Spectral estimates for Schrödinger operators with unusual semiclassical behaviour

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In this talk I am going to discuss spectral estimates for several classes of Schrödinger operators which exhibit a discrete spectrum although the corresponding phase space volume is infinite. The first concerns modifies the well-known example of narrowing potential channels with the aim to show that the spectrum may be purely discrete even for potentials unbounded from below. Next I will consider Dirichlet Laplacians in cusp-shaped regions and derive inequalities of Lieb-Thirring type showing how they depend on the geometry of the regions.

This is a common work with Diana Barseghyan.