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Correlation strength and Tc: quantum oscillations in $YBa_2Cu_4O_8$ under hydrostatic pressure C PUTZKE, L MALONE, University of Bristol, S BADOUX, B VIGNOLLE, D VIGNOLLES, W TABIS, LNCMI-Toulouse, P WALMSLEY, M BIRD, N.E. HUSSEY, University of Bristol, C PROUST, LNCMI-Toulouse, A CARRINGTON, University of Bristol — The unusual normal state electronic structure of the cuprates is widely believed to be at the heart of understanding high-temperature superconductivity in these materials. Recent quantum oscillation measurements in $YBa_2Cu_3O_{7-d}$ (Y123) have found a strong increase in the quasiparticle effective mass close to two separate critical points in the temperature-doping phase diagram [1]. Here we present a study of quantum oscillations in the double chain cuprate superconductor $YBa_2Cu_4O_8$ (Y124). Instead of varying the doping by changing d (in Y123) we study the evolution of the quantum oscillations under hydrostatic pressure. Pressure increases T_c by around 0.6K/kbar, primarily, it is thought, by increasing charge transfer between the chains and planes. Unlike in Y123, where the increase in T_c close to optimal doping is accompanied by a strong increase in quasiparticle mass, in Y124 we find that the mass decreases. Our results suggest that the mechanism that leads to the mass enhancement in the cuprates (most likely the emergence of a competing charge density wave instability) does not directly lead to an enhancement of the superconducting critical temperature. References [1]: B.J. Ramshaw *et al.* Science 348, 6232 (2014

Carsten Putzke
University of Bristol

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