

Seminários de MATEMÁTICA

Data: 10 de Setembro de 2015

Horário: 14:00

Local: Anfiteatro do DM - UFJF

Título: analytical simulations of double-well, triple-well and multi-well dynamics via exact propagators of rationally extended harmonic oscillatorsprof.

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RESUMO

Propagator, or Green function of the non-stationary Schrodinger equation, completely describes quantum dynamics in the Feynmann path-integral formulation of quantum mechanics. I will present new explicit examples of propagators in the case of one-dimensional Schrodinger equation. Namely, I will study a quantum particle moving in the potential of a rationally extended Harmonic oscillator. It is known that all monodromy free rational extensions of the Harmonic oscillator can be obtained by a finite chain of Darboux transformations. Exactly solvable models obtained by Darboux transformations are widely applied in nuclear physics, condensed matter physics, quantum optics, etc. In particular, new exact propagators allow one to simulate quantum evolution in multi-well potentials. I will also discuss connections with integrable dynamical systems, exceptional orthogonal polynomials and combinatorics.

PUBLICO ALVO

Alunos de graduação e pós-graduação. Palestra será em português.

PROMOÇÃO

Mestrado Acadêmico em Matemática