



Hamilton Institute

Contributions to the Analysis of Biochemical Reaction-Diffusion Networks: Stability, Analysis and Numerical Solutions

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Abstract: In this talk we address three problems that arise in the study of biochemical networks, by analysing the differential equations that govern their dynamics. Firstly, we determine the equilibrium set of the mathematical model that describes a circular protein activation mechanism. At a later stage, we analyse a simple protein activation mechanism in a spatio-temporal setup, by deriving the analytical solutions to the PDEs that describe biological-motivated scenarios. Finally, for a class of reaction networks, we study the downstream signalling of biochemical cues, by means of the analytical computation of their (spatially distributed) time-integral. Applications of these examples comprise cell death, muscular growth and signal transduction in cellular membrane receptors.

Venue: Seminar Room, Hamilton Institute, Rye Hall, NUI Maynooth

Time: 2.00pm - 3.00pm

Travel directions are available at www.hamilton.ie