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Analytic/Numeric Solutions of Schrödinger-Type Equations: Applications of Lie Symmetry and Other Methods

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Message from the Guest Editors

As is well known, a wide range of nonlinear phenomena in the real world can be described by nonlinear Schrödinger equations. More precisely, nonlinear Schrödinger equations are capable tools to model a lot of nonlinear phenomena from plasma physics to nonlinear optics. There are different families of nonlinear Schrödinger equations, such as the Sasa–Satsuma equation, Ginzburg–Landau equation, Biswas–Milovic equation, and Gerdjikov–Ivanov equation, which have been the subject of many studies. In recent decades, with the developments of symbolic computation packages, many effective methods such as the Lie symmetry method, the exponential method, and the Kudryashov method have been used to deal with nonlinear Schrödinger equations and their families. The main purpose of the present Special Issue is to address the latest research on new analytical and numerical solutions of nonlinear Schrödinger equations and their families.

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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