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MMQ07 : Oxides for Spintronics: Fundamentals and Applications

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Invited Speakers: to be confirmed

Content:

Magnetic oxides represent one of the most versatile fields in materials research, combining rich physics with compelling opportunities for technological innovation. Their wide spectrum of desirable properties for spintronic applications — from ferromagnetism and antiferromagnetism to multiferroicity, half-metallicity, and strong spin–orbit coupling — arises from the intricate interplay between charge, spin, orbital, and lattice degrees of freedom. More importantly, these properties can easily be tailored through strain, stoichiometry, doping, dimensionality, and interface design. For all these reasons, oxides are at the center of the rapidly-evolving fields of spintronics and orbitronics, where their ability to enable spin- or orbit-to-charge interconversion, magnon transport in insulating systems, and magneto-ionic control of magnetism provides pathways toward novel low-power memory, logic, and sensing devices.

This symposium aims to bring together experimentalists and theoreticians from physics, materials science, and engineering to explore the most recent developments in oxides and their integration into spintronics and orbitronics concepts and devices.