

The College of Arts & Sciences
Department of Mathematical Sciences
Colloquium

Professor Tomasz Tkocz

Carnegie Mellon University

Tuesday, November 4, 2025
Campus Rec Center Room 3230
4:00-5:00pm

Probabilistic insights into extremal volume sections of certain convex bodies

The need of estimating the volume of sections of the cube emerged from basic questions in Diophantine approximation and geometry of numbers several decades ago and since then has seen development of a variety of probabilistic and analytic methods, showcased in this talk. We shall focus on a nascent natural connection between sharp L_p bounds on sums of independent random variables and extremal-volume sections of convex bodies (such as the ℓ_p -balls, or the regular simplex). This has recently led to new stability and resilience-type results, as well as intriguing phase transitions of extremisers, surveyed in this talk.

**Refreshments will be served 3:15– 3:45 pm in the Faculty Lounge
4118 French Hall West**