Widths of highly excited resonances in multidimensional molecular predissociation

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Abstract

We investigate the simple resonances of a 2x2 matrix of n-dimensional semiclassical Schr´odinger operators that interact through a first order differential operator. We assume that one of the two (analytic) potentials admits a well with non empty interior, while the other one is non trapping and creates a barrier between the well and infinity. Under a condition on the resonant state inside the well, we find an optimal lower bound on the width of the resonance. The method of proof relies on Carleman estimates, microlocal propagation of the microsupport, and a refined study of a non involutive double characteristic problem in the framework of Sj´ostrand's analytic microlocal theory. This is a joint work with Vania Sordoni.

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