

Abstract Submitted  
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**Scanning Tunneling Microscopy study and unusual transport properties of the topological semimetal a-Sn.** JIAWEI RUAN, Nanjing Univ — Weyl semimetals are new states of quantum matter with topological Weyl nodes near Fermi level in the bulk and Fermi arcs at the surface, which are paid a lot attention in recently years. Here we report another topological semimetal a-Sn., which is double Weyl semimetal in the magnetic field and Dirac semimetal in an appropriate in-plane strain. By combining Landau level spectroscopy and quasiparticle interference, we obtain the linear dispersion near the Dirac point within strain while quadratic band dispersion near  $\Gamma$  point without strain. We also observe the negative longitudinal magnetoresistance (LMR) in both two systems, which is caused by chiral anomaly. However, the LMR profiles of strained a-Sn have a little rise and then descend while the unstrained one drops directly, which is due to the different type of Weyl semimetal and further confirms our prediction.

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