

Self-trapping threshold in disordered nonlinear photonic lattices

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We investigate numerically and experimentally the influence of coupling disorder on the self-trapping dynamics in nonlinear one-dimensional optical waveguide arrays. The existence of a lower and upper bound of the effective average propagation constant allows for a generalized definition of the threshold power for the onset of soliton localization. When compared to perfectly ordered systems, this threshold is found to decrease in the presence of coupling disorder. © 2013 Optical Society of America.