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Title:	Noise enhanced activity in a complex network
Authors:	Choudhary, Anshul (/jspui/browse?type=author&value=Choudhary%2C+Anshul) Kohar, Vivek (/jspui/browse?type=author&value=Kohar%2C+Vivek) Sinha, Sudeshna (/jspui/browse?type=author&value=Sinha%2C+Sudeshna)
Keywords:	Statistical and Nonlinear Physics Complex network Typically chaotic
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Abstract:	We consider the influence of local noise on a generalized network of populations having positive and negative feedbacks. The population dynamics at the nodes is nonlinear, typically chaotic, and allows cessation of activity if the population falls below a threshold value. We investigate the global stability of this large interactive system, as indicated by the average number of nodal populations that manage to remain active. Our central result is that the probability of obtaining active nodes in this network is significantly enhanced under fluctuations. Further, we find a sharp transition in the number of active nodes as noise strength is varied, along with clearly evident scaling behaviour near the critical noise strength. Lastly, we also observe noise induced temporal coherence in the active sub-network, namely, there is an enhancement in synchrony among the nodes at an intermediate noise strength.
URI:	https://link.springer.com/article/10.1140%2Fepjb%2Fe2014-50382-y (https://link.springer.com/article/10.1140%2Fepjb%2Fe2014-50382-y) http://hdl.handle.net/123456789/3054 (http://hdl.handle.net/123456789/3054)
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