

Fakultät Mathematik

Mathematisches Kolloquium

Im Rahmen des Kolloquiums spricht:

Prof. Dr. Bernold Fiedler
FU Berlin

Über das Thema:

Bifurcation without parameters: ODE and PDE examples

Abstract:

Standard bifurcation theory is concerned with families of vector fields involving one or several constant real parameters. The constant parameter provides a foliation of the total phase space. Frequently the presence of a trivial equilibrium manifold is also imposed. Bifurcation without parameters, in contrast, discards the foliation by a constant parameter. Only the trivial equilibrium manifold is preserved. A rich dynamic phenomenology arises when normal hyperbolicity of the trivial equilibrium fails, due to zero or purely imaginary eigenvalues. Specifically, we address Hopf bifurcation, Takens-Bogdanov bifurcation, and Takens-Bogdanov bifurcation with additional time reversal symmetries, all in absence of parameters. We illustrate consequences of our results with examples from ordinary and partial differential equations arising in systems of coupled oscillators, in the analysis and numerics of hyperbolic conservation and balance laws, and in the fluid dynamics of plane Kolmogorov flows. The results are joint work with Andrei Afendikov, James C. Alexander, and Stefan Liebscher. For references see <http://dynamics.mi.fu-berlin.de/> .

Termin: **Montag, 16.06.2008, 17:15 Uhr**

Ort: **Hörsaal M E28**

Kaffee/Tee: **16:45 Uhr, Raum 614**

Zu diesem Vortrag laden die Dozenten der Mathematik ein.