Limited Percolation on Complex Networks EDUARDO LOPEZ, Los
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COHEN[1], New England Complex Systems Institute, SHLOMO HAVLIN, Bar-Ilan
University — We study the stability of network communication under removal of
$q = 1 - p$ links when communication between nodes is possible only through a subset
of the paths connecting them. We find a new percolation transition $\tilde{p}$ below which
only a fractal fraction of nodes N^γ can communicate, where γ is a function of the
accepted communication paths. Above $\tilde{p}$, order N nodes can communicate. The
results may be useful for the design of communication networks and immunization
strategies.

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