

Abstract Submitted
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Multiple-pulse superradiance from an optically induced harmonic confinement in a semiconductor microcavity¹ CHIH WEI LAI², WEI XIE³, FENG-KUO HSU, Michigan State University, YI-SHAN LEE, SHENG-DI LIN, National Chiao Tung University — We report the observation of macroscopic harmonic states in an optically induced confinement in a highly photoexcited semiconductor microcavity at room temperature. The spatially photomodulated refractive index changes result in the visualization of harmonic states in a micrometer-scale optical potential at quantized energies up to 4 meV even in the weak-coupling plasma limit. We characterize the time evolution of the harmonic states directly from the consequent pulse radiation and identify sequential multiple ~ 10 ps pulse lasing with different emitting angles and frequencies. Such multiple-pulse coherent radiation is attributed to superradiance from correlated electron-hole pairs in a high-density plasma.

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