

Abstract Submitted
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Effects of the interplay between spin-orbit coupling and interaction on bosons QI ZHOU, The Chinese University of Hong Kong, XIAOLING CUI, Institute for Advanced Study, Tsinghua University — We show that spin-orbit coupling drastically changes the properties of bosons. The interplay between the spin-orbit coupling and interaction determines the fate of Bose-Einstein condensate, which may even not exist in the presence of isotropic spin-orbit coupling. For anisotropic spin-orbit coupling, condensates survive and are characterized by anisotropic energy spectrum, with a slower sound velocity along the direction of weaker spin-orbit coupling. The spectrum can also be used to distinguish the plane wave phase and the tripe phase.

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