

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

October, 2011

Tuesday, October 04, 2011, at 17:00

Campus Kirchberg, Room B02

Dr. Anton Khoroshkin  
( ETH Zurich )

**On generating functions of finitely presented operads**

Abstract:

It is well known that the Hilbert series of a generic finitely presented graded algebra is rational. The purpose of this talk is to suggest an answer to a similar question in the case of operads. Namely I shall show that the generating series of a generic nonsymmetric operad is an algebraic function, and the generating series of a generic symmetric operad is differentially algebraic. All results are based on the combinatorics of trees/monomials and are accompanied with algorithms that might be useful in particular computations. Despite the motivation coming from the operad theory, the main part of the talk will only deal with the combinatorics of tree monomials and hence will be accessible to nonspecialists. (Joint work with D.Piontkovski)

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Tuesday, October 25, 2011, at 17:00

Campus Kirchberg, Room B02

Jacques Franchi  
( Université de Strasbourg)

**Non-explosion criteria for relativistic diffusions**

Abstract:

Relativistic diffusions live on the unit tangent bundle of a given Lorentz manifold, and have their law invariant with respect to the isometries of this Lorentz manifold. In the Riemannian setting a big amount of work has been made to find out nice conditions ensuring the non-explosion of Brownian motion, that is, the so-called stochastic completeness. The aim is here to provide analogous criteria in the Lorentzian case, which is really more difficult to handle.