

Abstract Submitted  
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**Phase transition in predator-prey ecosystems and a connection to transitional turbulence**<sup>1</sup> HONG-YAN SHIH, NIGEL GOLDENFELD, Department of Physics, University of Illinois at Urbana-Champaign — We suggest how the transition from laminar fluid flow to turbulence can be connected to the extinction phase transition in spatially-extended predator-prey systems. By measuring the statistics of spontaneous relaminarization, spatiotemporal intermittency and expanding turbulent puffs in hydrodynamics equations and mapping them to the corresponding states in the predator-prey model, the extinction event and the formation and propagation of spatial patterns in ecology can be interpreted as the instabilities in fluid systems. We also summarize the general phenomena of such predator-prey dynamics in a wide class of transitional turbulence systems such as magnetohydrodynamics.

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