Generation of Bragg similaritons in nonlinear fiber Bragg gratings with gain

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We have explored through numerical simulations the amplification of laser pulses in nonlinear fiber Bragg gratings with gain and normal dispersion. The distortion of the temporal intensity profile caused by the higher-order dispersion coefficients is examined. The stabilizing effect of fourth-order dispersion on pulse propagation is demonstrated. For some conditions, the amplified pulse shape evolves towards a Bragg similariton, a quasi-parabolic temporal profile with wave-breaking free temporal characteristics.

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