

Selected Abstracts from Other Physical Review Journals

Abstracts of papers that are published in other Physical Review journals and may be of interest to Physical Review A readers are printed below.

Stability of repulsive Bose-Einstein condensates in a periodic potential

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The cubic nonlinear Schrödinger equation with repulsive nonlinearity and an elliptic function potential models a quasi-one-dimensional repulsive dilute gas Bose–Einstein condensate trapped in a standing light wave. New families of stationary solutions are presented. Some of these solutions have neither an analog in the linear Schrödinger equation nor in the integrable nonlinear Schrödinger equation. Their stability is examined using analytical and numerical methods. All trivial-phase stable solutions are deformations of the ground state of the linear Schrödinger equation. Our results show that a large number of condensed atoms is sufficient to

form a stable, periodic condensate. Physically, this implies stability of states near the Thomas–Fermi limit. [Phys. Rev. E **63**, 036612 (2001)]

Isomeric photonic molecules formed from coupled microresonators

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Isomeric photonic molecules were formed by connecting four identical cavities in different geometries: a chain, a square, and a T shape. The optical mode spectrum in these structures exhibits three-dimensionally confined photonic states, which have been studied by photoluminescence spectroscopy. The energies of the optical modes depend strongly on the molecule geometry. The experimental data are in good agreement with detailed calculations of the fields in the cavities. [Phys. Rev. E **63**, 036611 (2001)]