

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Stability and Electronic properties of Ultra-thin Metallic nanowires on MoS₂ monolayer ASHOK KUMAR, Department of Physics, Himachal Pradesh University, Shimla 171005, India, XIAOLIANG ZHONG, Department of Physics, Virginia Polytechnic Institute and State University, Blacksburg, USA, SANJEEV K. GUPTA, Department of Physics, Michigan Technological University, Houghton, Michigan 49931, USA., P.K. AHLUWALIA, Department of Physics, Himachal Pradesh University, Shimla 171005, India, SHASHI P. KARNA, US Army Research Laboratory, Weapons and Materials Research Directorate, ATTN: RDRL-WM, Aberdeen Proving Ground, MD 21005- 5069, U.S.A., RAVINDRA PANDEY, Department of Physics, Michigan Technological University, Houghton, Michigan 49931, USA, — MoS₂ has emerged as a promising 2D nanomaterial for several technological applications. It has recently been shown that the highly capacitive Au nanoparticles raised the effective gate voltage for the MoS₂ based device by an order of magnitude (Nano Lett. 13, 4434-41, 2013). In this talk, we examine stability and electronic properties of commensurable ultra-thin noble-metal nanowires (Cu, Ag, Au, Pt) on MoS₂ monolayer. Results based on density functional theory will be presented to determine the preferred configuration for nanowires on the monolayer together with the enhancement in the conductivity of the composite system considered.

Ashok Kumar
Himachal Pradesh Univ, Shimla 171005

Date submitted: 15 Nov 2013

Electronic form version 1.4