

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Two Dimensional Plasmonic Cavities on Moire Surfaces** SINAN BALCI, ASKIN KOCABAS, MUSTAFA KARABIYIK, COSKUN KOCABAS, ATILLA AYDINLI, Physics Department, Bilkent University, Ankara, 06800, Turkey — We investigate surface plasmon polariton (SPP) cavity modes on two dimensional Moire surfaces in the visible spectrum. Two dimensional hexagonal Moire surface can be recorded on a photoresist layer using Interference lithography (IL). Two sequential exposures at slightly different angles in IL generate one dimensional Moire surfaces. Further sequential exposure for the same sample at slightly different angles after turning the sample 60 degrees around its own axis generates two dimensional hexagonal Moire cavity. Spectroscopic reflection measurements have shown plasmonic band gaps and cavity states at all the azimuthal angles (omnidirectional cavity and band gap formation) investigated. The plasmonic band gap edge and the cavity states energies show six fold symmetry on the two dimensional Moire surface as measured in reflection measurements.

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Date submitted: 20 Nov 2009

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