

专题学术讲座

Electronic topological transitions(Lifshitz transitions of the $2^{1/2}$ order)



Speaker:
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讲座摘要:

In the present review an attempt to survey the physics of electronic topological transitions from the very first paper until the recent achievements is made. The presentation is started from the description of possible topological singularities in electronic spectra of metals. Then the singularities of thermodynamical and transport properties of a metal in the vicinity of ETT will be discussed. The transport phenomena including behavior of conductivity and thermoelectric coefficient in the vicinity ETT are discussed in the frameworks of both simple Boltzmann equation and diagrammatic approaches.

The second part of the lecture will be devoted to the discussion of the modern problems of ETT physics, applications of it to the study of 2D systems, graphene, and heavy fermion compounds.

主讲嘉宾:

Andrey Varlamov was born April, 25, 1954 in Kiev (Ukraine). In 1977 got Master's degree cum laude at the Moscow Institute for Physics and Technology. In 1980, under supervision of Alex Abrikosov, he was awarded his Ph.D. in Condensed Matter Physics. He worked as a researcher, associate professor, and full professor of the Department of Theoretical Physics of the Moscow Institute for Steel and Alloys (Technological University, then as the fellow at the Condensed Matter Theory Group of Argonne National Laboratory (USA). Since 1999 he has been the principal investigator of the Institute of Superconductivity, Innovative Materials, and Devices of the Italian National Research Council (CNR-SPIN). Andrey Varlamov was awarded the USSR State Prize in Physics for young scientists (1986), Bogolyubov Prize (Ukraine, 2018), the degree of Doctor of Sciences (Habilitation) in Condensed Matter Physics (1988), degrees of Doctor Philosophiae Honoris Causa of Bogolyubov Institute for Theoretical Physics (Ukraine, 2011), Mediterranean Institute of Fundamental Physics (Italy, 2014), title of the "Honorable Scholar of the Russian Federation" (2016). He is also a member-correspondent of Istituto Lombardo Accademia di Scienze e Lettere (Milano, 2009). His book "Le kaleidoscope de la Physique" was awarded Prix Grand Public Roberval (France, 2015). His main fields of scientific interests are: superconductivity, theory of metals, theory of phase transitions, and nanophysics. The author of fifteen books, five monographic review articles, 160 scientific papers, A. Varlamov is also a member of the Editorial Board of the Russian Academy of Sciences popular science magazine "Kvant" (where for many years he executed the duties of the vice-Editor in Chief).

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地点: 西湖大学云栖校区4号楼709会议室

主持人: Alexey Kavokin教授