

Title: Discrete to continuous: Joints to multilinear Kakeya

Abstract: The joints problem is a discrete analogue of the multilinear Kakeya problem, which is set in Euclidean space. While formal analysis of the two problems remains disjoint, both problems are examples of geometric multilinear inequalities to which the theory of multilinear duality applies. This talk will work within the dual setting. We will employ "handicaps", as introduced by Tidor-Yu-Zhao, to show that both results follow from appropriate vanishing lemmas. We will conclude by considering applications to the multilinear extension problem.