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Virtual levels and virtual states of linear operators in Banach spaces, and applications to Schrödinger operators

Virtual levels, also known as threshold resonances, admit several equivalent characterisations:

(1) there are corresponding virtual states from a space *slightly weaker* than L^2;

(2) there is no limiting absorption principle in their vicinity (e.g. no weights such that the "sandwiched" resolvent is uniformly bounded);

(3) an arbitrarily small perturbation can produce an eigenvalue.

I will discuss a general approach to virtual levels in Banach spaces and provide applications to Schrödinger operators with non-selfadjoint potentials and in any dimension. This is joint work with N. Boussaïd.