

Bipartite Subgraphs of Random Geometric Graphs

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Abstract

Bipartite subgraphs of random geometric graphs (RGG's) on the sphere have a lot of properties determinable by simple geometric properties, such as planarity and bounded degree. We show that the majority of vertices of such an RGG can be partitioned into similar sized disjoint 2-connected bipartite planar subgraphs with small variation in degree and face size. We show these properties are attained even for relatively sparse RGG's as the number of vertices grows. We provide an algorithm and visual implementation do demonstrate these properties and resulting subgraphs.

Keywords: Random Geometric Graphs, Bipartite Subgraphs, Algorithm.