MAFIA - the seminar you can't refuse

Spectral determinants

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Abstract: In this talk, we introduce and explain the notion of the spectral determinant and give motivational examples. The main part of the talk will be devoted to two results obtained in collaboration with prof. Pedro Freitas. First, we find the spectral determinant for the operator connected with the damped wave equation on a finite interval with Dirichlet boundary conditions (see [1]). Secondly, we give a formula for the spectral determinant of the polyharmonic operator $P_n = (-1)^n(\partial_x)^{2n}$ on the finite interval with Dirichlet boundary conditions and find its large n asymptotics. We prove that the same asymptotics holds for a more general operator (see [2]). New results from the works in progress will be briefly mentioned.

[1] P. Freitas, J. Lipovský, Spectral determinant for the damped wave equation on an interval, Acta Physica Polonica A 136 (2019), 817–823.

[2] P. Freitas, J. Lipovský, The determinant of one-dimensional polyharmonic operators of arbitrary order, J. Funct. Anal. 279 (2020), 108783.