Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Junction properties of MoS2 between 1T and 2H phases[1] JUNSUK KIM, JEASU KIM, BYOUNGHEE MOON, HAMZA GUL, JUNGHO KIM, YOUNG HEE LEE, SEONG CHU LIM, Center for Integrated Nanostructure Physics, Institute for Basic Science — The Molybdenum disulfide (MoS2) with band gap of 1.8eV shows strong Fermi level pinning that hinders the modulation of Schottky barrier height using metals of different work function. In this reason, only n-type behaviors have been exhibited from MoS2 FET. However, different from 2H phase MoS2, exhibiting semiconducting characteristics, 1T phase MoS2 is metallic. Thus, the junction of semiconducting and metallic MoS2 is possible if 2H phase MoS2 is locally transformed into 1T phase. In this study, we prepare MoS2 in-plane junction of 1T and 2H phase by locally intercalating Li ions into MoS2 multilayer that is confirmed using Raman and PL spectroscopes and will discuss the electrical properties of the junction of two different phases of MoS2.

[1]This work was supported by project code (IBS - R011-D1).

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Date submitted: 14 Nov 2014 Electronic form version 1.4