



Dynamics of interacting generalized tipping elements on complex networks

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Critical transitions have increasingly become a topic of interest in the last decades and many systems with critical transitions have been identified in nature and society (Scheffer, et al. 2009). Such phenomena are often described as tipping elements (Lenton, et al. 2008). Recently the focus of attention has also shifted to the interactions of tipping elements (Brummit et al., 2015, Dekker et al., 2018) and the potential of cascading tipping that originates from such interactions (Steffen, et al. 2018).

Here, we study complex networks of generalized tipping elements as linearly coupled systems of ordinary differential equations. We investigate cascading effects in different network topologies and find that network topologies with a higher clustering tend to be more vulnerable to tipping cascades. Furthermore we investigate how this could be a destabilizing mechanism in spatially extended systems.