

Sunday, July 17, 2016

Reading List for Boulder Summer School Lectures 2016.

“Weyl Semimetals, Duality and Symmetry Protected Topological Phases”.

Ashvin Vishwanath (Harvard University)

Weyl Semimetals:

Review Articles:

1. Turner and Vishwanath, arXiv:1301.0330. Beyond Band Insulators: Topology of Semi-metals and Interacting Phases

Basic reference both for Weyl semimetals and SPT phases

2. Housr and Qi, arXiv:1309.4464. Recent developments in transport phenomena in Weyl semimetals.

Well written review focusing on transport properties

3. Edward Witten, arXiv:1510.07698. Three Lectures On Topological Phases Of Matter

Very clear overview of topological properties of condensed matter systems with substantial discussion of Weyl semimetals.

4. Anton Burkov, arxiv:1502.07609. Chiral anomaly and transport in Weyl metals

Detailed derivation of transport properties, chiral anomaly etc.

Research papers:

Fermi Arc Surface States:

1. Wan et al. arXiv:1007.0016. Electronic Structure of Pyrochlore Iridates: From Topological Dirac Metal to Mott Insulator
2. Haldane arXiv:1401.0529. Attachment of Surface "Fermi Arcs" to the Bulk Fermi Surface: "Fermi-Level Plumbing" in Topological Metals

Symmetry Requirements for Band Crossing:

3. Murakami arXiv:1006.1188. Gap closing and universal phase diagrams in topological insulators

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Quantum Oscillations and Fermi Arcs

4. Potter et al, arXiv:1402.6342. Quantum Oscillations from Surface Fermi-Arcs in Weyl and Dirac Semi-Metals.

5. Zhang et al, arXiv:1512.06133. Quantum oscillations from generic surface Fermi arcs and bulk chiral modes in Weyl semimetals

6. Moll et al. arXiv:1505.02817

Chirality transfer dynamics in quantum orbits in the Dirac semi-metal Cd₃As₂

Articles on Duality and Symmetry Protected topological phases to be added...