

Abstract Submitted  
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**Co-existence of spin fluctuation and superconductivity in electron doped cuprate  $\text{Pr}_{1-x}\text{LaCe}_x\text{CuO}_4$**  DONGJOON SONG, S.R. PARK, CHUL KIM, S.K. CHOI, W.S. JUNG, Y.Y. KOH, Y.K. KIM, Yonsei University, Rep. of Korea, H. EISAKI, Y. YOSHIDA, AIST, Japan, C. KIM, Yonsei University, Rep. of Korea — Even though spin fluctuation has been proposed to be as the pairing glue in the cuprate high temperature superconductivity, there is lack of a clear evidence for its coupling to electron. One of the reasons is that, for hole doped cuprates, both anti-ferromagnetism (AFM) and recently proposed charge ordering effects due to Fermi surface nesting occur in the same region of the momentum space (anti-nodal region). On the other hand, electron doped cuprates are known to have the pseudo gap effect at hot spots from AFM band renormalization. This fact makes it advantageous to investigate electron doped cuprates for the spin fluctuation issue. We performed ARPES studies on superconducting electron doped cuprates PLCCO ( $x=0.1, 0.15, 0.18$ ) to investigate the relation between the spin fluctuation and superconductivity. We observe pseudo gap for all the dopings, which indicates that the short range AFM ordering survives far away from the AFM phase boundary. This coincidence of the short range AFM and superconductivity even in the over doped state may support the spin fluctuation scenarios at least in the electron doped side.

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