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Optical solitons with time fractional nonlinear Schrödinger equation and competing weakly nonlocal nonlinearity

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Abstract

The optical solitons have been extracted from the model that describes the dynamics of solitons in nonlinear optics with competing weakly nonlocal nonlinearity. The diffraction coefficient and parabolic law nonlinearity are also consider in this time fractional model. The constraint conditions, for the existence of the dark and singular soliton solutions, are also listed. Additionally, a couple of other solutions known as singular periodic solutions, fall out as a by-product of this scheme.

Key words: Optical solitons; time fractional model; nonlocal nonlinearity; integrability.

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