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Geir Agnarsson and **Jill Bigley Dunham***, 401 Rosemont Ave, Frederick, MD 21701.

Conjectures and questions on coin graphs in the Euclidean plane.

In 1946 Paul Erdős conjectured that the maximum number of the occurrences of the minimum distances between two points among a set of n points in the Euclidean plane is given by $m(n) = \lfloor 3n - \sqrt{12n - 3} \rfloor$. This was proved by Heiko Harborth in 1974 who showed that $m(x)$ is exactly the maximum number of edges in a unit coin graph on n coins. In this talk we review some related conjectures on coin graphs in the plane and pose some natural generalizations of such questions, many of which have not yet been formally explored in the graph theory literature. (Received September 17, 2013)