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## **An investigation of the epidemic threshold phenomenon in complex networks**

Classic mean-field models of epidemics are well known to exhibit threshold phenomena which are typically characterised by the basic reproductive ratio  $R_0$ . A range of mathematical results can be obtained for these simple systems regarding aspects such as the final epidemic size and the likelihood of epidemics occurring.

Here we make an investigation into these quantities for more complex epidemic systems. In particular, we consider epidemics propagated on contact networks. By using stochastic simulation, we make an investigation of the threshold phenomenon and generate some novel insights with some potential significance in real, heterogeneous systems. Additionally, by relating these quantities to steady state systems, we potentially gain a theoretical handle on analysing these systems.