

Abstract Submitted
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Vulnerability of complex networks: Effect of traffic and geography MARC BARTHELEMY, Indiana University and CEA, LUCA DALL'ASTA, ALAIN BARRAT, LPT-Universite Paris-Sud, ALESSANDRO VESPIGNANI, Indiana University — Real-world networks present different levels of complexity: the topology, the weights and the spatial properties are often non-trivial and very different from simple random assumptions. In order to understand the vulnerability to malicious attacks of such networks one has therefore to consider not only topological quantities but also weights and space. We will present results on the paradigmatic example of the airport network which is a weighted heterogeneous network with complex traffic and spatial structures. We define different measures of damage and show that different attack strategies lead to different conclusions about the vulnerability of the network. In particular, we show that strategies need to be adapted depending on the type of damage and on the geographical region considered.

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