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*Discrete-time models and epidemic thresholds for infections on networks.*

Over the last ten years, the field of mathematical epidemiology has piqued the interest of complex systems researchers, which has resulted in a tremendous volume of work exploring the consequences of population structure on disease propagation. Much of this research focuses on computing thresholds for whether a disease will become an epidemic, and in practice, several different thresholds are often used interchangeably. Here, we'll summarize some recent work that attempts to clarify the relationships among different threshold criteria in difference equation models of infection propagation, discuss conditions under which topology and infection characteristics can be decoupled in the computation of a threshold, and connect current and classical threshold theorems to results in spectral graph theory. (Received January 20, 2008)