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Title:	Under what kind of parametric fluctuations is spatiotemporal regularity the most robust?
Authors:	Sinha, Sudeshna (/jspui/browse?type=author&value=Sinha%2C+Sudeshna)
Keywords:	Chaotic map Coupled map lattices Coupling strengths
Issue Date:	2010
Publisher:	Indian Academy of Sciences
Citation:	Pramana - Journal of Physics, 74 (6), pp. 895-906.
Abstract:	It was observed that the spatiotemporal chaos in lattices of coupled chaotic maps was suppressed to a spatiotemporal fixed point when some fractions of the regular coupling connections were replaced by random links. Here we investigate the effects of different kinds of parametric fluctuations on the robustness of this spatiotemporal fixed point regime. In particular we study the spatiotemporal dynamics of the network with noisy interaction parameters, namely fluctuating fraction of random links and fluctuating coupling strengths. We consider three types of fluctuations: (i) noisy in time, but homogeneous in space; (ii) noisy in space, but fixed in time; (iii) noisy in both space and time. We find that the effect of different kinds of parametric noise on the dynamics is quite distinct: quenched spatial fluctuations are the most detrimental to spatiotemporal regularity; spatiotemporal fluctuations yield phenomena similar to that observed when parameters are held constant at the mean value, and interestingly, spatiotemporal regularity is most robust under spatially uniform temporal fluctuations, which in fact yields a larger fixed point range than that obtained under constant mean-value parameters.
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URI:	https://link.springer.com/article/10.1007%2Fs12043-010-0082-z (https://link.springer.com/article/10.1007%2Fs12043-010-0082-z) http://link.springer.com/article/10.1007%2Fs12043-010-0082-z?LI=true#page-1 (http://link.springer.com/article/10.1007%2Fs12043-010-0082-z?LI=true#page-1)
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