1117-52-32 **Arnaud Marsiglietti*** (arnaud.marsiglietti@ima.umn.edu), IMA, 207 Church Street SE, 306 Lind Hall, Minneapolis, MN 55455. *On the monotonicity of Minkowski sums towards convexity.*

Let us define for a compact set $A \subset \mathbb{R}^n$ the sequence

$$A(k) = \left\{ \frac{a_1 + \cdots + a_k}{k} : a_1, \ldots, a_k \in A \right\} = \frac{1}{k}\Big(\underbrace{A + \cdots + A}_{k \text{ times}}\Big).$$

By a theorem of Shapley, Folkmann and Starr (1969), $A(k)$ tends to the convex hull of A in Hausdorff distance as k goes to ∞. Bobkov, Madiman and Wang (2011) conjectured that when one has convergence in the Shapley-Folkmann-Starr theorem in terms of a volume deficit, then this convergence is actually monotone. In this talk, we show that this conjecture holds true in dimension 1 but fails in dimension $n \geq 12$. We also consider whether one can have monotonicity when measured using alternate measures of non-convexity, including the Hausdorff distance, effective standard deviation, and a non-convexity index of Schneider.

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