

Geometry/Topology Seminar

Representation Stability and Disk Configuration Spaces

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Abstract: Church-Ellenberg-Farb and Miller-Wilson proved that for a nice enough manifold X and fixed k , the k -th homology group of the ordered configuration space of points in X stabilizes in a representation-theoretic sense as the number of points in the configuration space increases. By fixing a metric on X and replacing points with open unit-diameter disks, we get a new family of configuration spaces where the geometry of X comes to the forefront. One of the simplest of these disk configuration spaces is $\text{conf}(n,w)$, the ordered configuration space of unit-diameter disks in the infinite strip of width w . The homology groups of $\text{conf}(*,w)$ do not stabilize in the sense of Church-Ellenberg-Farb, Miller-Wilson; however, Alpert proved that when the width is 2 they stabilize in a related sense. Alpert's methods do not extend to larger widths. In this talk I discuss various notions of representation stability, and show that when the width of the strip is at least 2, the rational homology groups of $\text{conf}(*,w)$ stabilize in a representation-theoretic sense.

Wednesday, October 11 at 3:00 PM in 636 SEO