Cologne Evolution Colloquium

Joint Seminar with

Theory Colloquium

CRC 1310 Predictability in Evolution

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Topological Phase Transitions in Population Dynamics

Topological phases were discovered in condensed matter physics and recently extended to classical systems such as topological mechanical metamaterials. Their study and realization in soft-matter and biological systems has only started to develop. In this talk we discuss how topological phases may determine the behavior of nonlinear dynamical systems that arise, for example, in population dynamics. We show that topological phases can be realized with the anti-symmetric Lotka-Volterra equation (ALVE). The ALVE is a paradigmatic model system in population dynamics and governs, for example, the evolutionary dynamics of zero-sum games, such as the rock-paper-scissors game, but also describes the condensation of non-interacting bosons in driven-dissipative set-ups.

Friday, June 4, 2021, 16:30

Online via Zoom

Hosted by Joachim Krug