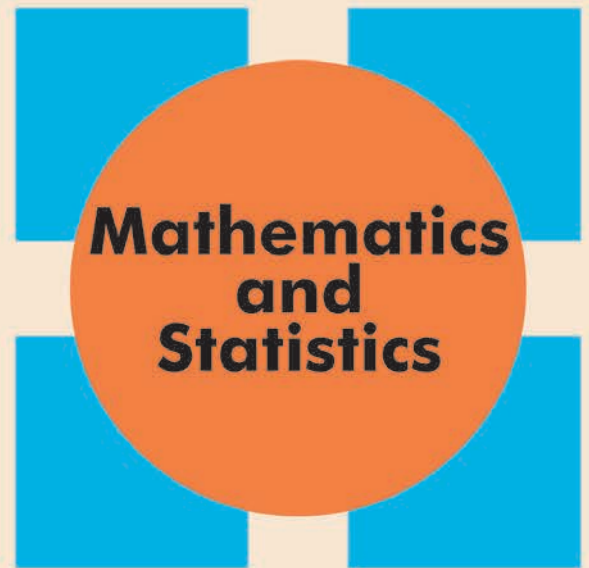


COLLOQUIUM

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**Statistical mechanics and
topology of confined
polymers**



Date: Monday, November 14, 2016

Time: 2:30 - 3:30 PM

Room: RC 286, Riddell Centre

Abstract: I will present recent work with Chris Soteros and Jeremy Eng on the behaviour of self-avoiding polygons confined to a subspace of the simple cubic lattice. These serve as an idealized model of circular DNA, confined to a small space like a viral capsid or passing through a nanopore. One problem of interest is the response of such polygons to stretching and compressing forces, and I will introduce a simple statistical mechanical model to represent such forces, and discuss some related results. Another problem concerns the topological aspects of these polygons, i.e. when and how they become knotted and linked. Knotted DNA is of great interest to biologists, as it can affect the viability of an organism. I will discuss some new methods for Monte Carlo simulations of confined polymers, and numerical results regarding their knotting properties.