1067-82-1736 **C Soteros*** (soteros@math.usask.ca), Department of Mathematics and Statistics, University of Saskatchewan, 106 Wiggins Road, Saskatoon, SK S7N5E6, Canada. *Entanglement Statistics for lattice models of polymer systems.*

Using self-avoiding walk and polygon models on the simple cubic lattice, we have been investigating questions about the entanglement complexity of polymer systems. In this talk, I will review recent numerical results (obtained in collaboration with Dr. M. Szafron) on how the knot reduction factor depends on the local juxtaposition structure at a strand passage site in a random lattice polygon. In particular, we see a correlation between the knot reduction factor and the angle of the crossing at the strand passage site; this same angle has been shown experimentally by Neuman et al (2009) to be important in explaining topoisomerase action on DNA. I will also review theoretical results (obtained in collaboration with Dr. M. Atapour) on the entanglement complexity of systems of self-avoiding walks in lattice tubes with applications to measuring entanglement in dense polymer systems. (Received September 21, 2010)