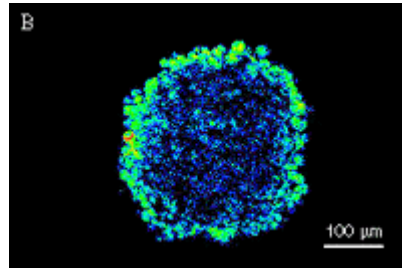INVITATION TO NEW LECTURE (SS 05)
INTRODUCTION TO MATHEMATICAL BIOLOGY: MODELLING AND CONCEPTS

OBJECTIVE

The life sciences are rapidly turning from qualitative to quantitative sciences (mathematization). This requires the application of mathematical models. Mathematical biology is concerned with biological problems that can be studied by means of mathematical models. This lecture provides an overview of important modelling concepts and applications motivated mainly by questions from developmental biology. In particular, we introduce models of diffusion, oscillations, gradients, chaos, networks and self-organization and discuss modelling issues as the role of fluctuations, noise and model validation. Thereby, an introduction into essential mathematical structures (e.g. differential equations, stochastic processes, cellular automata) and the "art of modelling" is provided.

Precondition for participation is some affinity to mathematics. All necessary mathematical tools will be introduced. The lecture is intended for students and researchers in biology, mathematics, physics and computer science who are interested in this highly interdisciplinary research field.

LECTURERS

Dr. Lutz Brusch, ZIH, TU Dresden
PD Dr. Andreas Deutsch (coordinator), ZIH, TU Dresden
Dr. Anja Voss-Böhme, Institut für Stochastik, TU Dresden

TIME AND LOCATION

Lecture: Tuesday 16.45-18.15 (WIL-A 120), *Start: April 19*
Tutorial (on demand): Friday 11.10-13.40 (PHY-D16)

FURTHER INFORMATION

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