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Exact Solutions for a Higher-Order Nonlinear Schrödinger Equation in Atmospheric Dynamics

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Abstract: By giving prior assumptions on the form of the solutions, we succeed to find several exact solutions for a higher-order nonlinear Schrödinger equation derived from one important model in the study of atmospheric and ocean dynamical systems. Our analytical solutions include bright and dark solitary waves, and periodical solutions, which can be used to explain atmospheric phenomena.

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