

Ultra-slow Bright and Dark Optical Solitons in Cold Media

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Abstract: We present a systematic study on the formation of ultra-slow bright and dark optical solitons in highly resonant media. By investigating four life-time broadened atomic systems, i.e., three-state Λ -type and cascade-type schemes, and four-state N-type and cascade-type schemes, we show that the formation of such ultra-slow solitons in cold atomic systems is a fairly universal phenomenon.

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Key words: ultra-slow and super-luminal propagation, electromagnetically induced transparency, solitons

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