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Extremal structures of log-concave sequences via convex geometry

Many sequences arising naturally in combinatorics are known, or conjectured to be, concave after taking their logarithm. Suppose that such a sequence has a flat part, meaning that one term is equal to the average of its neighbors. What does this imply for the structure of the combinatorial objects at hand? Our recent resolution of the conjectures about the extremal structures of the Alexandrov-Fenchel inequalities in convex geometry allows us to tackle such questions. No background in convex geometry is assumed. Joint work with Ramon van Handel.