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Stochastic Phase Decoupling in Dynamical Networks WILLIAM SULIS, McMaster University — Network models and their theories play a central role in the understanding of complex systems, in particular complex social systems such as societies and organizations. An important problem is to understand how agent attributes become organized within the connectivity structure of a network. The effective matching of agent attributes is important for the expression of functionality by a network. The creation of static networks relative to some control parameter has been extensively studied and gives rise to order-disorder phase transitions. This paper extends this work to dynamic networks. Several models of dynamic networks are created relative to two control parameters and their associated stochastic phase transitions are examined. Under conditions of weak coupling between the control parameters, it is shown that the relevant stochastic phase transitions become decoupled from one another, each qualitatively distinct and dependent on a single (distinct) control parameter.

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