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Title: Ψ_2-estimates for linear functionals and the slicing problem

Abstract:
Let K be a convex body in $\mathbb{R}^n$ with volume 1 and centre of mass at the origin. Let $1 \leq \alpha \leq 2$ and $y \neq 0$ in $\mathbb{R}^n$. We say that K satisfies a ψ_α-estimate with constant b_α in the direction of y if

$$(*) \qquad \|\langle \cdot, y\rangle\|_{\psi_\alpha} \leq b_\alpha \|\langle \cdot, y\rangle\|_1.$$

We say that K is a ψ_α-body with constant b_α if $(*)$ holds for every $y \neq 0$. In this talk we review the "ψ_2-approach" to the slicing problem. More precisely, we discuss:

1. The bound $\sqrt[4]{n}$ for the isotropic constant (Bourgain).
2. The existence of ψ_2-directions for certain classes of bodies: zonoids and 1-unconditional bodies (Paouris, Bobkov-Nazarov).
3. The question of characterizing ψ_2-bodies.
4. Bourgain's recent bound for the isotropic constant of ψ_2-bodies.
5. Related open questions.