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Representation stability for cohomology of configuration spaces in \mathbf{R}^d .

Church, Farb and others have shown that the representations of the symmetric group S_n on the cohomology of the configuration space of n ordered points in \mathbf{R}^d stabilize in a certain fashion as n gets large. They also provide some bounds on how large n must be for this to occur.

We give the sharp onset for this stability, by analyzing the S_n -representations which are known to control the cohomology: the Whitney homology of set partition lattices for d even, and the higher Lie representations for d odd. (Received July 15, 2015)