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**Grzegorz A Rempala\*** (rempala.3@osu.edu), Columbus, OH 43210. *Stochastic Dynamics on Large Contact Networks*. Preliminary report.

We develop a general framework for analyzing dynamics of certain classes of contact processes on random (configuration model) graphs with given degree distributions. We show that for a certain class of degree distributions the counting process which describes the dynamics may be approximated by a simpler (Markov) process which may be studied in the large volume limit. We expand the traditional model of an SIR stochastic epidemic on a graph by including heterogenous contact and infectivity structure to account for the disease-specific features. The work was originally motivated by building a model of the recent Ebola epidemic. (Received August 09, 2015)