

Time-dependent solvable models in quantum mechanics

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A method is elaborated of constructing time-dependent periodic potentials for which a system of Schrödinger equations admits exact solutions. Time-independent soluble problems are transformed into time-dependent ones by a set of unitary time-dependent transformations and a proper choice of initial states. A class of potentials with corresponding cyclic solutions are constructed in a closed form for a system of two coupled Schrödinger equations. It is shown how to generate a whole family of time-dependent models from one time-independent model by employing a family of special time-dependent transformations.