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Optical Solitary Waves in Fourth-Order Dispersive Nonlinear Schrödinger Equation with Self-steepening and Self-frequency Shift

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Abstract: By making use of the generalized sine-Gordon equation expansion method, we find cnoidal periodic wave solutions and fundamental bright and dark optical solitary wave solutions for the fourth-order dispersive and the quintic nonlinear Schrödinger equation with self-steepening, and self-frequency shift. Moreover, we discuss the formation conditions of the bright and dark solitary waves.

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