

Séminaire : Problèmes spectraux en physique mathématique

Les séminaires ont lieu à l'**Institut Henri Poincaré**, 11 rue Pierre et Marie Curie, 75005 Paris.

Programme du lundi 16 juin 2014, en **salle 314** (3e étage)

— 11h15 - 12h15 : **Pär Kurlberg** (KTH Stockholm)

Nodal length statistics for arithmetic random waves

Using spectral multiplicities of the Laplacian acting on the standard two-torus, we endow each eigenspace with a Gaussian probability measure. This induces a notion of a random eigenfunction on the torus, and we study the statistics of nodal lengths of the eigenfunctions in the high energy limit. In particular, we determine the variance for a generic sequence of energy levels, and also find that the variance can be different for certain “degenerate” subsequences. (These degenerate subsequences are closely related to circles on which integer lattice points are very badly distributed.)

— 14h - 15h : **Mario Sigalotti** (INRIA)

Exploiting conical eigenvalue intersections for controlling quantum mechanical systems

In this talk we will present the controllability problem for a closed quantum system driven by external fields. We will recall some known necessary and sufficient conditions for controllability. We will present a control algorithm based on adiabatic approximation, exploiting the presence of conical eigenvalue intersections. We will conclude by comparing the hypothesis ensuring controllability via adiabatic evolution with the classical controllability results.

— 15h15 - 16h15 : **Xavier Blanc** (Paris 7)

Existence of the thermodynamic limit for Coulomb disordered quantum systems

We study a system of atoms in which the nuclei are classical point particles, while electrons are quantum particles described by the N -body Schrödinger equation. The positions of the nuclei are assumed to be randomly distributed and stationary. The interaction between particles are of electrostatic type. We prove, that, as the number of particles tend to infinity, the energy per particle has a finite limit.

This is a joint work with M. Lewin.

Pour tout renseignement, contacter les organisateurs

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