

RESONANCES IN TWISTED QUANTUM WAVEGUIDES

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We consider embedded eigenvalues of a Schrödinger Hamiltonian in a waveguide induced by a trapping perturbation. It is shown that these eigenvalues become unstable and turn into resonances after twisting of the waveguide. The perturbative expansion of the resonance width is calculated for weakly twisted waveguides and the influence of the twist on resonances in a concrete model is discussed in detail. This lecture is based on joint papers with A.Bertoni, G.Cuoghi and H. Kovarik [1, 2].

- [1] H.Kovarik and A.Sacchetti: Resonances in twisted quantum waveguides, *J. Phys. A: Math. Theor.* **40**, 8371-8384 (2007)
- [2] G.Cuoghi, A.Bertoni and A.Sacchetti: Effect of quasibound states on coherent electron transport in twisted nanowires, *Phys. Rev. B* **83**, 245439:1-9 (2011)