Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Plasmon-polaritonic bands in sequential doped graphene superlattices[1] FELIPE RAMOS-MENDIETA, Departamento de Investigación en Fsica, Universidad de Sonora, MARTHA PALOMINO-OVANDO, Facultad de Ciencias Fsico-Matemáticas, Benemérita Universidad Autónoma de Puebla, ALEJANDRO HERNÁNDEZ-LÓPEZ, Facultad de Ciencias Fsico-Matemticas, Benemérita Universidad Autnoma de Puebla, IVÁN FUENTECILLA-CÁRCAMO, Facultad de Ciencias Fsico-Matemáticas, Benemérita Universidad Autnoma de Puebla — Doped graphene has the extraordinary quality of supporting two types of surface excitations that involve electric charges (the transverse magnetic surface plasmons) or electric currents (the transverse electric modes). We have studied numerically the collective modes that result from the coupling of surface plasmons in doped graphene multilayers. By use of structured supercells with fixed dielectric background and inter layer separation, we found a series of plasmon-polaritonic bands of structure dependent on the doping sequence chosen for the graphene sheets. Periodic and quasiperiodic sequences for the graphene chemical potential have been studied. Our results show that transverse magnetic bands exist only in the low frequency regime but transverse electric bands arise within specific ranges of higher frequencies. Our calculations are valid for THz frequencies and graphene sheets with doping levels between 0.1 eV and 1.2 eV have been considered.

[1]AHL and IFC aknowledge fellowship support from CONACYT México

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Date submitted: 23 Nov 2015 Electronic form version 1.4