Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Pressure effects on the physical properties of Kagome $Cu_3Bi(SeO_3)_2O_2Cl$ metamagnet WU-JYUN TSENG, HUNG-CHENG WU, PEI-YING YANG, D CHANDRASEKHAR KAKARLA KAKARLA, HUNG-DUEN YANG, Low temperature physics Lab, Department of physics, National Sun Yat-Sen University, LOW TEMPERATURE PHYSICS LAB, DEPARTMENT OF PHYSICS, NATIONAL SUN YAT-SEN UNIVERSITY TEAM — The effects of pressure on the structural and magnetic properties have been studied in Kagome $Cu_3Bi(Se_{1-x}Te_xO_3)_2O_2Cl$ polycrystalline samples. The initial crystal structure P_{mmn} is gradually converted to P_{cmn} space group when $x \geq 0.6$, which could be determined by synchrotron X-ray diffraction, Raman spectroscopy, and magnetization measurements. The antiferromagnetic transition temperature (T_N) and the critical field (H_C) of metamagnetic spin-flip transition increase, but the value of saturation magnetization (M_S) decreases with Te doping concentration. Under external pressure, the T_N and M_S increase, while the H_C reduces. These anisotropic pressure results could be explained by the modulation of competition between ferromagnetic intralayer and antiferromagnetic interlayer interactions. The route to control the metamagnetic spin-flip transition by anisotropic pressure effects might be helpful to understand the mechanism of field- induced multiferroic $Cu_3Bi(SeO_3)_2O_2Cl$

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Date submitted: 12 Nov 2016 Electronic form version 1.4