Applied Analysis Seminar

Thursday, July 21th
14:15, SR 1

Institut für Angewandte Mathematik
Mathematikon

Modeling of feedback mechanisms in acute leukemias

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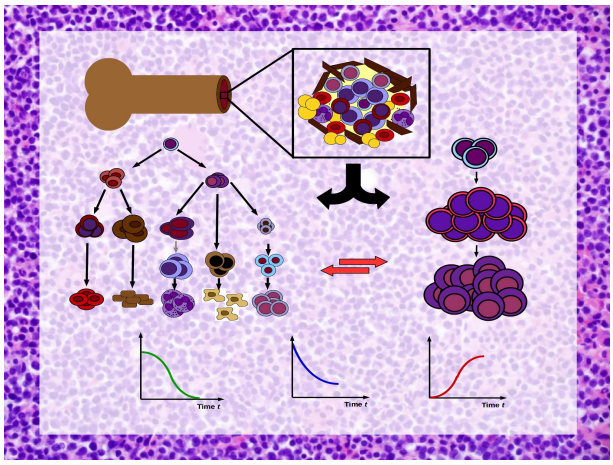

The talk is comprised of the mathematical and numerical study of a new mathematical model of acute leukaemias (blood cancer). The model is defined by a system of nonlinear ordinary differential equations describing interaction of healthy and leukemic cells. The model includes multiple feedback mechanisms such as competition for bone marrow space and competition for hormonal factors. We study the impact of the different feedback loops on the speed of disease progression and the response to chemotherapy. An interdisciplinary combination of mathematical models and clinical data will help to identify crucial mechanisms during evolution and treatment of the disease. The techniques used include: numerical simulation of dynamical systems and analytical study of ordinary differential equations (equilibrium points, linearized stability).