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A Continuum Erdős–Beck Theorem

In discrete geometry, a classical result of Beck roughly shows that given a set $X \subset \mathbb{R}^n$ that is not too concentrated on any line, there are many (i.e. roughly $\gtrsim |X|^2$) distinct lines that contain at least 2 points of X . In 2022, Orponen, Shmerkin, and Wang proved a continuum version of Beck’s theorem using tools from geometric measure theory. In this talk, we will present a continuum variant of Beck’s theorem, known as the Erdős–Beck theorem, obtained in joint work with Caleb Marshall.