

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

April, 2011

Tuesday, April 05, 2011, at 17:00

Campus Kirchberg, Room B02

Alexei Daletskii
(University of York, UK)

Cluster Point Processes via Configuration Space Analysis: integration by parts, stochastic dynamics and Poincaré inequalities

Abstract:

The distribution μ_{cl} of a cluster point process in a Riemannian manifold X , with i.i.d. clusters attached to points of a random (e.g. Poisson or Gibbs) configuration in X , is studied via the projection of an auxiliary measure on a marked configuration space of X . We prove an integration by parts formula for μ_{cl} and discuss properties of the corresponding Laplacian.

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Tuesday, April 12, 2011, at 17:00

Campus Kirchberg, Room B02

Özgür Ceyhan
(University of Amsterdam)

Geometric, topological and number theoretical problems around quantum field theory.

Abstract:

Many aspects of quantum field theory (QFT) remain puzzling for mathematicians, in particular renormalization techniques which magically produces finite results out of divergent Feynman integrals. In this talk, I will try give an overview of the symmetries of QFTs arising from renormalizations and related problems in geometry, topology and number theory.

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Tuesday, April 26, 2011, at 17:00

Campus Kirchberg, Room B02

Ajay Ramadoss
(ETH, Zürich)

A variant of the Mukai pairing via deformation quantization

Abstract:

We use an algebraic index theorem of P. Bressler, R. Nest and B. Tsygan to give a relatively short computation of a certain pairing on the Hochschild homology of a smooth projective variety. This pairing is closely related to the Mukai pairing constructed by A. Caldararu.