

Rational distances from given points in the plane

Amos Turchet (Università Roma Tre)

Abstract: We consider sets of points in the plane with rational distances from a prescribed finite set of n rational points. These sets are closely related to papers of Anning and Erdős in the 40s and motivated the well-known and still open Erdős-Ulam problem. In our setting we show that for $n \leq 3$, the points are dense in the real topology. On the other hand, for $n \geq 4$, we show that they correspond to rational points in a surface of general type, hence conjecturally degenerate. This is joint work with Pietro Corvaja and Umberto Zannier.