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Quantum confinement for singular Laplacians and their Weyl asymptotics

Laplace-Beltrami operators on rank-varying sub-Riemannian structures have been recently gaining interest due to their numerous exotic properties. In this talk we will focus on the 0th property of their analysis: self-adjointness. In a large number of cases and in contrast with the Riemannian case, the sub-Riemannian setting presents a large family of operators which are essentially self-adjoint even though the manifold is non-complete. In the final part of the talk we will then briefly present what little is known about sub-Riemannian Weyl laws in these singular cases and a number of open questions.