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Christopher Erhart Elmer* (elmer@oak.njit.edu), Department of Mathematical Sciences, Cullimore Hall, New Jersey Institute of Technology, Newark, NJ 07102. *Front Solutions to Spatially Discrete Nerve Axon Models.*

The spatial domain of myelinated nerve axons can be treated as one-dimensional and periodic. When modeling the action potential traveling along an axon one may obtain the spatially discrete (diffusion term) version of the FitzHugh-Nagumo equations, a reaction-diffusion equation with a bistable nonlinearity coupled with a linear recovery equation. We focus on the front solutions (Nagumo's equation) and discuss the dependence of stationary and traveling fronts on the discreteness and on the particular choice of nonlinearity used to approximate the bistability. (Received August 28, 2005)