

## Exact Solutions to Extended Nonlinear Schrödinger Equation in Monomode Optical Fiber

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**Abstract:** By using the generally projective Riccati equation method, more new exact travelling wave solutions to extended nonlinear Schrödinger equation (NLSE), which describes the femtosecond pulse propagation in monomode optical fiber, are found, which include bright soliton solution, dark soliton solution, new solitary waves, periodic solutions, and rational solutions. The finding of abundant solution structures for extended NLSE helps to study the movement rule of femtosecond pulse propagation in monomode optical fiber.

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**Key words:** extended NLSE, generally projective Riccati equation method, soliton solutions, optical fiber

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