Resistive Small-World Networks ALICE KOLAKOWSKA, Florida Institute of Technology — The focus of this study is small-world network where there are at least two network paths between any two nodes and the edges have uniform Ohmic resistance. Assuming that signals can locally propagate along the edges between nearest-neighbor nodes due to only potential difference between the nodes, the question being asked is about the global propagation of signals through the network. Simulations demonstrate that the average equivalent resistance of random conductive network follows the average geodesic path but only for highly-connected networks. One physical realization of this situation are conduction paths observed during electrical breakdown.

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