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**Topological Weyl Semimetal Materials: Charge and Spin Transport in the Bulk**

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Thus far Weyl semimetals have been discovered in many materials such as TaAs (type-I) and MoTe2 (type-II). In this talk, I will first introduce themagneto-transport properties of TaAs- and MoTe2-type Weyl materials, where large magnetoresistance with strong quantum oscillations commonly exists [1,2]. We have reconstructed the 3D bulk Fermi surfaces from the quantum oscillations and band structure calculations [3,4,5], so that their magneto-transport behaviour can be furtherunderstood. Based on the band structure of Weyl materials, I will demonstrate the large spin Hall effect in both type-I and type-II Weyl semimetals [6]. The spin Hall effect, which can convert the charge current to spin current efficiently, not only paves a way for the application in spintronics, but also indicates a new guideline to design Weyl and Dirac semimetals from the pool of spintronic materials [7]. References: [1] Nature Phys. 11, 645 (2015).[2] Nature Comm. 7, 11038 (2016). [3] Phys. Rev. B 93, 121105 (2016). (2016). [4] Phys. Rev. Lett. 117, 146401 (2016). [5] Nature Comm. 7, 11615 (2016). [6] Phys. Rev. Lett. 117, 146403 (2016). [7] arXiv:1608.03404 (2016).