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Title:	Observation of planar Hall effect in the ferromagnetic Weyl semimetal Co <sub>3</sub> Sn <sub>2</sub> S <sub>2</sub>
Authors:	Shama (/jspui/browse?type=author&value=Shama) Gopal, R.K. (/jspui/browse?type=author&value=Gopal%2C+R.K.) Singh, Yogesh (/jspui/browse?type=author&value=Singh%2C+Yogesh)
Keywords:	Ferromagnetic materials Topology Anomalous hall effects Chiral anomaly Magneto-transport measurement
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Citation:	Journal of Magnetism and Magnetic Materials, 502
Abstract:	We report detailed magneto-transport measurements on single crystals of the magnetic Weyl semi-metal Co <sub>3</sub> Sn <sub>2</sub> S <sub>2</sub> . Recently a large anomalous Hall effect and chiral anomaly have been reported in this material which have been suggested to be related to the large Berry curvature between the Weyl points (Liu et al., Nature Physics (2018).). Another effect expected to result from the topological band structure of Weyl materials is the planar Hall effect (PHE). In this work we indeed observe PHE in single crystals of Co <sub>3</sub> Sn <sub>2</sub> S <sub>2</sub> . However, PHE is observed for temperatures $\leq$ the ferromagnetic ordering temperature $T_c=175$ K. Therefore we conclude that most likely the PHE can't be connected to the Topological character of Co <sub>3</sub> Sn <sub>2</sub> S <sub>2</sub> . We also did not observe the Chiral anomaly induced negative longitudinal MR.
URI:	<a href="https://www.sciencedirect.com/science/article/pii/S030488531933183X?via%3Dihub">https://www.sciencedirect.com/science/article/pii/S030488531933183X?via%3Dihub</a> ( <a href="https://www.sciencedirect.com/science/article/pii/S030488531933183X?via%3Dihub">https://www.sciencedirect.com/science/article/pii/S030488531933183X?via%3Dihub</a> ) <a href="http://hdl.handle.net/123456789/3388">http://hdl.handle.net/123456789/3388</a> ( <a href="http://hdl.handle.net/123456789/3388">http://hdl.handle.net/123456789/3388</a> )
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