







## Lothar-Collatz-Seminar

Wed, 13. November  $\,\cdot\,$  16:15  $\,\cdot\,$  Sedanstr. 19, Room 203

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## Dynamics in Fluid-related Problems with Continuous Non-smooth Nonlinearity

## Abstract:

The Swift Hohenberg equation is conceptual order-parameter model for structure formation in broad generality including fluid dynamics, in particular convection. It entails polynomial force terms, and I replace the monomials with general powers  $|u|^{\alpha}$ , for which the bifurcation analysis has not been done. Such terms are motivated by non-smooth hydrodynamic forces and models of ship maneuvering, shimmying wheel. Due to these non-smooth terms, the analysis cannot rely on direct Taylor expansion. Preliminary numerical studies show intruiging behaviour of the periodic roll-type solution of Swift Hohenberg equation and of the homoclinic snaking (of solutions corresponding to convectons), which is a back and forth oscillations in the bifurcation diagram.

This talk will mainly discuss the behavior and analysis of the periodic branch.

For further information please contact

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