



EIGENVALUE EXCLUDING ON 1-D SCHRÖDINGER OPERATORS

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We consider a 1-D Schrödinger operator on the whole real line, with a potential which is a sum of a periodic function and some decaying perturbation. This kind of operator has essential spectrum with band-gap structure, and depending on the perturbation it may have isolated eigenvalues in the spectral gaps. Due to the lack of appropriate variational characterizations and to the “spectral pollution” problem, it is difficult to locate these eigenvalues analytically or numerically. In this talk we will focus on excluding eigenvalues in spectral gaps and show how a mathematically rigorous treatment of such a problem could be done by numerical verification. We will show some numerical examples.