

Abstract Submitted
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Vortex structures in ultra-rapidly rotating two-component Bose-Einstein condensates¹ C.-H. HSUEH, National Taiwan Normal University, I.-G. LIU, S.-C. GOU, National Changhua University of Education, W.C. WU, National Taiwan Normal University — We investigate the vortex structures in rotating two-component Bose-Einstein condensates with a rotating frequency larger than the harmonic trapping frequency. Representative cases for the three phases, miscible, symmetric phase-separated, and asymmetric phase-separated, are studied. It is shown that the three different phases are manifested in the vortex structures to which at the annular region around the center, vortices of each component form an annular structure and interlace with those of the other component. To determine the vortex structure in an authentic equilibrium state, the result obtained via imaginary-time propagating method is used as the initial state of the stochastic Gross-Pitaevskii equation and one keeps it propagating until the density profile saturates.

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