On a homothety conjecture for floating bodies, a counterexample.

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This is a joint work with Maria Alfonseca, Fedor Nazarov, Alina Stancu and Vlad Yaskin. We investigate the homothety conjecture for convex bodies of flotation of planar domains. We show that there is an infinite set of densities $\mathcal{D} \in (0, \frac{1}{2})$ accumulating at $\frac{1}{2}$ for which there is a body K different from an ellipse with the property that its body of flotation $K^{\mathcal{D}}$ is homothetic to K.

In Special Session 5 on Convexity, High-Dimensional Probability and Applications at the Mathematical Congress of the Americas 2025.

MCA 2025 internal code: SS05-T09