

Evolution of Dark Spatial Soliton in Quasi-phase-matched Quadratic Media

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Abstract: We theoretically investigate the evolution of dark spatial soliton with cascading quadratic nonlinearity in quasi-phase-matched second harmonic generation. It is shown that the dark solitary wave can propagate stably when background intensity is large enough, in which diffraction of beam can be balanced by the cascading quadratic nonlinearity. We also analyze the influence of phase-mismatch on the stability of dark soliton propagation.

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Key words: dark spatial soliton, cascaded quadratic nonlinearity

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