New Solitary-wave Solutions for the Higher Order Nonlinear Schrödinger Equation with Both Real and Imaginary Raman Terms

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We find new solitary-wave solutions of the higher order nonlinear Schrödinger equation with both real and imaginary Raman terms, which can model an ultrashort pulse propagation through optical fibers, under some constraint among the model coefficients. The physical conditions such as the wavelength needed to launch the pulse, the types of optical fibers, and the required peak power, are obtained from the constraints for the solitary-wave solutions. — PACS number(s): 42.65.Tg, 42.81Dp, 02.30.Jr, 42.79.Sz.

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