

Spectral Theory and Applications

Asymptotic expansions for singular Schrödinger operators

PAVEL EXNER

Doppler Institute for Mathematical Physics
and Applied Mathematics, Prague, Czech Republic
`exner@ujf.cas.cz`

The subject of this talk are Schrödinger operators with an attractive singular ‘potential’ supported by a manifold of a lower dimensionality; formally one can write them as $-\Delta - \alpha\delta(x - \Gamma)$ with $\alpha > 0$, where Γ is a curve in \mathbb{R}^d , $d = 2, 3$, or a surface in \mathbb{R}^3 . It is known that spectral properties of these operators depend on the geometry of Γ , in particular, that a non-trivially shaped interaction support may give rise to a discrete spectrum. In this talk we discuss asymptotic properties of such eigenvalues with respect to the parameters involved, both with respect to the coupling strength α and to the geometry of Γ .
