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Systematic study of doping effect on the electronic structure of Cu_xNbSe_2 Y.K. KIM, Y.Y. KOH, W.S. JUNG, G.R. HAN, S.R. PARK, C.S. LEEM, CHUL KIM, D.J. SONG, W.S. KYUNG, H.Y. CHOI, Institute of Physics and Applied Physics, Yonsei University, Korea, L.X. YANG, C. HE, F. CHEN, D.L. FENG, 2Department of Physics, Surface Physics Laboratory(National Key Laboratory) and Advanced Materials Laboratory,Fudan University, P. R. China, C. KIM, Institute of Physics and Applied Physics, Yonsei University, Korea — NbSe_2 is the one of the most studied transition metal dichalcogenide(TMD) materials. It has two phases : superconducting and charge density wave(CDW) phases. The superconductivity in NbSe_2 is known to be a conventional BCS superconductor. On the other hand, CDW mechanism in NbSe_2 cannot be explained by the conventional Fermi surface nesting scenario. To find out the exact mechanism of the CDW in NbSe_2 , we try to change the electronic structure of NbSe_2 by Cu doping. In this presentation, we report the electronic structure studies of the Cu_xNbSe_2 ($x=0, 0.02, 0.04, 0.06, 0.08$) measured by angle resolved photoemission spectroscopy (ARPES). We indeed observe doping effects on the electronic structure. The main effect is a Fermi surface topology change, which in turn modifies the nesting condition for CDW phase. To see the nesting condition more clearly, we performed auto-correlation analysis of the data. In addition, we studied the doping and temperature effects on the band renormalization and kink energy.

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