

Nonlinear optical modes in micro- and nanostructured media: From light bullets to plasmonic lattice solitons

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Abstract

I give an overview of recent theoretical results in the area of discrete-continuous light bullets propagating in one- and two-dimensional waveguide arrays. In connection with these theoretical developments I discuss the recent observation of spatiotemporal localization of nonlinear optical wavepackets propagating in two-dimensional hexagonal arrays of Ge-doped fibers. I also briefly review recent work on subwavelength plasmonic lattice solitons which form in one- and two-dimensional arrays of metallic nanowires embedded in Kerr-type nonlinear media.