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**Topological semimetal $Sr_{1-y}Mn_{1-Z}Sb_2$** JINYU LIU, JIN HU, Tulane Univ, DAVID GRAF, National High Magnetic Field Lab, S.M.A. RADMANESH, D.J. ADAMS, Univ. of New Orleans, Y.L. ZHU, G.F. CHEN, X. LIU, J. WEI, Tulane Univ, I. CHIORESCU, National High Magnetic Field Lab Florida State Univ., L. SPINU, Univ. of New Orleans, Z.Q. MAO, Tulane Univ — Recent discoveries of topological Weyl semimetals in noncentrosymmetric monopnictides TX (T=Ta/Nb, X=As/P) [1-4] and photonic crystals [5] have generated immense interests since they represent new topological states of quantum matter. Time reversal symmetry (TRS) breaking Weyl semimetal was also recently reported in YbMnBi2 [6]. In this talk, we report a new type of topological semimetal phase arising from two-dimensional Sb layers in $Sr_{1-y}Mn_{1-z}Sb_2$ ($y$, $z$<0.1), which coexists with ferromagnetism. Through quantum transport measurements on this material, we reveal remarkable signatures of relativistic fermions, including light effective quasiparticle mass, high carrier mobility, a $\pi$ Berry phase and valley polarized interlayer conduction. Given $Sr_{1-y}Mn_{1-z}Sb_2$ shows ferromagnetism, it offers a wonderful opportunity to explore the TRS breaking Weyl state. [1]. H. Weng *et al.*, *Phys. Rev. X* **5**, 011029, (2015). [2]. S.M. Huang *et al.*, *Nature Commun.* **6**, (2015). [3]. S.Y. Xu *et al., Science* **349**, 613-617 (2015). [4]. B.Q. Lv *et al., Phys. Rev. X* **5**, 031013, (2015). [5]. L. Lu *et al.*, *Science* **349**, 622-624 (2015). [6] S. Borisenko *et al., arXiv:1507.04847*, (2015). [7] J.Y. Liu et al., *arXiv:1507.07978*, (2015).

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