

Abstract Submitted  
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**Effect of chemical substitution on magnetic and charge transport behavior of MnSi.** CHETAN DHITAL, RONGYING JIN, DAVID YOUNG, JOHN DITUSA, Louisiana State University — The cubic non-centrosymmetric  $B20$  compound MnSi has gained renewed interest after the discovery of skyrmion lattice within a small range of temperature and magnetic field [1]. This unique spin texture results from the specific reorientation of helices where the period of one such helix is determined from two energy scales, the Dzyaloshinskii-Moriya interaction strength ( $D$ ) and the Heisenberg exchange interaction ( $J$ ) i.e.  $\lambda \sim J/D$  [1]. We are currently exploring the tuning of these energy scales and the stabilizing the skyrmion lattice by chemical substitutions on either the Mn or Si site. Our combined charge transport, magnetization and neutron scattering investigation indicates that significant change in the magnetic and charge transport behavior can be induced by simple chemical substitutions in MnSi [2]. I will discuss our results indicating the readjustments of these energy scales thereby influencing the size of the helix and consequently the region of field and temperature stability of the skyrmion lattice phase. 1. Mühlbauer, S., et al. "Skyrmion lattice in a chiral magnet." *Science* 323.5916 (2009): 915-919. 2. Dhital, C., et al. "Effect of Negative Pressure on the Prototypical Itinerant Magnet MnSi". *arXiv preprint arXiv:1609.08181*.

Chetan Dhital  
Louisiana State University

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