NSYSU physics

書報討論 Weekly Seminar

Interplay of Magnetism and Ferroelectricity in Emerging Multiferroic Materials

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Multiferroic materials, in which magnetic and electric orders coexist and are intrinsically coupled, represent an important frontier in condensed-matter physics and functional materials research. The strong interplay among spin, charge, orbital, and lattice degrees of freedom gives rise to rich physical phenomena and offers promising routes toward next-generation low-power spintronic and magnetoelectric devices. In this talk, I will briefly introduce the fundamental mechanisms of multiferroicity and highlight our recent experimental results on emerging multiferroic materials. I will discuss three representative systems: (1) exotic field-induced multiferroicity in $Fe_2(MoO_4)_3$ L-type ferrimagnetic systems, (2) polar-lattice-driven multiferroic ground states, where structural polarity and magnetic correlations lead to unconventional multiferroic behavior. The talk will conclude with perspectives on the discovery of new quantum and topological multiferroics and their potential for future multifunctional electronic and spintronic technologies.

future seminars