

# Approximating convex disks from inside and out by parallelograms

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## Abstract

For each convex disk  $K$  we consider the minimum area  $P(K)$  of a parallelogram containing  $K$  and the maximum area  $p(K)$  of a parallelogram contained in  $K$ , then we seek the maximum of  $P(K)$  and the minimum of  $p(K)$  over all convex disks  $K$  of area 1. Without assuming central symmetry of  $K$ , the naturally anticipated answers are given, but when we assume central symmetry, the problem of the maximum of  $P(K)$  becomes much harder. We state a conjecture and discuss it in a quite broad context that includes the well-known, still unresolved Reinhardt Conjecture on the criticality of the smoothed octagon.

This is a joint work with András Bezdek.