Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Theoretical studies on performance evaluation of solar thermoelectronic energy converter with graphene emitter OLUKUNLE OLAWOLE[1], DILIP DE[2], Department of Physics, Covenant University, Ota, Nigeria — In this paper we consider detailed energy dynamics of solar thermoelectronic energy converter using graphene as the emitter. The emitter is heated by solar energy concentrated by a parabolic mirror concentrator. We study the performance evaluation of the energy conversion using temperature dependent work function of graphene and model the space charge problem by introducing a factor in the emitter and collector current densities. We present computations on power output and efficiency as function of solar insolation, height of emitter from the base of the mirror, reflection coefficient of the mirror, temperature and work function of collector. Effect of molecular doping on the performance of the graphene solar tech is also discussed.

[1]Please schedule our papers so that they are well separated in time for presentations.
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Date submitted: 04 Oct 2015 Electronic form version 1.4