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Title:	Dynamics on Small World Networks of Bi-stable Elements
Authors:	Rungta, Pranay Deep (/jspui/browse?type=author&value=Rungta%2C+Pranay+Deep)
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Abstract:	This work is a development on a previous EPL paper of KP Singh, R Kapri and S Sinha (2012) on the dynamics of a globally coupled system of multi-stable elements. In this work we have investigated the sensitivity of small world networks to heterogeneity. Speci cally, we consider a network of bi-stable elements coupled to four neighbours under di erent connection topologies. We show that as global bias tends to 0☐ the network becomes hypersensitive to heterogeneity, even though the elements are connected to only a few other elements. Additionally we nd that as the fraction of random links increases, the transition in the collective eld gets sharper, for both static and dynamic links. Lastly, as we increase system size, we nd again that the transition gets sharper. So it is evident that even a small coupling range, when randomized, can exhibit ultra-sensitivity to heterogeneity, similar to globally coupled systems.
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