

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Improved Epidemic Path Predictability in Complex Networks¹

MARKUS LOECHER, APS, JIM KADTKE, NSI — We apply recent results on random walkers to the analysis of idealized epidemic outbreaks in scale-free networks. By replacing the node degree with the *random walk centrality* we observe a refined hierarchical cascade leading to a greatly enhanced predictability for the order of infected nodes. We confirm our model results on data from real-world Internet maps at the autonomous system level. The present results are highly relevant for the advancement of dynamic and adaptive strategies that aim to mitigate network attacks.

¹This work was supported by ARDA under Air Force Research Laboratory Contract No. F30602-03-C-0234.

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Date submitted: 29 Nov 2005

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