

PHOTOELECTRON SPECTROSCOPY OF $\text{Pr}_{1-x}\text{Ca}_x\text{MnO}_3$ AND $\text{Sr}_2\text{FeMoO}_6$ PEROVSKITE THIN FILMS

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$\text{Pr}_{1-x}\text{Ca}_x\text{MnO}_3$ (PCMO) and $\text{Sr}_2\text{FeMoO}_6$ (SFMO) perovskite oxide films have several interesting properties related to hybrid spintronic devices and applications of magnetoresistive materials, which offer more functionality and performance than the conventional solutions. It is known that the ferromagnetic double exchange interaction in mixed valence manganites (PCMO) is extremely sensitive to the $\text{Mn}^{3+}/\text{Mn}^{4+}$ ratio which was investigated as a function of Ca concentration (x) and temperature. The fabrication of SFMO thin films is difficult due to easily formed impurity phases, oxygen non-stoichiometry and antisite disorder, where Fe and Mo ions swap their places in the structure. We have used Hard X-ray Photoelectron Spectroscopy (HAXPES) to carry out bulk sensitive studies of PCMO and SFMO to better understand these phenomena and the electronic structure of the thin films.