

Abstract Submitted
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Crystal structure and superconducting properties in $\text{Cu}_x\text{Bi}_2\text{Se}_3$
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University of Tsukuba — The recent discovery of the anomalous superconductivity
in $\text{Cu}_x\text{Bi}_2\text{Se}_3$ ($0.10 < x < 0.25$) has attracted much attention because of the relation
between superconducting state and topological surface state. In order to understand
the role of Cu doping in superconducting Bi_2Se_3 , we study the doping dependence
of the magnetic properties and the characteristics of crystal structures. We made
high quality of $\text{Cu}_x\text{Bi}_2\text{Se}_3$ single crystals with several doping level of x by using melt
growth technique. We confirmed the superconducting transition from $\text{Cu}_x\text{Bi}_2\text{Se}_3$ for
several doping levels and determined the phase diagram of a function of x . The lattice
constant increases with increasing Cu doping level, however it saturated around
 $x=0.25$ which corresponds to the saturation of T_c as well. We analyzed the crystal
structure in detail in explaining the occurrence of superconductivity. Details of the
structural and magnetization study will be discussed in the conference.

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