Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Conductance and refraction across a Barrier in Phosphorene DIPENDRA DAHAL, CUNY-Graduate Ctr, GODFREY GUMBS, Hunter College, CUNY — The transmission coefficient and ballistic conductance for monolayer black phosphorene is calculated when a potential step or square barrier is present. The Landauer-Buttiker formalism is employed in our calculations of the conductance. We obtain the refractive index for the step potential barrier when an incident beam of electron travel along different paths so as to observe what role the anisotropy of the energy bands plays. Numerical results are presented for various potential heights and barrier widths and these are compared with those for gapless and gapped graphene.

Dipendra Dahal
CUNY-Graduate Ctr

Date submitted: 08 Nov 2016 Electronic form version 1.4