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In-Phase Resonances with Generic Transmission Zeros and Eigenvectors of Hamiltonian in Models of Single Channel Transport

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Abstract: We investigate the phase coherent transport in a single channel system. The theory that the transmission zeros lead to abrupt phase change and in-phase resonances is confirmed numerically in two tight-binding models. After calculating the eigenvalues and eigenvectors of the Hamiltonians we also confirmed that the same symmetry of the eigenvectors also leads to the abrupt phase change and in-phase resonances that equal the transmission zero.

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