
LIANA YEPREMYAN, McGill University

Sparse halves in dense triangle-free graphs

A well-known conjecture of Erdős states that every triangle-free graph G on n vertices should contain a set of $n/2$ vertices that spans at most $n^2/50$ edges. Krivelevich has established this conjecture for graphs with minimum degree $\geq 2n/5$. We strengthen his result by proving the conjecture for all triangle-free graphs with minimum degree $\geq 5/14n$. Further, we establish the conjecture for graphs which are "close" to the known tight examples - the "blow-ups" of the 5-cycle and the Petersen graph. Joint work with Sergey Norin.