

Hyperplane sections of convex bodies, variance and isoperimetry

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In this lecture three major conjectures in asymptotic geometric analysis will be reviewed: *the slicing problem*, *the thin-shell conjecture* and *the Kannan, Lovász and Simonovits spectral gap conjecture*. They are in the interplay of analysis, convex geometry and probability. Recent results appearing in a joint paper with David Alonso will also be presented.