DSpace@IISERMohali (/jspui/)
/ **Publications of IISER Mohali (/jspui/handle/123456789/4)**
/ **Research Articles (/jspui/handle/123456789/9)**

Please use this identifier to cite or link to this item: `http://hdl.handle.net/123456789/2640`

Title:	The effect of distributed time-delays on the synchronization of neuronal networks
Authors:	Kachhvah, A.D. (/jspui/browse?type=author&value=Kachhvah%2C+A.D.)
Keywords:	Neurons coupled FitzHugh-Nagumo Investigate Synchronization
Issue Date:	2017
Publisher:	Springer Link
Citation:	European Physical Journal B,90(1).
Abstract:	Here we investigate the synchronization of networks of FitzHugh-Nagumo neurons coupled in scale-free, small-world and random topologies, in the presence of distributed time delays in the coupling of neurons. We explore how the synchronization transition is affected when the time delays in the interactions between pairs of interacting neurons are non-uniform. We find that the presence of distributed time-delays does not change the behavior of the synchronization transition significantly, vis-a-vis networks with constant time-delay, where the value of the constant time-delay is the mean of the distributed delays. We also notice that a normal distribution of delays gives rise to a transition at marginally lower coupling strengths, vis-a-vis uniformly distributed delays. These trends hold across classes of networks and for varying standard deviations of the delay distribution, indicating the generality of these results. So we conclude that distributed delays, which may be typically expected in real-world situations, do not have a notable effect on synchronization. This allows results obtained with constant delays to remain relevant even in the case of randomly distributed delays.
URI:	https://link.springer.com/article/10.1140/epjb/e2016-70572-9 (https://link.springer.com/article/10.1140/epjb/e2016-70572-9) http://hdl.handle.net/123456789/2640 (http://hdl.handle.net/123456789/2640)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need to add pdf.odt (/jspui/bitstream/123456789/2640/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text	View/Open (/jspui/bitstream/12345...

Show full item record (/jspui/handle/123456789/2640?mode=full)

📊 (/jspui/handle/123456789/2640/statistics)