



Lothar-Collatz-Kolloquium für Angewandte Mathematik

Donnerstag, den 16. Januar 2025, um 17:15 Uhr, im Hörsaal 5

Prof. Dr. Jia-Yuan Dai*

(National Tsing Hua University, Taiwan, Department of Mathematics)

"Hybrid bifurcations: Periodicity from Eliminating a Line of Equilibria"

Zusammenfassung/Abstract:

We describe a new mechanism that triggers periodic orbits in smooth dynamical systems. To this end, we introduce the concept of hybrid bifurcations, which consists of a bifurcation without parameters and a classical bifurcation. Our main result classifies the hybrid bifurcation when a line of equilibria with an exchange point of normal stability vanishes. We showcase the efficacy of our approach by proving stable periodic coexistent solutions in an ecosystem of two competing predators with Holling's type II functional response. This is a joint work with Alejandro López Nieto, Phillip Lappicy, Nicola Vassena, and Hannes Stuke.

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