Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

**Tunable THz Metamaterial Coupled to Graphene** TSUNG-TA TANG, SUFEI SHI, LONG JU, UC Berkeley, FENG WANG, UC Berkeley and Lawrence Berkeley National Laboratory — Metamaterial is a periodic sub-wavelength dielectric structure which can be tailored to have a strong resonance at particular frequencies. However, changing the electromagnetic response of metamaterial often involves changing the design. On the other hand, graphene is an atomic layer of carbon atoms arranged in honeycomb structure and its conductivity in THz regime is highly tunable by changing the Fermi energy of graphene. In our study, we couple graphene to a THz metamaterial device efficiently and demonstrate that the resonance of THz metamaterial can be changed over a wide range by controlling the conductivity of graphene. This graphene-THz metamaterial hybrid device can be used for future THz application such as THz modulator, which can be controlled electrostatically.

Sufei Shi
UC Berkeley and Lawrence Berkeley National Laboratory

Date submitted: 28 Nov 2012 Electronic form version 1.4