Combinatorics Seminar

Upper tails for arithmetic progressions in random sets

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Abstract: We study the upper tail $\mathbb{P}(X \geq (1+\varepsilon)\mathbb{E}X)$ of the number of arithmetic progressions of a given length in a random subset of $[n] = \{1, \ldots, n\}$, establishing exponential bounds for which are best possible up to constant factors in the exponent (improving results of Janson and Ruciński). The proof also extends to Schur triples, and, more generally, to the number of edges in random induced subhypergraphs of 'almost linear' k-uniform hypergraphs.

Friday, November 13, 2015, 4:00 pm
Mathematics and Science Center: W303

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