

WEIGHTED INEQUALITIES FOR SCHRÖDINGER TYPE SINGULAR INTEGRALS

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Related to the Schrödinger operator $L = -\Delta + V$, the behaviour on L^p of several first and second order Riesz transforms was studied by Shen in [Shen]. Under his assumptions on V , a critical radius function $\rho : X \rightarrow \mathbb{R}^+$ can be associated, with the property that its variation is controlled by powers. Given such a function, we introduce a class of singular integral operators whose kernels have some extra decay related to ρ . We analyse their behaviour on weighted L^p and BMO -type spaces. Here, the weights as well as the regularity spaces depend only on the critical radius function. When our results are set back into the Schrödinger context, we obtain weighted inequalities for all the Riesz transforms initially appearing in [Shen].

[Shen] Z. Shen. L^p estimates for Schrödinger operators with certain potentials. Ann. Inst. Fourier (Grenoble) 45 (1995)

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