

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**The evolution of microwave conductivity in  $\text{YBa}_2\text{Cu}_3\text{O}_{6+x}$  across the superconducting dome** JORDAN BAGLO, JAMES DAY, PINDER DOSANJH, RUIXING LIANG, WALTER HARDY, DOUG BONN, University of British Columbia — The rich phenomenology displayed in the phase diagram of the high- $T_c$  cuprates continues to be an active arena of investigation. Recent experimental and theoretical work appears to be converging on a picture of separate spin and charge order phase transitions – well-below and near optimal doping, respectively – along with associated Fermi surface reconstruction. As sensitive probes of the low-energy electrodynamics, microwave spectroscopy techniques are well-suited for characterizing the effects of such changes in electronic structure deep within the superconducting state. I will present the results of our survey of the complex microwave conductivity of  $\text{YBa}_2\text{Cu}_3\text{O}_{6+x}$  over a wide range of oxygen contents, from 6.49 to 6.998, and discuss their implications for the evolution of electronic structure with doping. I will also discuss the surprising relationship we observed between quasiparticle scattering lifetimes and oxygen ordering, which carries important implications for quantum oscillation measurements.

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Date submitted: 14 Nov 2013

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