Meeting on Computational and Analytic Problems in Spectral Theory

Cardiff School of Computer Science & Informatics, June 6th-9th 2016

Abstract of Talk

WILDLY PERTURBED MANIFOLDS: NORM RESOLVENT AND SPECTRAL CONVERGENCE

Olaf Post

FB 4 - Mathematik, Universität Trier, 54286 Trier, Germany

Wildly perturbed manifolds refers to manifolds where an increasing number of smaller and smaller holes is removed. We consider Neumann and Dirichlet Laplacians and show a norm resolvent convergence to some Laplace operator in the limit. The limit operator depends on the number of holes removed. If the removed holes remain sparse, the limit operator is the original Laplacian on the manifold; if the removed holes 'solidify', the effect is seen in the limit operator. The problem is related to the famous 'crushed ice' problem of Rauch and Taylor. We also consider manifolds with an increasing number of handles attached and discuss the limit operator. (Joint work with Colette Anné, Nantes)