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【219】 Enhancing magnetism in ultrathin $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$ films using antiferromagnetic buffer layers

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We study the effect of antiferromagnetic buffer layers (insulating LaMnO_3 and metallic $\text{La}_{0.45}\text{Sr}_{0.55}\text{MnO}_3$) on the magnetism of epitaxial ultrathin $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$ (LSMO) films, grown by molecular beam epitaxy and studied by x-ray magnetic circular dichroism as a function of temperature and thickness. We find a non-monotonic variation of the moment in the LSMO films grown on LaMnO_3 (which display a magnetic moment) and a bulk-like moment at 5 unit cells thickness; films grown on $\text{La}_{0.45}\text{Sr}_{0.55}\text{MnO}_3$ seem to adopt the properties of the buffer layer (reduced moments). The results highlight the role of the buffer layer properties in understanding the effects of charge/spin exchange for controlling the magnetic properties of ultrathin LSMO.

Primary authors: Dr FERNANDES VAZ, Carlos Antonio (Paul Sherrer Institute); STRAMAGLIA, Federico (PSI); Prof. NOLTING, Frithjof (Paul Sherrer Institute)

Presenter: STRAMAGLIA, Federico (PSI)

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