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Christine Soteris* (soteris@math.usask.ca). *Local and Non-local Knotting in Lattice Models of Confined Polymers*. Preliminary report.

Standard models for studying the effects of geometrical confinement on ring polymers use self-avoiding polygons constrained to lie in an infinite rectangular lattice tube, a sublattice of the simple cubic lattice. Such tube models have potential applications for modelling single DNA molecules in nanochannels, DNA under tight confinement, or protein configurations. Inspired by Ken Millett's observation that trefoil patterns in a 2 by 1 tube are not "local" knots, we have been using tube models to explore the concept of "local" versus "non-local" knotting in lattice polygons and to determine the effects of a stretching or compressing force on knotting probabilities. In this talk, I will present recent theoretical and numerical results related to this that were obtained in collaboration with Nick Beaton and Jeremy Eng. The numerical results are for small tube sizes and involve both exact and Monte Carlo generation of polygons using transfer matrix methods. (Received August 24, 2016)