Geometry Seminar
Tuesday, Feb 16, 2010
Room 201 WWH at 6:00 P.M.

Simultaneous partitions by k-fans

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A k-fan is a point in the plane and k halflines emanating from it. I'll explain a few results about equipartitions by k-fans of two or more probability measures, as well as partitions in other prescribed ratios. This group of questions is motivated by a neat problem of Kaneko and Kano from 1998. One of the results, which is joint with J Matousek, says that given two probability measures in the plane, there exists a 4-fan that simultaneously equipartitions them.

A recent question, raised by Nandakumar and Ramanda Rao, asks that, given a convex body C in the plane, is there a convex k-fan equipartitioning the area of C such that the perimeter of each of the k (convex) pieces is equal. I'll sketch the solution in the case $k = 3$ which is a joint result with P Blagojevic and A Szucs. The methods use equivariant topology with a some extra geometry and combinatorics.

For more information please visit the seminar website at:
`http://www.math.nyu.edu/seminars/geometry_seminar.html`.