Abstract Submitted for the MAR17 Meeting of The American Physical Society

Magnetic Excitations in Superconducting La2-xCa1+xCu2O6+d JOHN SCHNEELOCH, RUIDAN ZHONG, Brookhaven National Laboratory, ZHIJUN XU, National Institute of Standards and Technology, ALEXANDER KOLESNIKOV, MATTHEW STONE, Oak Ridge National Laboratory, GUANGY-ONG XU, GENDA GU, JOHN TRANQUADA, Brookhaven National Laboratory — We report inelastic neutron scattering experiments on superconducting and non-superconducting La2-xCa1+xCu2O6+d single crystals, with superconductivity induced by high-pressure oxygen annealing. The magnetic excitations in the non-superconducting composition are similar to those in other weakly holedoped cuprates, being commensurate and having a similar intensity temperaturedependence. In the superconducting samples, though the excitations appear commensurate, the intensity temperature-dependence is much different and there is broadening and a decrease in the steepness of the dispersion. For the elastic magnetic scattering, changes are also seen, with 3-dimensional antiferromagnetic order in the non-superconducting sample being replaced by 2-dimensional magnetic correlations in the superconducting samples. We will discuss these results and how they fit into the trends seen for other hole-doped cuprates.

> John Schneeloch Brookhaven Natl Lab

Date submitted: 11 Nov 2016 Electronic form version 1.4