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Equivariant Topology of Mass Partitions by Hyperplanes

Abstract for the Combinatorics and Geometry/Topology Seminars 2015 October 1

I will review the configuration-space/test-map scheme which is central to the study of many problems in topological combinatorics. I will then apply this method to investigate the existence of fair partitions of measures in Euclidean space by affine hyperplanes. One important instance of this is the Ham Sandwich theorem, which guarantees that any sandwich made of bread, ham, and cheese can be fairly cut into two pieces with a long knife. I will use equivariant obstruction theory to prove results about higher-dimensional sandwiches (that is, collections of measures) that have to be cut into several equal pieces.

This is joint work with Pavle Blagojević, Albert Haase, and Günter M. Ziegler.

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