Origin of the In-Gap States in the 3d Perovskite Oxide $SrTiO_3$ Doped with Ni

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Abstract. We present photoemission spectroscopy study on a series of high quality monocrystalline thin films of $SrTiO_3$ (100) doped with 6% and 12% of Ni, exhibiting potentially interesting properties for future solar cells [1]. We identify the role of correlations of the localized *3d* in-gap states of Ni on the two-dimensional metallic state formed at the surface of $SrTiO_3$. Using the advantages of resonant angle-resolved photoelectron spectroscopy (RES-ARPES) [2] for the study of correlated systems, we could establish the elemental character and type of hybridizations of the valence band, in-gap states and Fermi states.

REFERENCES

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