



## GEOMETRY SEMINAR

# Trace formulae for the eigenvalue clusters of perturbed Landau Hamiltonians

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Date: September 16, 2013 (Monday)

Time: 3:30 – 4:30pm

Venue: Room 210, Run Run Shaw Bldg., HKU

### Abstract

I will discuss two trace formulae for the eigenvalue clusters of the Landau Hamiltonian (i.e. the 2D Schrödinger operator with a constant magnetic field), perturbed by an electric potential  $V$  which decays at infinity. As is well known, the spectrum of the unperturbed Hamiltonian consists of the so called Landau levels which are eigenvalues of infinite multiplicity, while the spectrum of the perturbed one consists of clusters of discrete eigenvalues which accumulate to the Landau levels. The asymptotic density of the eigenvalues in these clusters is studied when the cluster number tends to infinity. If the perturbation is short-range, then this asymptotic density is described explicitly in terms of the Radon transform of  $V$ , and if the perturbation is long-range, the asymptotic density is described in terms of the mean-value transform (called also circular Radon transform) of a homogeneous function, asymptotically equivalent to  $V$ .

The talk will be based on joint works with T. Lungenstrass (Santiago de Chile), A. Pushnitski (King's College, London) and Carlos Villegas-Blas (UNAM, Cuernavaca, Mexico).

*All are welcome*