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Exponential decay of fundamental solutions to Schrödinger operators and the landscape function. Preliminary report.

In this talk, we present a few exponential decay estimates for the operator and integral kernels of Schrodinger operators $L = -\operatorname{div} A \nabla + V$, depending on the regularity of the electric potential V . First, under the assumption that V lies in a good enough Reverse Holder class (and thus its singularities and degeneracies are controlled in some way), we establish sharp exponential decay estimates for the operator and integral kernels (in this case we also treat the exponential decay upper bound of magnetic Schrodinger operators, under suitable assumptions). This is joint work with S. Mayboroda. Second, for very general V (in particular, $V \in L^\infty$) we show that we can control the exponential decay of integral kernels and Green's functions via the use of an Agmon distance weighted using the landscape function $1/u$, $Lu = 1$, introduced by M. Filoche and S. Mayboroda. (Received March 07, 2021)