Einladung zum

Würzburger Mathematischen Kolloquium

Julius-Maximilians-Universität Würzburg • Fakultät für Mathematik und Informatik

Prof. Dr. Alan D. Rendall

Johannes-Gutenberg-Universität Mainz

Analysis of some dynamical systems arising in molecular biology

Mittwoch, den 6. Nov. 2013 • 16:15 Uhr
Mathematik Ost (Emil-Fischer-Straße 40), Seminarraum SE 40 (Raum 00.001)

Inhaltsangabe

Modelling phenomena in molecular biology gives rise to systems of ordinary differential equations and reaction-diffusion equations for concentrations of chemical substances. Often these are studied using numerical simulations or heuristic approaches. It is interesting to ask to what extent it is possible to prove theorems about the qualitative behaviour of solutions of these systems. How many stationary solutions exist and what are their stability properties? Do there exist periodic or chaotic solutions? Typically the number of equations is large and they depend on many parameters whose values are poorly known. Thus the problem is hard. In this talk I will discuss some techniques which have been used in this context and give examples where a rigorous analysis has been carried out. These tools include bifurcation theory, fixed point theorems and the theory of monotone systems. There are also interesting connections to linear algebra, graph theory and algebraic geometry

Zu diesem Vortrag laden wir Sie herzlich ein.
Im Anschluss an die Vorträge Kaffee und Tee im Foyer vor dem SE 40.

Die Dozentinnen und Dozenten der Mathematik