

Diagonalization of the Coupled-Mode System

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joint work with D. Pelinovsky

We consider the Hamiltonian coupled-mode system that occur in nonlinear optics, photonics, and atomic physics. Spectral stability of gap solitons is determined by eigenvalues of the linearized coupled-mode system. In the special class of symmetric nonlinear potentials, we construct a block-diagonal representation of the linearized coupled-mode equations, when the spectral problem reduces to two coupled two-by-two Dirac systems.