The Turán Problem
Theory and Applications

Jacques Verstraete

Department of Mathematics
University of California, San Diego, CA, USA
E-mail: jacques@ucsd.edu

Abstract

For a graphs F and G, we say that G is F-free if G contains no isomorphic copy of F as a subgraph. The *Turán number* for F, denoted $\mathrm{ex}(n, F)$, is the maximum number of edges in an n-vertex F-free graph. The study of this quantity is a cornerstone of extremal combinatorics, and has connections to many other areas of mathematics and theoretical computer science. In this talk, I shall present some of these remarkable connections, including applications to number theory, combinatorial geometry, group theory, information and coding theory, and randomized algorithms.