

Nonlinearities supporting localized modes in \mathcal{PT} -symmetric lattices

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Abstract:

Nonlinear \mathcal{PT} -systems occupy an intermediate position between Hamiltonian systems allowing for existence of families of nonlinear solutions and dissipative systems in which balance between the dissipation and gain results in isolated (i.e. “fixed point”) solutions. The way of how a \mathcal{PT} -system behaves depends on the type of its nonlinearity. In the talk we address the effect of the type of the nonlinearity on existence of families of the nonlinear modes in \mathcal{PT} -symmetric lattices. More specifically, we describe bifurcations of the nonlinear modes from the linear limit, considering the cases of nondegenerate and degenerate spectra, as well as exceptional points of the underlying linear systems [1-3]. On the other hand, we also consider the effect of the nonlinearity type on the possibility of analytical continuation from the anticontinuum limit [4].

References:

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