

COMBINATORICS
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Turan's problem for odd cycles in pseudorandom graphs

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Abstract: We consider the generalized extremal function $ex(G, F)$, defined to be the largest number of edges that an F -free subgraph of G may have. Owing to the work of Mantel, Turan, Erdős and Stone this function is well understood for any graph F when G is the complete graph K_n .

Over the last two decades the problem was investigated and solved when G is the binomial random graph $\mathbf{G}(\mathbf{n}, \mathbf{p})$. For pseudorandom graphs G only a few results are known. We will discuss recent progress for one of the simplest cases, when F is an odd cycle of fixed length. Roughly speaking, in joint work with Aigner-Horev and Han we obtained almost best possible conditions on the pseudorandom graph G such that $ex(G, C_l) = (1/2 + o(1))e(G)$ holds.

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