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Symmetry control of ferromagnetism in single atomic layer SrRuO₃

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地点: 北京大学物理大楼中212大教室

摘要 (Abstract): It is well known that “the interface is the device”. The interface phenomena in the transition metal oxides are very different from other material systems due to their extremely short screening length. The interface region in transition metal oxides is typically of a few atomic layers, in which both interface physics and interface chemistry are heavily involved. Nevertheless, there have been numerous emergent phenomena observed near the oxide interfaces, such as the 2D electron gas, coexistence of superconductivity and ferromagnetism, enhanced superconductivity, etc. Recently, there have been strong interests in realizing the spin polarized 2D electron gas for a number of reasons. The transition metal oxides stand as a great candidate due to the tunable electron and spin degrees of freedom using a number of tuning knobs, including the lattice symmetry, charge transfer, orbital order, etc. Here we focus to study the SrRuO₃ single atomic layer with strong spin orbit coupling in order to protect the magnetic anisotropy and the long range magnetic order. It is found that the magnetism of the 2D atomic layer is strongly dependent on the lattice symmetry, the electron correlation and the associated orbital ordering.

报告人简介 (Aboutspeaker): 翟晓芳2008年博士毕业于伊利诺伊大学物理系, 之后在加州大学伯克利分校从事博士后研究。2010年回国后在中国科学技术大学工作, 2020年开始在上海科技大学物质学院工作, 任研究员/课题组长。长期从事氧化物薄膜研究, 主要通过分子束外延、激光脉冲沉积方法制备氧化物薄膜。

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