ON THE ALGEBRAIC SUM OF A PLANAR SET AND THE UNIT CIRCLE

KRYSTAL TAYLOR

Given a set $A \subset \mathbb{R}^2$. We study the set of those points on the plane which are at a distance 1 from at least one of the elements of A, where "distance" means either the Euclidean distance or some other natural distances on the plane. This set is $A + S^1$, where S^1 is the unit circle in the given distance. Our goal is to understand for which A is the set $A + S^1$xs big in the sense that it is a set of positive Lebesgue measure or even if it contains interior points. This is a work in progress, joint with Karoly Simon.