

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Depressions of T_C in the superconducting dome of La-Bi2201 and PbLa-Bi2201 L. DUDY, Univ. of Michigan / HU Berlin, B. MÜLLER, A. KRAPF, H. DWELK, O. LÜBBEN, A.K. ARIFFIN, C. JANOWITZ, R. MANZKE, HU Berlin — In the generic phase diagram of the hole-doped cuprates, the superconducting transition temperature (T_C) versus hole-doping is typically illustrated as a flipped parabola which exhibits the maximum at around 16% of hole doping. But there is also the possibility of a generic existence of depressions within this superconducting dome: At certain hole-dopings, the T_C drops. For $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$, the famous 1/8 depression [1] is widely accepted. $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ also exhibits this 1/8 depression, but other fractional depressions (“magic doping fractions”) are suggested for this material [2]. We will show that for two structurally quite different single-layered Bi cuprates, namely La-Bi2201 and PbLa-Bi2201, also depressions at certain hole dopings exist. Possible consequences of the assumed generality of these depressions will be discussed.

[1] A. R. Moodenbaugh et al., Phys. Rev. B 38, 4596 (1988).

[2] S. Komiya et al., Phys. Rev. Lett. 94, 207004 (2005).

L. Dudy
Univ. of Michigan

Date submitted: 22 Dec 2009

Electronic form version 1.4