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Phase-coherent multi-orbital bands of microcavity exciton-polaritons in a lattice NA YOUNG KIM, Stanford University, KENICHIRO KUSUDO, National Institute of Informatics, CONGJUN WU, University of California, San Diego, NAOYUKI MASUMOTO, National Institute of Informatics, SVEN HOEFLING, ALFRED FORCHEL, University of Wuerzburg, YOSHIHISA YAMAMOTO, Stanford University — Microcavity exciton-polaritons are quantum bose particles arising from the strong light-matter coupling between cavity photons and quantum well excitons. They have been attractive entities to explore fundamental quantum nature phenomena in solid-state systems including Bose-Einstein condensation and superfluidity. Here we investigate phase-coherent multi-orbital bands of microcavity exciton-polaritons which are trapped in an artificial periodic lattice potential. Optical properties of the system are studied via photoluminescence imaging and spectroscopy at low temperatures.

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