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Minimal reflective and folding symmetry of convex sets

In this talk, we discuss two generalizations of the Kovner-Besicovitch measure of symmetry. For a convex body in $\mathbb{R}^n$, the k-symmetry is defined as the largest possible ratio of overlap of the body and its reflection through a k-dimensional affine subspace. Chakerian and Stein proved general lower bounds for k-symmetry in 1965, but construction of low symmetry objects appeared to be difficult in dimensions above 2. We present an inductive construction that attains the current best upper bounds on minimal k-symmetry. We also show new upper and lower bounds for another version of symmetry first studied by Lassak, called folding symmetry, in $\mathbb{R}^2$. We will offer a few conjectures and promising directions. This talk is based on a joint work with Ritesh Goenka, Rui Sun, and Ethan White.