

Abstract Submitted  
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**Vortex phase diagram of nearly stoichiometric  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$  single crystal**<sup>1</sup> NORIKO CHIKUMOTO, Superconductivity Research Laboratory, ISTEK — There have been a large number of reports on the vortex phase diagram of Bi2212. However, the Bi2212 crystals used for these studies mostly have Bi-rich composition, with typically Bi : Sr = 2.1 : 1.9. Recently, Eisaki *et al.* [1] reported that  $T_c$  in Bi2212 single crystal is largely depressed by the cation disorder at the Sr-site, typically the substitution of Sr-site by  $\text{Bi}^{3+}$ . In the present study, we found that the Bi-Sr substitution also depress the vortex pinning. We have successfully grown Bi2212 single crystals with Bi : Sr ratio very close to 2 : 2. It showed very high critical current density,  $2 \times 10^6$  A/cm<sup>2</sup>, at 20K, and reduced reversible region ( $J_c = 0$  region) in the magnetic phase diagram. We also show the dependence of the irreversibility field on the cation nonstoichiometry. The author thanks K. Furusawa, H. Eisaki and Y. Nakayama for growing Bi2212 single crystals.

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