

# Computation of the Schrödinger Equation via the Discrete Derivatives Representation Method: Improvement of Solutions Using Particle Swarm Optimization

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## **Abstract**

We develop the discrete derivatives representation method (DDR) to find the physical structures of the Schrödinger equation in which the interpolation polynomial of Bernstein has been used. In this paper the particle swarm optimization (PSO for short) has been suggested as a means to improve qualitatively the solutions. This approach is carefully handled and tested with a numerical example.

**Keywords** Discrete Derivatives, Spectra, Wave Function, Particle Swarm

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