

Traveling Wave Solutions to Singularly Perturbed Systems of Integral Equations Arising From Mathematical Neuroscience

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The nonlocal interaction of neurons in certain networks of a mammal's brain give rise to (spatially) one dimensional systems of integral differential equations that admit traveling wave solutions. Due to the main phases of neurons as they communicate with each other via action potentials, these systems become singularly perturbed and require nontrivial analysis. We look at some of the techniques used to model propagation of electric current across excitable mediums with such obstructions.