MAFIA - the seminar you can't refuse

Sharp spectral inequalities for complex perturbations of the indefinite Laplacian

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Abstract: We discuss quantitative bounds for eigenvalues of complex perturbations of the one-dimensional indefinite Laplacian. For integrable potentials, we obtain optimal spectral enclosures which accommodate also embedded eigenvalues. This is a substantial improvement of a recent result due to Behrndt and Trunk. Moreover, we discuss analogous questions for complex-valued L^p-potentials $(1 < p < \infty)$ and establish quantitative estimates which considerably improve existing results even for real-valued potentials. Weak coupling asymptotics and a connection to the well-known conjecture of Behrndt will also be addressed.