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【615】Effect of epitaxial strain on the spin and spin-orbital excitations of Sr2IrO4 observed by Resonant Inelastic X-ray Scattering (RIXS)

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The sensitivity of the Jeff = 1/2 state of Sr2IrO4 to local coordination and structural distortions suggests epitaxial strain as an ideal route for manipulating this exotic ground state. As recently demonstrated, oxygen K-edge RIXS is capable to capture magnetic excitations in 5d-oxides [1]. From O K-edge RIXS on roughly 20-nm thick Sr2IrO4 films we observed the low-energy elementary excitations encompassing single magnons, bimagnons and spin-orbital excitations and their dispersion relations. In this talk, I will present a direct observation of the evolution of these low-energy quasiparticle excitations and spin dynamics upon epitaxial strain in the Jeff = ½ Mott insulator Sr2IrO4.

[1] X. Lu et al, manuscript submitted

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