

Symmetry groupoids of dynamical systems

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Symmetries described by group transformations help immensely in our task to qualitatively characterize solutions of dynamical systems - providing that they exist. In this talk based on my habilitation thesis, we significantly enlarge the class of dynamical systems which can be studied by symmetry methods, moving our focus from groups to groupoids as the underlying algebraic structure describing symmetry. Building on the groupoid framework, we fundamentally generalize the notion of equivariance and equivariant bifurcation theory. We will also outline first applications in modelling and control of dynamical systems.