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Percolation in the Secrecy Graph

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The secrecy graph is a random geometric graph which is intended to model the connectivity of wireless networks under secrecy constraints. Directed edges in the graph are present whenever a node can talk to another node securely in the presence of eavesdroppers, which, in the model, is determined solely by the locations of the nodes and eavesdroppers. In the case of infinite networks, a critical parameter is the maximum density of eavesdroppers that can be accommodated while still guaranteeing an infinite component in the network, i.e., the percolation threshold. We focus on the case where the locations of the nodes and eavesdroppers are given by Poisson point processes, and present bounds for different types of percolation, including in-, out- and undirected percolation.

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