

Another ham sandwich in the plane

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Abstract

The famous ham sandwich theorem claims that for any d “nice” measures we can find a hyperplane that slices all measures into equal parts. Recently Rade Živaljević proved that it is possible to cut a half of every of d nice measures in \mathbb{R}^d by a union of several cones of a simple fan translated by some vector. In particular, two-dimensional version of this theorem claims that for every 3-fan and every two nice measures μ_1 and μ_2 there is a translation of some cone from this fan that divides both measures μ_1 and μ_2 into equal parts.

In this talk we will discuss several generalizations of Živaljević’s theorem on the Euclidean plane. We show that every two nice measures in the plane can be partitioned into equal parts by translation of an angle from arbitrary k -fan when k is odd and in some cases when k is even. We also give some counterexamples for certain fans and measures.

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