Essential self-adjointness of Schrödinger type operators on manifolds

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Abstract

Several essential self-adjointness conditions for the Schrödinger type operators on manifolds and in sections of vector bundles will be explained in the talk. These conditions are expressed in terms of completeness of certain metrics on the manifold. These metrics are naturally associated with the operator. We do not assume a priori that the manifold is endowed with a Riemannian metric. This allows us to treat e.g. operators acting on bounded domains of Euclidean space. We also allow singular potentials. In particular, we obtain a new self-adjointness condition for a Schrödinger operator on $\mathbb{R}^n$ whose potential has the Coulomb-type singularity and is allowed to fall off to $-\infty$ at infinity.

Joint work with O. Milatovich and M. Shubin.