Abstract

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“Resonances of metastable molecular systems”

Work in collaboration with André Martinez

We study metastable states associated to a complex resonance $\rho$ describing the predissociation phenomena of a molecular system in the Born-Oppenheimer approximation. We show that when the semiclassical parameter $h$ is small enough, the survival amplitude,

$$\langle e^{-itH} \varphi, \varphi \rangle \sim e^{-it\rho} b(\varphi, h) + r(t, \varphi, h), \quad t > 0$$

for a given initial state $\varphi$. Where $b(\varphi, h) = 1 + \mathcal{O}(h^\mu)$ and the remainder term $r(t, \varphi, h) = h^\nu \mathcal{O}(t^{-k})$ for some constant $\mu, \nu, k > 0$. 