Aux frontières de la physique mathématique.
« Un hommage à l'occasion du 70e anniversaire de Barry Simon »
28 août—1 septembre 2016

Frontiers in Mathematical Physics.
"In honour of Barry Simon's 70th birthday
August 28—September 1, 2016

Eigenvalue counting function bounds for the Krein-von Neumann extension associated with uniformly elliptic PDEs

Friedrich Gesztesy*

gesztesyf@missouri.edu

We derive a bound for the eigenvalue counting function for Krein-von Neumann extensions corresponding to a class of uniformly elliptic second order pde operators (and their positive integer powers) on arbitrary open, bounded, n-dimensional subsets $\Omega \in \mathbb{R}^n$. No assumptions on the boundary of Ω are made.

Our technique relies on variational considerations exploiting the fundamental link between the Krein-von Neumann extension and an underlying abstract buckling problem, and on the distorted Fourier transform defined in terms of the eigenfunction transform of the corresponding differential operator suitably extended to all of $\mathbb{R}^n$.

We also consider the analogous bound for the eigenvalue counting function for the corresponding Friedrichs extension.

This is joint work with M. Ashbaugh, A. Laptev, M. Mitrea, and S. Sukhtaiev.

*Department of Mathematics, University of Missouri, Rollins Road, Columbia, MO 65211, USA