

Delays and Dynamics in Models of Neural Activity

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Neural systems have been modeled at different scales. One can start from a large number of coupled differential equations describing individual neurons in discrete spatial space (neuronal networks), or work with locally averaged and homogenized representation in continuous space (neural fields), or even do away with space completely and investigate lumped models (neural mass models). This talk will consider the range of dynamics and complex behavior in mathematical models and indicate their possible connections to experimental data. Particular emphasis will be devoted to modeling time delays and their effects on the dynamics.