1154-05-856 **Cosmin Pohoata*** (apohoata@caltech.edu), 1200 E California Blvd, Pasadena, CA 91125. *On the Erdős-Gyárfás distinct distances problem with local constraints.*

In 1946 Erdős asked to determine or estimate the minimum number of distinct distances determined by an n-element planar point set V. He showed that a square integer lattice determines $\Theta(n/\sqrt{\log n})$ distinct distances, and conjectured that any n-element point set determines at least $n^{1-o(1)}$ distinct distances. In 2010, Guth and Katz answered Erdős's question by proving that every n-element planar point set determines $\Omega(n/\log n)$ distinct distances. In this talk, we will discuss a variant of this problem by Erdős and Gyárfás. For integers n, p, q with $p \geq q \geq 2$, let $D(n,p,q)$ denote the minimum number of distinct distances determined by a planar n-element point set V which has the property that every subset of p points from V spans at least q distinct distances. In a recent paper, Fox, Pach and Suk prove that, when $q = \binom{p}{2} - p + 6$, $D(n,p,q)$ is always at least $n^{8/7-o(1)}$. We will discuss an improvement of their result and some recent nearly sharp bounds for a related (more general) graph Ramsey problem of Erdős and Shelah which arise. (Received September 11, 2019)