

Abstract Submitted  
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**Coexistence of competing orders with two energy gaps in real and momentum space in the High  $T_c$  Superconductor  $\text{Bi}_2\text{Sr}_{2-x}\text{La}_x\text{CuO}_{6+\delta}$**  JIHUA MA, Z.-H. PAN, F.C. NIESTEMSKI, M. NEUPANE, Y.-M. XU, ZQIANG WANG, VIDYA MADHAVAN, Department of Physics, Boston College, P. RICHARD, WPI Advanced Institute for Materials Research, Tohoku University, K. NAKAYAMA, T. SATO, T. TAKAHASHI, Department of Physics, Tohoku University, H.-Q. LUO, L. FANG, H.-H. WEN, H. DING, Institute of Physics and National Laboratory for Condensed Matter Physics of China, DEPARTMENT OF PHYSICS, BOSTON COLLEGE COLLABORATION, WPI ADVANCED INSTITUTE FOR MATERIALS RESEARCH, TOHOKU UNIVERSITY COLLABORATION, DEPARTMENT OF PHYSICS, TOHOKU UNIVERSITY COLLABORATION, INSTITUTE OF PHYSICS AND NATIONAL LABORATORY FOR CONDENSED MATTER PHYSICS OF CHINA COLLABORATION — We have performed scanning tunneling microscopy and angle-resolved photoemission spectroscopy on optimally doped and overdoped  $\text{Bi}_2\text{Sr}_{2-x}\text{La}_x\text{CuO}_{6+\delta}$ . We observe two distinct energy gaps that coexist both in real space and in the antinodal region of momentum space below  $T_c$ . We find that the small gap is associated with superconductivity. The large gap persists above  $T_c$  and seems to be linked to observed charge order. We also find a strong correlation between these two gaps suggesting they are affected by similar physical processes.

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