

STANFORD PROBABILITY SEMINAR

Sourav Chatterjee, Stanford

Monday, 29 November 2004

4:15pm (Refreshments at 4pm in the 1st Floor Lounge)

Sequoia Hall, Room 200

The generalized Lindeberg principle

Abstract. Suppose we have two random vectors (X_1, \dots, X_n) and (Y_1, \dots, Y_n) , and a smooth function $f : R^n \rightarrow R$. Under what conditions can we say that $f(X_1, \dots, X_n)$ and $f(Y_1, \dots, Y_n)$ are close in distribution? The speaker will describe a general approach to handling such problems, based on an extension of Lindeberg's proof of the CLT. The power of this method will be demonstrated through applications to current topics of interest like random matrices and spin glasses, besides classical objects like random permutations and diffusion approximation. It will also be shown that Charles Stein's celebrated Normal approximation bound using exchangeable pairs can be derived as a corollary of this method.