

عنوان مقاله:

Spatial soliton pairs in an unbiased photovoltaic-photorefractive crystal circuit

محل انتشار:

مجله نانو ساختارهای اپتوالکترونیکال، دوره 1، شماره 1 (سال: 1395)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

Optical separate spatial dark and bright soliton pairs in steady-state case in one dimension, for a series circuit : consisting of two-photon photorefractive (PR) crystal are investigated. Each crystal can be supported the spatial soliton, and at least one must be photovoltaic. The two solitons are known collectively as separate spatial soliton pairs with dark-dark, bright-dark and bright-bright. Results show that when an optical wave has a spatial extent much less than the width of the crystal, only the dark soliton can effect on the other soliton by light-induced current, while the bright soliton doesn't have such an effect. In fact when a crystal supports a bright soliton, the light-induced current is so small that the crystal cannot act as a current source, whereas when a crystal supports a dark soliton, the light-induced current is strong enough to affect the other soliton in the other crystal. Numerical results confirm that the two solitary states remain invariant under propagation. We also show that these solitons are stable under a small .perturbation

کلمات کلیدی:

Nonlinear Optics, separate photorefractive soliton, two-photon solitons

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<https://civilica.com/doc/1908121>

