Mourre estimate and the spectrum of a class of block Jacobi operators

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Mourre's theory is an extremely powerful method in spectral and scattering theory of self-adjoint operators. It is based on the notion of locally conjugate operators introduced by Mourre in the beginning of the eighties. There is a large literature devoted to this method, its extensions and applications to a large variety of partial differential operators. My first goal in this talk is to give a review on this approach. More precisely, I will introduce the Mourre estimate for a self-adjoint operator H on a compact interval J and describe some of its main consequences such as:

1. the finiteness of the point spectrum of H in J,

2. the absence of the singular continuous spectrum of H in J,

3. and continuity properties of the boundary values $(H - \lambda \mp i0)^{-1}$ of the resolvent of H for $\lambda \in J$.

Then I will explain the main ideas of the proofs of these results. My second goal in this talk is to establish a Mourre estimate for some discrete models including a class of block Jacobi matrices.