

Title:

Collective dynamics of QIF neurons with chemical and electrical synapses

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Abstract:

Low-dimensional mean-field descriptions of neuronal networks are a powerful tool for studying the collective behavior of a large number of interacting neurons. Recently, an exact mean-field reduction has been achieved for quadratic integrate-and-fire (QIF) neurons that are coupled with both chemical and electrical synapses. Here, we study how the interplay between these two forms of interneuronal communication creates spatiotemporal activity patterns in a mean-field model that exactly predicts the firing activity of QIF neurons.