

# Kolloquium Mathematische Physik

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## Upper and lower Lipschitz bounds for the perturbation of edges of the essential spectrum

Let  $A$  be a selfadjoint operator,  $B$  a bounded symmetric operator and  $A + tB$  a perturbation. I will present upper and lower Lipschitz bounds on the function of  $t$  which locally describes the movement of edges of the essential spectrum. Analogous bounds apply also for eigenvalues within gaps of the essential spectrum. The bounds hold for an optimal range of values of the coupling constant  $t$ .

This result is applied to Schrodinger operators on unbounded domains which are perturbed by a non-negative potential which is mostly equal to zero. Unique continuation estimates nevertheless ensure quantitative bounds on the lifting of spectral edges due to this semidefinite potential. This allows to perform spectral engineering in certain situations.

The talk is based on the preprint <https://arxiv.org/abs/1804.07816>

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