

Abstract Submitted  
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**Atomic-resolution Spectroscopic Imaging Scanning Tunneling  
Microscopy of Triple Layer Cuprate:  $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{10+\delta}$**  JHINHWAN LEE,  
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Festkörperforschung, 70569 Stuttgart, Germany, J.C. DAVIS, LASSP, Dept. of  
Physics, Cornell University — We present preliminary high spatial resolution scan-  
ning tunneling spectroscopy (STS) study of triple layer cuprate  $\text{Bi}_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{10+\delta}$ .  
The sample is near optimally doped, with  $T_c = 110$  K. The local density of states  
(LDOS) map shows (1) strongly heterogeneous gap distributions, (2) significantly  
increased average superconducting gap, (3) equivalent energy-dispersive quasiparticle  
interference patterns and (4) stronger and sharper coherence peaks compared to  
double layer cuprate  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$  of similar doping. We also have preliminary  
observations of the disordered bosonic mode energy distribution qualitatively similar  
to those of  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ .

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