

Novel Strategy for Numerically Evaluating Dark-Soliton Jitter in Optical Communications

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Abstract: In this paper, a novel strategy for numerically evaluating the dark-soliton jitter in optical communications is proposed. It is further tested to be consistent with the famous threshold-value-oriented method for rather larger distances. Then our method is used to calculate the dark-soliton jitter within arbitrary small distances. An excellent agreement is obtained with the theoretical predictions based on the nonlinear Schrödinger equation. Our method is also applicable to some more complicated systems such as the dissipative-dispersive system.

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Key words: dark-soliton jitter, threshold-value-oriented method, dissipative-dispersive system

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