Bay Area Microlocal Analysis Seminar

Monday, November 30th, at Stanford

2:15-3:15pm, Room 380D

Probabilistic Weyl laws for quantized tori

MACIEJ ZWORSKI
UC Berkeley

Abstract
For the Toeplitz quantization of complex-valued functions on a $2n$-dimensional torus we prove that the expected number of eigenvalues of small random perturbations of a quantized observable satisfies a natural Weyl law. In numerical experiments the same Weyl law also holds for “false” eigenvalues created by pseudospectral effects. The talk is based on joint work with TJ Christiansen.

AND

4-5pm, Room 383N

Pseudodifferential calculus for manifolds with multiply fibred cusps

DANIEL GRIESER
University of Oldenburg

Abstract
We present a pseudodifferential calculus generalizing the 'fibred cusp calculus' introduced by Mazzeo and Melrose. The generalization is in two directions: First, in a direction similar to previous work by Vaillant, the calculus allows to construct parametrices which satisfy a weaker ellipticity requirement than 'full ellipticity', namely we do not require invertibility of the normal operator at the boundary. This is important since many operators of interest, for example the Hodge Laplacian, tend to have non-invertible normal operator. Second, we allow multiple fibrations of the boundary. Such operators arise for example as Hodge Laplace operator on locally symmetric spaces of $Q$-rank one. In the case of two fibrations these are locally of the form $P(x, y, z, w; x^3 \partial_x, x^2 \partial_y, x \partial_z, \partial_w)$. This is joint work with E. Hunsicker.

http://math.stanford.edu/~andras/PDE/PDE.html

Organizers: Daniel Tataru, Andras Vasy & Maciej Zworski