

A mixture of two species of spin-1 Bose gases with interspecies spin exchange

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Abstract

We study ground states and physical properties of a mixture of two species of pseudospin- $\frac{1}{2}$ atoms, as well as a mixture of two species of spin-1 atoms, with both interspecies and intraspecies spin exchanges. Interplay among interspecies and two intraspecies spin exchanges significantly enriches quantum phases of spinor atomic gases.