

In this talk we will present several recent results on criteria ensuring the confinement of a quantum or a stochastic particle to a bounded domain.

These criteria are given in terms of concrete growth and/or decay rates for the potential, or the diffusion matrix and drive potential, respectively, close to the boundary of the domain. As an application of a general method we develop, we will discuss several cases, including some where the background Riemannian manifold is geodesically incomplete. These results are part of an ongoing project joint with G. Nenciu (IMAR, Bucharest, Romania).