Non massive immunization to contain spreading on scale-free networks

Trabalho #12

> Apresentação Oral

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Optimal strategies for epidemic containment are focused on dismantling the contact network through effective immunization with minimal costs. However, network fragmentation is seldom accessible in practice and may present extreme side effects. In this work, we investigate the epidemic containment immunizing population fractions far below the percolation threshold. We report that moderate and weakly supervised immunizations can lead to finite epidemic thresholds of the susceptible-infected-susceptible model on scale-free networks by changing the nature of the transition from a specific-motif to a collectively driven process. Both pruning of efficient spreaders and increasing of their mutual separation are necessary for a collective activation. Fractions of immunized vertices needed to eradicate the epidemics much smaller than the percolation thresholds were observed for a broad spectrum of real networks considering targeted or acquaintance immunization strategies. Our work contributes for the construction of optimal containment preserving network functionality through non massive and viable immunization strategies.

Comentários adicionais

> Artigo em preparação.