1023-57-939 **Eric J Rawdon*** (ejrawdon@stthomas.edu), Department of Mathematics, OSS 201, University of St. Thomas, 2115 Summit Avenue, St. Paul, MN 55105-1079. *Statistical methods for studying spatial properties of random polygonal knots.*

In studying average spatial measurements (such as the radius of gyration or average crossing number) of random polygonal knots, simple error analysis is not sufficient for determining error bars small enough to distinguish between even very simple knot types. Using Monte Carlo Markov Chains we are able to determine error bounds to finer precisions. In particular, we are interested in the equilibrium lengths of knots with respect to different spatial measurements, i.e. the length at which a particular knot type's average spatial measurment coincides with the same average over all closed polygons. We describe the MCMC method and its results. (Received September 23, 2006)