

Abstract: "A Multiscale Analysis of Traveling Waves in Stochastic Neural Fields"

Neural field equations are used to describe the spatio-temporal dynamics of the activity in synaptically coupled populations of neurons in the continuum limit. They exhibit traveling wave solutions, modeling the propagation of activity. We analyze the behavior of these solutions under the influence of noise on different spatial and temporal scales. As a crucial point in the analysis, we prove that the nonlocal linear operator associated to the problem has a spectral gap.