

Abstract Submitted
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Effect of Zn substitution on the magnetic properties of Skyrmion Cu_2OSeO_3 TIEN-YU WEI, HUNG-CHENG WU, KAKARLA DEVI CHANDRASEKHAR, HUNG-DUEN YANG, Natl Sun Yat Sen Univ, NATIONAL SUN YAT-SEN UNIVERSITY TEAM — There is a considerable interest in the new magnetic state, the “Skyrmion state (A-phase),” whose magnetic properties have a remarkable characteristic as a vortex-like spin orientation. The polycrystalline $(\text{Cu}_{1-x}\text{Zn}_x)_2\text{OSeO}_3$ ($x=0$ to 0.20) samples were synthesized using solid state reaction method and studied by X-ray diffraction, X-ray absorption spectra and magnetic measurements. Variation of lattice constant with Zn doping follows the Vegard’s law which signifies the successful substitution of Zn in place of Cu up to x less than 0.20 . The Cu $L_{2,3}$ spectra show $2+$ valence state for all samples. The Curie temperature decrease with Zn doping indicate the ferrimagnetic ordering is gradually suppressed. Moreover, we have notice another magnetic phase for the doping level x between 0.05 and 0.2 , whose magnetic transition also shifted to low temperature for higher Zn doping. The H-T magnetic phase diagrams of the samples from ac susceptibility have been established with increasing Zn doping. The explanations for the observations of doping effects on the A-phase of Skyrmion Cu_2OSeO_3 will be discussed.

Hung-Duen Yang
Natl Sun Yat Sen Univ

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