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Analysis of the steady states in the leaky integrate-and-fire model

The nonlinear leaky integrate-and-fire equation models the dynamics of a connected neural network. It is a structured population model in which the potential of each neuron decreases deterministically and undergoes stochastic positive jumps with a rate related to the total activity of the network. We study the existence, uniqueness, and stability of the steady states depending on the connectivity of the network.

It is a joint work with Grgory Dumont.