

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

February, 2014

Tuesday, February 11, 2014 at 17.00

Campus Kirchberg, Room B02

Prof. Colin Guillarmou
(École normale supérieure)

The spectrum of geodesic flow on compact hyperbolic manifolds

Abstract: We describe the spectrum of the vector field generating the geodesic flow on compact hyperbolic manifolds acting on certain anisotropic Sobolev spaces; the eigenvalues are called Ruelle resonances and we relate them to quantum data. As an application, this provides precise asymptotic expansion of classical correlations for the geodesic flow in the spirit of Ratner's theorem.

General Mathematics Seminar
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February, 2014

Tuesday, February 25, 2014 at 17.00

Campus Kirchberg, Room B02

Prof. Haluk Sengün
(University of Warwick)

Torsion Homology of Arithmetic Hyperbolic 3-Manifolds and Number Theory

Abstract: Torsion homology of arithmetic manifolds has received much attention from number theorists recently. The aim of the first half of this introductory talk, where we will touch upon notions like “arithmetic manifolds”, “Hecke operators”, and “modular forms”, will be to illustrate the importance of torsion from the perspective of number theory. In the second half, I will present new joint work with N. Bergeron and A. Venkatesh which relates the topological complexity of homology cycles to the asymptotic growth of torsion homology in the case of arithmetic hyperbolic 3-manifolds. I will especially focus on the interesting use of the celebrated “Cheeger-Mueller Theorem” from global analysis.