



MAFIA - the seminar you can't refuse

**Mathematical introduction to the emergence of
spatial organisation (Reaction-diffusion models for
pattern formation)**

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24. 2. 2015 at 11:30 in T115/C

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Trojanova 13, 12000 Praha

Abstract: This talk will be devoted to analysis of a class of reaction-diffusion type models arising from mathematical biology. We shall explore the emergence of spatial self-organisation as modelled by Turing mechanism of pattern formation in classical models consisting of two linear reaction-diffusion equations. We provide a systematic mathematical analysis of the phenomenon of the diffusion-driven instability and characterise Turing patterns. After briefly discussing some limitations of Turing concept of spatial organisations and how these constraints can be relaxed (revealing the role of higher order terms in the frequent quasi-steady state assumption), we address the problem of reductionism.