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Vortices in two-component weakly interacting Bose-Einstein condensates SARA BARGI, JONAS CHRISTENSSON, GEORGIOS KAVOULAKIS, KIMMO KARKKAINEN, YONGLE YU, Lund Institute of Technology, Lund University, MATTI MANNINEN, Nanoscience Center, University of Jyvaskyla, Finland, STEPHANIE REIMANN, Lund Institute of Technology, Lund University — Weakly interacting Bose-Einstein condensates that are set rotating, are studied by numerical diagonalization of the many-body Hamiltonian. In particular, we investigate the structure of the lowest-energy states as a function of angular momentum, when pseudospin is introduced. Coreless vortices and vortex lattices in the exact solutions are compared to the results earlier obtained within the Goss-Pitaevskii mean field approach (see for example, Kasamatsu, Tsubota and Ueda, Phys Rev Lett 93, 250406 (2004) and Phys Rev A 91, 150406 (2005)).

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