The Swiss Doctoral Program in Mathematics invites you to the

Journée Georges de Rham 2016
Wednesday, March 2

Sciences II Auditoire A. Pictet – A100
(30, quai Ernest-Ansermet, Genève)

Program:

15:30 - 16:30   **Gregory F. Lawler**
(Department of Mathematics, University of Chicago)

Self-avoiding motion

The self-avoiding walk (SAW) is a model for polymers that gives equal probability to all paths that do not return to places they have already been. The lattice version of this problem, while elementary to define, has proved to be notoriously difficult and is still open. It seems initially more challenging to construct a continuous limit of the lattice model which is a random fractal. However, in two dimensions this has been done and the continuous model (Schram-Loewner evolution) can be analyzed rigorously and used to understand (nonrigorously) the predictions about SAWs. I will survey some results in this area and then discuss some recent work on this "continuous SAW'' and well as a related model, the loop-erased random walk.

16:30 - 17:00   Coffee Break

17:00 - 18:00   **Martin Zirnbauer**
(Department of Theoretical Physics, University of Cologne)

Bott periodicity and the "Periodic Table" of topological insulators and superconductors

Bott periodicity is said to be one the most surprising phenomena in topology. Perhaps even more surprising is its recent appearance in condensed matter physics. Building on work of Schnyder et al, Kitaev argued that symmetry-protected ground states of gapped free-fermion systems, also known as topological insulators and superconductors, organize into a kind of periodic table governed by a variant of the Bott periodicity theorem. In this colloquium, I will sketch the mathematical background, the physical context, and some new results of this ongoing story of mathematical physics.

19:30   Dinner in the Restaurant Café Lyrique
12, Blvd du Théâtre, 1204 Genève

If you wish to take part in the dinner, please contact the organizer Andras Szenes (Andras.Szenes@unige.ch) before February 25, 2016.