Particle-Hole Mixture in Bi$_2$Sr$_2$CaCu$_2$O$_8$ Revealed by Laser-Based Angle Resolved Photoemission Spectroscopy W.T. ZHANG, G.D. LIU, L. ZHAO, H.Y. LIU, J.Q. MENG, W. LU, X.L. DONG, X.J. ZHOU, National Laboratory for Superconductivity, Institute of Physics and Beijing Natl. Laboratory for Condensed Matter Physics, Chinese Academy of Science, J.S. WEN, Z.J. XU, G.D. GU, Condensed Matter Physics and Materials Science Department, Brookhaven National Laboratory, T. SASAGAWA, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama Kanagawa, Japan, Y. ZHU, X.Y. WANG, C.T. CHEN, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, G.L. WANG, H.B. ZHANG, Y. ZHOU, Z.Y. XU, Laboratory of Optical Physics, Institute of Physics and Beijing National Laboratory for Condensed Matter Physics, Chinese Academy of Sciences, JI MO BOK, JAE HYUN YUN, HAN-YONG CHOI, Department of Physics and Institute for Basic Science Research, SungKyunKwan University, CHANDRA M. VARMA, Department of Physics and Astronomy, University of California — Super-high resolution laser-based angle-resolved photoemission measurements have been carried out on Bi$_2$Sr$_2$CaCu$_2$O$_8$ high temperature superconductor. In this talk, we will report on the observation and analysis of particle-hole mixture in Bi$_2$Sr$_2$CaCu$_2$O$_8$.

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