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On m -sectorial Schrödinger-type operators with singular potentials on manifolds of bounded geometry

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Abstract: We consider a Schrödinger-type differential expression $H_V = \nabla^* \nabla + V$, where ∇ is a C^∞ -bounded Hermitian connection on a Hermitian vector bundle E of bounded geometry over a manifold of bounded geometry (M, g) with metric g and positive C^∞ -bounded measure $d\mu$, and V is a locally integrable section of the bundle of endomorphisms of E . We give a sufficient condition for m -sectoriality of a realization of H_V in $L^2(E)$. In the proof we use generalized Kato's inequality as well as a result on the positivity of $u \in L^2(M)$ satisfying the equation $(\Delta_M + b)u = \nu$, where Δ_M is the scalar Laplacian on M , $b > 0$ is a constant and $\nu \geq 0$ is a positive distribution on M .

Keywords: Schrödinger operator, m -sectorial, manifold, bounded geometry, singular potential

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