Séminaire d'analyse

UNIVERSITÉ LAVAL

Vendredi 14 octobre 2016
14h
Local VCH 2820

Conférencier

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Titre

Trace formulas in spectral geometry

Résumé

The goal of this series of talks is to introduce some trace formulas for the Laplace-Beltrami operator on a compact Riemannian manifold and present some applications to spectral geometry. Trace formulas are valuable in spectral geometry because they allow one to extract geometric data from the Laplace spectrum. We will focus on the trace of the heat kernel, which comes from considering the advection of heat in a manifold. We will start with some concrete examples (the Poisson summation formula for tori and the Selberg trace formula for surfaces of higher genus), then move on to construct a parametrix for the heat kernel on a (compact) Riemannian manifold. This will enable us to compute some spectral invariants called the heat invariants. Time permitting, we will turn our attention to the wave equation analogue of the trace of the heat kernel, known as the wave trace, and some other applications.