

Random Steiner complexes

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We will discuss a new model of random d -dimensional simplicial complexes, for $d \geq 2$, whose $(d - 1)$ -cells have bounded degrees. The construction relies on Keevash's recent results on Steiner systems which are generalizations of regular graphs. We show that with high probability, complexes sampled according to this model are coboundary expanders. This gives a full solution to a question raised by Dotterrer and Kahle, which was solved in the two-dimensional case by Lubotzky and Meshulam. Based on a joint work with Alex Lubotzky and Zur Luria.