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Talk 1:

Noise-driven quasi cycles, patterns and waves

In this talk I will review a number of noise-induced phenomena in individual-based models, in particular I will focus on the effects of so-called intrinsic or demographic noise. This type of stochasticity arises in populations of discrete individuals, and it generates effects such as coherent quasi-cycles, quasi Turing patterns, and travelling quasi waves. I will discuss analytical approaches to these phenomena, and I will describe a number of applications, e.g. in gene regulation, the modelling of epidemics or in spatially extended chemical reaction systems