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On generation of graphs with geometric representations

Random generation and enumeration on a graph class have been required to test graph algorithms. In particular, unlabeled simple graphs are standard as a set of input. To enumerate unlabeled graphs, we have to avoid to generate two or more isomorphic graphs. In this talk, we summarize two recent algorithms for proper interval graphs and bipartite permutation graphs. Both of graph classes have natural intersection model of unit intervals and lines, respectively. We use the properties of the intersection models, and propose the random generation and enumeration algorithms.