

## Department of Mathematics & Statistics

### GRADUATE STUDENT SEMINAR

**Speaker:** Jabib León Sánchez

**Title:** *The self-avoiding walk (SAW) and its conjectured scaling limit in  $d = 2$*

**Date:** April 27, 2007

**Time:** 10.30 am

**Location:** College West 307.20

**Abstract:** The self-avoiding walk (SAW) is a process originally proposed to model polymer chains that have the unique characteristic that no point is visited more than once. It is important to mention that the main questions about this model remain unsolved rigorously speaking for dimensions  $d = 2, 3$  and  $4$ .

This seminar will give the necessary tools to understand the procedures and computations required to state the conjectured scaling limit of a SAW for  $d = 2$  which is the Schramm–Loewner evolution with parameter  $\kappa$  ( $SLE_\kappa$ ) where  $\kappa = 8/3$ .

Moreover, some notions from complex analysis, a review from stochastic processes (SRW and Brownian motion), convergence and main elements of the SAW will be provided. Furthermore, the Loewner equation will be explained in order to obtain the equation for the stochastic Loewner evolution also called Schramm–Loewner evolution.

The seminar will be concluded with the statement of the conjectured scaling limit of the SAW in two dimensions followed by the results obtained by Tom Kennedy which further support the conjectured that the scaling limit if it exists is  $SLE_{8/3}$ .

**Supervisor:** M Kozdron

*Coffee & cookies will be served in the Lounge prior to the lecture*