Complex magnetism At transition MEtal Oxide interface (CAMEO)

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ABSTRACT

The investigation of 4d and 5d transition metals oxides has received considerable attention in the last decade, due to the rich and exotic physics. 4d and 5d materials are moderately correlated systems, showing a significant sensitivity of their electronic properties to the lattice structure, e ffective dimensionality and relativistic effects, driven by strong spin-orbit coupling. To explore such physical scenario, we consider a relevant and representative platform of 4d and 5d based oxide interfaces made of ruthenates and iridates. Such case study is a prototype for the study of magnetically active interfaces in the presence of strong spin-orbit coupling.

The goal of the present project is to study the interplay between electronic correlations, structural distortions and spin orbit coupling in order to understand the mechanisms for the formation of new complex ordered phases at the SrRuO3/SrIrO3 interface. The present project deals with materials having a high technological potential for the achievement of novel spintronics and spinorbitronics devices.