Topological Semi-metals

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Abstract

In additional to topological insulator, the topological semimetal is a new non-trivial state with Fermi points in the bulk and Fermi arcs on the surface. In this talk, I will start from topological insulators, and then move to our recent studies for topological semimetals. I will discuss several possible realizations of those non-trivial states, based on first-principles calculations. In particular, I will address the Weyl semimetal state in $HgCr_2Se_4$, and the Dirac semimetal state in Na_3Bi protected by crystal symmetry.

About the speaker

Prof Fang Zhong received his PhD in 1996 from the Huazhong University of Science and Technology. Then he visited Japan and USA from 1996 to 2003. He returned back to the Institute of Physics, Chinese Academy of Sciences, in 2003. Science then he worked there as a professor. His research interests are mostly on the computational condensed-matter physics, including the development of first-principles methods, correlated electron systems, the spin & orbit physics, and more recently the topological insulators. He has published about 100 papers, which were cited for more than 5700 times. He was elected as a Fellow of the American Physical Society in 2011, and he was the recipient of ICTP prize in 2008, and the OCPA prize in 2012.