Entrainment of marginally stable excitation waves by spatially extended sub-threshold periodic forcing

Joseph M. Starobin, Vivek Varadarajan

(Submitted on 2 Jun 2011)

We analyze the effects of spatially extended periodic forcing on the dynamics of one-dimensional excitation waves. Entrainment of unstable primary waves has been studied numerically for different amplitudes and frequencies of additional sub-threshold stimuli. We determined entrainment regimes under which excitation blocks were transformed into consistent 1:1 responses. These responses were spatially homogeneous and synchronized in the entire excitable medium. Compared to primary pulses, pulses entrained by secondary stimulations were stable at considerably shorter periods which decreased at higher amplitudes and greater number of secondary stimuli. Our results suggest a practical methodology for stabilization of excitation in reaction-diffusion media with regions of reduced excitability.

Comments:	6 pages, 6 figures
Subjects:	**Chaotic Dynamics (nlin.CD)**
Cite as:	**arXiv:1106.0442 [nlin.CD]**
	(or **arXiv:1106.0442v1 [nlin.CD]** for this version)

Submission history

From: Joseph Starobin [view email]

[v1] Thu, 2 Jun 2011 14:46:04 GMT (447kb,D)

Which authors of this paper are endorsers?