General Mathematics Seminar
of the
University of Luxembourg
in cooperation with the
Luxembourg Mathematical Society

October, 2013

Tuesday, October 1, 2013 at 17.00 **Campus Kirchberg, Room B02**

Prof. Hermann Thorisson
(University of Iceland)

Coupling Methods in Probability Theory.

Abstract: Coupling means the joint construction of two or more random variables, processes, or any random objects. The aim of the construction is usually to deduce properties of the individual objects or to gain insight into distributional relations between them.

In this talk we shall first consider some elementary examples, moving from Poisson approximation and stochastic domination to Markov chains and Brownian motion. We then outline a general coupling theory for stochastic processes and finally extend the view to random fields and to random elements under a topological transformation group.

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Tuesday, October 8, 2013 at 17.00 **Campus Kirchberg, Room B02**

Prof. Daniel Matei
(IMAR, Bucarest)

Topology of Arrangements of Hypersurfaces.

Abstract: An arrangement of hypersurfaces in an algebraic variety X is a finite collection A of irreducible hypersurfaces. Let V be the union of the hypersurfaces in A, and let M be the complement of V in X. We will discuss the topology of the complement M, with an eye for the combinatorics of the arrangement A. Special attention will be given to the following two cases: 1) X is smooth, all hypersurfaces in A are smooth, and moreover they locally intersect like hyperplanes; 2) X is a surface.

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Tuesday, October 22, 2013 at 15.30 **Campus Kirchberg, Room B02**

Professor Hidekazu Furusho
(Nagoya University, Japan)

Four groups related to associators.

Abstract: I will review Drinfeld's definition of associators and also my results concerning the definition. Then I will talk about the four pro-unipotent algebraic groups related to associators; the motivic Galois group, the Grothendieck-Teichmuller group, the double shuffle group and the Kashiwara-Vergne group. In the end of my talk I will explain relationships, actually inclusions, between them.

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Wednesday, October 30, 2013 at 17.00 **Campus Kirchberg, Room B02**

Prof. Bruno Vallette
(Université Nice Sophia-Antipolis)

Givental action is homotopy gauge symmetry.

Abstract: The aim of this talk will be to explain the following equivalence: the Givental action on genus zero cohomological field theories, i.e. algebras over the moduli space of genus 0 stable curves with marked points, is equal to the gauge symmetry action on Maurer-Cartan elements of the homotopy Lie algebra encoding homotopy Batalin-Vilkovisky algebras. This equivalent description allows us to extend, in a non-trivial way, the Givental action to homotopy CohFT, i.e. from the homology to the chain level. [joint work with Vladimir Dotsenko and Sergei Shadrin. Reference arxiv.org/1304.3343]