Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Pseudogap studied by optical conductivity spectra of Zn-substituted $YBa_2Cu_3O_y$[1] ECE UYKUR, TAKAHIKO MASUI, KIYOHISA TANAKA, SHIGEKI MIYASAKA, SETSUKO TAJIMA, Dept. of Physics, Osaka University, Osaka 560-0043, JAPAN — The pseudogap and the superconducting gap cause a similar suppression of the low energy optical conductivity, but the behaviors of the spectral weight transfers are different, which enables us to distinguish these two gaps. In the c-axis spectra of $YBa_2Cu_3O_y$, however, it is difficult to discuss these spectral weight transfers because of the additional structures due to a transverse Josephson plasma mode [1]. To overcome this problem, we substituted Zn for Cu, which is known to suppress those supplementary structures [2]. In this study, we performed temperature dependent reflectivity measurements in Zn-substituted $YBa_2Cu_3O_y$ system. We have revealed the continuous transfer of the low energy spectral weight to the higher energy region even below Tc, which suggests the coexistence of the pseudogap and the superconducting gap. [1]C. Bernhard et al. Phys. Rev. B, 61 (2000) 618. [2]R. Hauff et al., Phys. Rev. Lett., 77 (1996) 4620.

[1]This work was partially supported by a Grant-in-Aid for Scientific Research from the Ministry of Education, Culture, Sports, Science and Technology of Japan.

Ece Uykur
Dept. of Physics, Osaka University, Osaka 560-0043, JAPAN

Date submitted: 10 Nov 2011 Electronic form version 1.4