Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

The effects of Zn doping on magnetic properties of $Cu_3Bi(SeO_3)_2O_2Cl$ PEI-YING YANG, WU-JYUN TSENG, HUNG-CHENG WU, D.CHANDRASEKHAR KAKARLA, HUNG-DUEN YANG, Low Temperature Physic Lab,Department of Physics,Natl Sun Yat Sen Univ, DEPARTMENT OF PHYSICS,NATL SUN YAT SEN UNIV TEAM — Recently, layered spin-frustrated $Cu_3Bi(SeO_3)_2O_2Cl$ has received considerable research attention due to its unusual magnetic properties. Two inequivalent Cu^{2+} ions form a pseudo-kagome lattice that invokes spin frustration and anisotropic magnetic properties. In this study, the influence of Zn doping on the complex magnetic properties has been explored. Polycrystalline $(Cu_{1-x}Zn_x)Bi(SeO_3)_2O_2Cl$ (0 x 0.5) samples were synthesized using solid-state reaction and characterized by X-ray diffraction and magnetic measurements. The Zn doping strongly modulates the magnetic ground state of the system. The antiferromagnetic transition temperature $T_N = 24$ K and magnetic field-induced hysteresis observed for x = 0 at low field are systematically shifted to lower temperature and reduced with Zn doping. These results can illustrate the insight of the occurrence of field-induced spin-flip type multiferroics in $Cu_3Bi(SeO_3)_2O_2Cl$.

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Date submitted: 17 Nov 2016 Electronic form version 1.4