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A meshless method for the coupled nonlinear Schrödinger equations

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Abstract

In this talk, a meshfree method based on Kansa's approach is studied to obtain numerically solutions of the coupled nonlinear Schrödinger (CNLS) equations. Forward difference and Crank-Nicolson methods are used for the temporal and spatial discretization, respectively. The stability analysis of the proposed method is investigated by using Von-Neumann stability technique for the governing equations. Moreover, all obtained numerical results are presented in tables and figures. The obtained numerical experiments are compared with analytical solutions to confirm the accuracy and efficiency of the suggested scheme.

Key Words: Kansa's method, Coupled nonlinear Schrödinger equations, Von-Neumann stability.

References

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