Weekly Seminar

Oxides Spintronics

Jian Shen

Department of Physics, Fudan University

Time: 3:00pm, May. 10, 2023 (Wednesday)

时间：2023年5月10日 （周三）下午3:00

Venue: Room w563, Physics building, Peking University

地点：北京大学物理楼，西563会议室

Abstract

Physics of magnetic domains of conventional magnetic materials can be well described by minimization Landau-Lifshitz free energy. However, for magnetic oxides, competition between various types of exchange interactions has often led to complex magnetic domain structures that are far from being understood. One of the most typical example is the domain structure in colossal magnetoresistive manganites, which is featured by spatial coexistence of ferromagnetic, antiferromagnetic and even spin glass domains. These domains are not only in different magnetic states, but are also in different conducting states. Based on the understanding of the physical origin of the complex magnetic domains in oxides, we have developed various methods to control the domain patterns in oxides and fabricated various spintronic devices.

About the speaker

Jian Shen received his Ph.D from Max-Planck Institut f. Mikrostrukturphyisik in 1996, and became a staff scientist in Oak Ridge National Laboratory in 1998. He joined Fudan university in 2010 as the HaoQing chair professor and the head of physics department, and was elected as APS fellow in 2011. He is the director of state key lab for surface physics and the director of institute of nanoelectronics and quantum computing at Fudan University. His research interest is on the investigation of emerging phenomena at surface/interface and in reduced dimensionality. His past research has received a number awards including 2003 US Presidential Early Career Award for Science and Engineering (PECASE), the Otto-Hahn Medal from Max-Plank Society in Germany, the National Chair Professorship from Chinese government, and the oversea outstanding young researcher award from Chinese NSF.

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