Combinatorics
Seminar

Fractional perfect matchings in hypergraphs

Andrzej Rucinski
Adam Mickiewicz University, Poznan, Poland and Emory University, Atlanta

Abstract: A perfect matching in a k-uniform hypergraph H=(V,E) on n vertices is a set of n/k disjoint edges of H, while a fractional perfect matching in H is a function w assigning to each edge of H a real number from [0,1] in such a way that for each vertex v the sum of the weights of the edges containing v equals 1.

Given n¿3 and 2¡ k¡ n, let m be the smallest integer such that whenever the minimum vertex degree in H is at least m then H contains a perfect matching, and let m* be defined analogously with respect to fractional perfect matchings. Clearly, m* does not exceed m.

We prove that for large n, m and m* are asymptotically equal, and suggest an approach to determine m*, and consequently m, utilizing the Farkas Lemma. This is a joint work with Vojta Rodl.

Friday, November 19, 2010, 4:00 pm
Mathematics and Science Center: W306

Mathematics and Computer Science
Emory University