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Studies on the orbital characters and quasi-particle dynamics of LiFeAs YEONGKWAN KIM, B.Y. KIM, CHUL KIM, D.J. SONG, W.S. KYUNG, C. KIM, Institute of Physics and Applied Physics, Yonsei University, Seoul 120-749, Korea, B.S. LEE, K.H. KIM, FPRD, Department of Physics and Astronomy, Seoul National University, Seoul 151-747, Korea — Since the discovery, iron-based superconductors have been intensively and extensively studied by using various techniques including angle resolved photoelectron spectroscopy (ARPES). So far, most of ARPES studies have been performed on 122-compounds and 1111-compounds. However, 122-phase materials do not have neutral cleavage surfaces and have 3-dimensional band structures. These traits of 122- and 1111-phase make the spectral shape generally broad and do not allow investigation of the intrinsic electronic structures in detail. In that respect, LiFeAs is an ideal material with neutral cleavage surfaces and quasi-2 dimensional band structures. In this presentation, our recent ARPES work on the electronic structure of LiFeAs will be presented. We investigated the orbital character of each band by ARPES with various polarizations of the photon. Since the main valence band of LiFeAs comes from iron d-orbitals, pin-pointing the characters of bands should be an important starting point. In addition, we analyzed details of the spectral function in regard to the quasi-particle dynamics..

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