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From intersection bodies to dual centroid bodies: a stochastic approach to isoperimetry

Abstract: We establish a family of isoperimetric inequalities for sets that interpolate between intersection bodies and dual L_p centroid bodies. This provides a bridge between the Busemann intersection inequality and the Lutwak–Zhang inequality. The approach depends on new empirical versions of these inequalities. In particular an empirical version of Busemann interesting inequality will be presented.
Based on joint work with Radosław Adamczak, Peter Pivovarov and Paul Simanjuntak.