15 Dec **Wednesday** **1:30 – 2:15** **Chair: GONG Jiangbin (龚江滨)**

Novel Topological States and Phase Transition in Magnetic Materials

Professor XU Gang (徐刚), Huazhong University of Science & Technology, China

Professor XU Gang received his Ph.D. in 2010 from Institute of Physics, Beijing. Since 2016, he has worked at Wuhan National High Magnetic Field Center at Huazhong University of Science and Technology. In 2018, Professor XU was awarded the Youth Project (Project Leader) of the National key R&D Program of the Ministry of Science and Technology. He also won the "2018 Chinese Academy of Sciences Outstanding Scientific and Technological Achievement Award (group award)". Mainly engaged in first-principles calculations and theoretical research on novel properties and materials, Professor XU's research interests include: strong correlation and unconventional superconductivity, topological material states, new two-dimensional functional materials, etc. Professor XU has published more than 50 papers on the high-level international journals, with more than 8,000 citations in total.

Abstract:

In Magnetic materials, the time reversal symmetry is broken, but its combinations with some crystalline symmetries, named as crystalline time reversal symmetry (CTRS), are preserved, which can induce many novel topological states and phase transition. I will introduce some new works in this direction. 1. Antiferromagnetic (AFM) Dirac semimetals (DSMs) realized in the interlayer AFM EuCd2As2. 2. Two new type of topological superconductor (TSC) phase in the 1-dimensional (1D) C_4z T and C_6z T system, which are beyond the AZ-classes. 3. Concurrence of topological electrons and magnons in the Kagome magnet CoCu3(OH)6Cl2, and topological phase transitions triggered by the exchange interaction J or Coulomb interaction U.