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Discrete Excitable Media

Excitable media are characterized by a local tendency towards synchronization, which can lead to waves of excitement through the system. In discrete models of excitable media, one is interested in whether or not sites are excited infinitely often, and if so, whether the density of domain walls between disagreeing sites tends to 0. We introduce a new comparison process, which lets us study the asymptotic rate at which a site gets excited in two classical models of excitable media, as well as a novel model for pulse-coupled oscillators introduced by Lyu in 2015. Based on work with Lyu and Gravner.