

Abstract Submitted
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Supersolid phases of two-species Rydberg-dressed Bose-Einstein condensates¹ C.-H. HSUEH, Department of Physics, National Taiwan Normal University, Taiwan, Y.-C. TSAI, Department of Physics, National Changhua University of Education, Taiwan, M.-S. CHANG, Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan, W. C. WU, Department of Physics, National Taiwan Normal University, Taiwan — We investigate the supersolid ground states of a binary Rydberg-dressed BEC system. From a many-body perturbation expansion, both intra- and inter-species long-range dressed interactions are derived, which are essential for the study of the ground-state manifold of the binary Rydberg-dressed BEC system. Due to the long-range interactions, five distinct phases of the supersolid ground states are identified, which are experimentally observable.

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