1D Klein-Gordon Equation in an Infinite Square Well with PT Symmetry Boundary Conditions

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Abstract : We study the role of boundary conditions via -symmetric quantum mechanics, where denotes parity operator and denotes time reversal operator. Using the one-dimensional Schrödinger Hamiltonian for a free particle in an infinite square well, we introduce symmetric boundary conditions. We find solutions of the 1D Klein-Gordon equation for a free particle in an infinite square well with Hermitian boundary and symmetry boundary conditions, where in both cases the energy eigenvalues and eigenfunction, respectively, are obtained.

Keywords : Eigenvalues, Eigenfunction, Hamiltonian, Klein- Gordon equation, PT-symmetric quantum mechanics