Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Electronic properties of two-dimensional MoS_2 and its nanoribbons: a theoretical study[1] CHENG-HSIANG HSU, SINA SOLEIMANIKAHNOJ, FARHAD KARIMI, IRENA KNEZEVIC, Univ of Wisconsin, Madison — Recent advances in producing monolayer and bilayer molybdenum disulfide (MoS_2) have generated considerable interest in its fundamental properties. Two-dimensional MoS_2 has a variety of intriguing but unexplored electronic and optical properties that are dependent on the number of layers in the material. Here, we present calculations of the electronic properties of two-dimensional MoS_2 and its nanoribbons based on a semi-empirical tight-binding model and ballistic quantum transport theory. Utilizing simulation results, we discuss the potential of two-dimensional MoS_2 and its nanostructures for low-power electronic applications.

[1]UW-Madison Hilldale Undergraduate Research Fellowship

Cheng-Hsiang Hsu
Univ of Wisconsin, Madison

Date submitted: 07 Nov 2016 Electronic form version 1.4