

1049-60-176

**Sourav Chatterjee** and **Partha S Dey\*** ([partha@stat.berkeley.edu](mailto:partha@stat.berkeley.edu)). *Stein's Method for concentration inequalities - some applications.*

Stein's method is a semi-classical tool for establishing distributional convergence, particularly effective in problems involving complex dependencies. A general way of deriving concentration inequalities using Stein's method was introduced by Sourav Chatterjee in his PhD thesis. In this talk we present extension and some applications of Stein's method for concentration inequalities. We prove a concentration inequality for the magnetization in the Curie-Weiss model at critical temperature where it obeys a non-standard normalization and super-Gaussian concentration. We also show how this method can be used to derive exact large deviation asymptotics for the number of triangles in the Erdős-Rényi random graph  $G(n, p)$  when  $p \geq 0.31$ . Finally we provide some interesting concentration inequalities for the Ising model on lattices that hold at all temperatures. This talk is based on joint work with Sourav Chatterjee. (Received March 03, 2009)