# *Physics of Ecological Systems*


**Samir Suweis**

*(Università di Padova)*



Understanding how complex ecological communities function, persist, and adapt is one of the grand challenges of contemporary science. Ecosystems involve interactions among countless organisms, each responding to a constantly changing environment. Yet, despite this apparent complexity, ecological systems often display strikingly regular, robust, and universal patterns.

This talk discusses how tools from statistical physics, complex systems theory, and effective modelling enable us to uncover the emergent properties of ecological communities and to bridge the gap between microscopic dynamics and macroscopic phenomena. The aim of the talk is to convey how a physics perspective can provide unifying principles for ecology, and how theoretical insights, when combined with data, can deepen our understanding on diversity and dynamics of ecological systems.


*The seminar is in presence up to the maximum occupancy of the lecture hall.*