
Sharp geometric conditions for a spectral inequality in the whole space

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Abstract

We will present sharp quantifications of the uncertainty principle for a Schrödinger operator with a potential function $V=V(x)$, which is assumed to be an analytic symbol of negative degree, hence not necessarily a short range perturbation. Our approach relies on spectral inequalities, adapted to the unbounded case using holomorphic extension, spectral projections and suitable Carleman estimates for the D-bar operator. These results are motivated from control theory.

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