

Coherent Atomic Soliton Molecules

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We discuss the dynamics of interacting atomic bright solitons and dark bubbles in bulk immiscible Bose-Einstein condensates. Coherent matter-wave clusters can be constructed using dark-bright pairs with appropriate phases. In two dimensions we describe novel types of matter-wave molecules without a scalar counterpart that can be seen as bound states of vector objects.

Subjects: **Pattern Formation and Solitons (nlin.PS)**; Quantum Gases (cond-mat.quant-gas)

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