MATHEMATICS COLLOQUIUM

Planar Turan Number of Cycles

The planar Turan number of a graph H, $ex_p(n,H)$, is the maximum number of edges in an n-vertex planar graph without H as a subgraph. We discuss recent work on $ex_p(n,H)$, in particular when $H=C_k$, the cycle of length k, including our work on $ex_p(n,C_7)$. We prove an upper bound on $ex_p(n,C_k)$ for $k, n \geq 4$, establishing a conjecture of Cranston, Lidicky, Liu, and Shantanam. The discharging method and previous work on circumference of planar graphs will be used. This is based on joint work with Ruilin Shi and Zach Walsh.

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