

How to Build Graphs by Flipping Coins, and other Probabilistic Methods



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April 13th, 1:00pm

Wachman Hall 617

A graph is a structure that consists of a non-empty set of points, which we call vertices, and a set of edges that connect pairs of such points. Graphs can be used to model the internet, social networks, disease clusters, and many other real-world phenomena. One especially interesting graph is the Rado graph (sometimes called the random graph), an infinite graph that arises in many different circumstances in mathematics. In this talk, I will describe some of the remarkable properties of the Rado graph, and show how to construct it by a simple coin-flipping procedure that has nice symmetry properties. I will also address the question of whether other (countable) infinite graphs can be built by similar symmetric probabil-