## Abstract Submitted for the MAR12 Meeting of The American Physical Society

ARPES studies on metal-insulator-transition in  $NiS_{2-x}Se_x$ GARAM HAN, Y.K. KIM, W.S. KYUNG, CHUL KIM, Y.Y. KOH, Institute of Physics and Applied Physics, Yonsei University, Korea, K.D. LEE, Department of Physics, Inha University, Korea, C. KIM, Institute of Physics and Applied Physics, Yonsei University, Korea — Understanding Metal insulator transition (MIT) is one of the most challenging issues in condensed matter physics.  $NiS_{2-x}Se_x$  (NSS) is a well known system for band width controlled MIT studies while most of High-Tc superconductors (HTSCs) are described within band filling MIT picture. Cubic pyrite NiS<sub>2</sub> is known as a charge-transfer (CT) insulator and easily forms a solid solution with NiSe<sub>2</sub>, which is a good metal even though it is isostrucural and isoelectronic to NiS<sub>2</sub>. MIT is induced by Se alloying and is observed at a low temperature for x=0.5. The important merit is that there is no structure transition which often accompanies MIT. In spite of the importance of the system, even the experimental band dispersion is not known so far along with many controversies. For this reason, we performed angle resolved photoemission spectroscopy on high quality single crystals and successfully obtained Fermi surface maps of x=0.5, x=0.7 and x=0.8 systems (the metallic side). By doping dependent systematic studies on NSS and comparison with LDA calculation, we try to explain the relationship between band width and the MIT.

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