Daniel Kane

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Diffuse Decompositions of Polynomials

November 7, 2012, MH320

Abstract: We study some problems relating to polynomials evaluated either at random Gaussian or random Bernoulli inputs. We present some new work on a structure theorem for degree-d polynomials with Gaussian inputs. In particular, if p is a given degree-d polynomial, then p can be written in terms of some bounded number of other polynomials $q_1, \ldots, q_m$ so that the joint probability density function of $q_1(G), \ldots, q_m(G)$ is close to being bounded. This says essentially that any abnormalities in the distribution of $p(G)$ can be explained by the way in which p decomposes into the q_i. We then present some applications of this result.

Background: Students should have taken at least one course in probability and statistics.

About the speaker: Daniel Kane is a postdoc at Stanford University. His research interests are varied, but tend to focus on either number theory or theoretical computer science.

Snacks in MH331B at 2:30 pm
Talk starts at 3 pm

For more information, see our full schedule at:

http://www.math.sjsu.edu/∼hsu/colloq/