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Strain induced enhancement of magnetoresistance in Weyl semimetal $MoTe_2$. JUNJIE YANG, DESPINA LOUCA, Department of Physics, University of Virginia — Recently $MoTe_2$ that belongs to the type II Weyl semimetals, has attracted considerable attentions because of its intriguing topological physics as well as its potential applications in information technology. For instance, an extremely large magnetoresistance (MR) that is crucial for either sensitive magnetic sensors or the basic elements in magnetic random access memories, has been observed in $MoTe_2$. More interestingly, it was also found that external pressure can dramatically enhance its superconducting transition temperature. Strain is another novel method to tune the physical properties of materials. Tuning the physical properties of Weyl semimetal by strain has not been reported to date. Here, we present the evidence from an electric transport experiment on a single crystal $MoTe_2$, that the strain can significantly enhance the MR by around 28%. From the measurements, we observed that the enhancement of MR induced by strain increases with decreasing temperature and also increases with increasing magnetic field. It reaches a maximum value of 28% at 2 K at 9 T. The observed strain induced enhancement of MR in $MoTe_2$ provides insights into the interplay between strain and the topological physics.

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