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Transport property of Cu-intercalated Bi_2Se_3 ATSUTAKA MAEDA, TAIKI YOSHINAKA, YOSHINORI IMAI, Dept. of Basic Science, the University of Tokyo, RYUSUKE KONDO, Dept. of Physics, Okayama University — $Cu_xBi_2Se_3$($T_c \sim 3.8$ K)[1] is a promising candidate material to be a topological superconductor, and it is very important to clarify the origin of its superconductivity. However, $Cu_xBi_2Se_3$ synthesized by Hor *et al.* does not show zero resistivity below T_c [1], and some concerns still remain in the quality of samples. Recently, several groups reported the successful preparation of Cu-intercalated Bi_2Se_3 with zero resistivity by an electrochemical method [2] and the Bridgman method [3]. Here, we report transport properties of single crystals of $Cu_xBi_2Se_3$ with zero resistivity prepared by the Bridgman method. We stress that the process of the quenching from a temperature of about 1000 K into cold water is of crucial importance in the crystal growth process. The grown crystal with $x = 0.10$ shows zero resistivity at about 3.2 K. We also report the results of the intercalations of different metal elements [4].

[1] Y. S. Hor *et al.*, PRL 104 (2010) 057001.
[2] M. Kriener *et al.*, PRL 106 (2011) 127004.
[3] T. Kirzhner *et al.*, arXiv:1111.5805. T. V. Bay *et al.*, arXiv:1112.0102.
[4] Y. Imai *et al.*, J. Phys. Soc. Jpn. 81 (2012) 113708.

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