

Student Geometry Seminar

國立清華大學數學系 學生幾何研討會

講題 Exploring Symmetries in Dynamical Systems

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地點 綜三 631

Abstract

Symmetries arise in many phenomena and enable dimensionality reduction and problem simplification in mathematical analysis. In this introductory talk, I will first review key concepts of equivariant dynamical systems, where a symmetry group acts on the phase space X in a way that commutes with the underlying vector field. However, not all dynamical systems exhibiting symmetric phenomena possess group equivariance, prompting the need for weaker notions. One such approach (Ref. [1]) is to adopt a groupoid perspective, in which commutativity is only required within certain linear invariant subspace $X_j \subset X$. I will outline the framework and invite discussion on how it can broaden our understanding of symmetries in dynamical systems.

Reference

[1] Isabelle Schneider. Symmetry Groupoids in Dynamical Systems: Spatio-temporal Patterns and a Generalized Equivariant Bifurcation Theory, Freie Universität Berlin (2022).

Find more information at <https://sites.google.com/view/sgsnthu/home>

