

A new numerical method for one-dimensional time-dependent Schrodinger equation using radial basis functions

Tongsong Jiang, Jiang Zhaolin

Department of Mathematics, Linyi University, Linyi, Shandong, 276005, P. R. China.

Joseph Kolibal

Department of Mathematics, University of Southern Mississippi, Hattiesburg, MS 39406, U.S.A.

Abstract

This paper proposes a new numerical method to solve the one-dimensional time-dependent Schrodinger equations based on the finite difference scheme by means of multiquadrics (MQ) and inverse multiquadrics (IMQ) radial basis functions. The numerical examples are given to confirm the good accuracy of the proposed methods.

Keywords: One-dimensional Schrodinger equation; Finite difference; Radial basis functions.