

# Séminaire d'analyse



Vendredi 10 avril 2015  
13h30

## Conférencier

**Peter Herbrich** (Dartmouth College)

## Titre

**Isospectrality with mixed Dirichlet-Neumann boundary conditions**

## **Résumé**

Inverse spectral geometry studies the extent to which a geometric object, e.g., a locally Euclidean manifold, is determined by the spectral data of an associated operator, e.g., the eigenvalues of the Laplace operator with mixed Dirichlet-Neumann boundary conditions. Numerous isospectral pairs have been constructed using the well-known transplantation method. We provide graph-theoretic formulations of this method, which allow for a representation-theoretic characterization of transplantability, the generating of new pairs from given ones, and a computer-aided search of isospectral pairs. Among other things, we will show that a manifold's Dirichlet spectrum does not determine whether it is connected, and that a connected orbifold can be Dirichlet isospectral to a connected manifold.