Solitons supported by complex PT symmetric Gaussian potentials

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The existence and stability of fundamental, dipole, and tripole solitons in Kerr nonlinear media with parity-time symmetric Gaussian complex potentials are reported. Fundamental solitons are stable not only in deep potentials but also in shallow potentials. Dipole and tripole solitons are stable only in deep potentials, and tripole solitons are stable in deeper potentials than for dipole solitons. The stable regions of solitons increase with increasing potential depth. The power of solitons increases with increasing propagation constant or decreasing modulation depth of the potentials.

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