Breaking the 3/2 barrier for unit distances in three dimensions

Abstract:

The unit distance problem asks: given \( n \) points in \( \mathbb{R}^d \), how many pairs of points can have distance one? This problem can be re-phrased as a question in incidence geometry, and standard machinery from that field leads to certain non-optimal bounds. I will discuss some recent progress on the unit distance problem in three dimensions that goes beyond the standard tools of incidence geometry.

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