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Multi-Type Geometric Random Intersection Graphs

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Abstract

The geometric random intersection graph is a network model that connects vertices based on their geometric proximity to auxiliary vertices, which act as facilitators in the connection process. Building upon the recent work on the geometric random intersection graph, we define a generalised version of the model that includes multiple vertex types with differing connection functions. This added flexibility allows for the modelling of mixed populations with varying connection behaviours as well as differing types of facilitating vertices. We explore how this expanded definition affects the baseline properties of the model, including the general edge probability and expected degree, as well as the existence of non-trivial percolation transition parameters.

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