

MaMaSELF



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Structural and electronic correlations in PSNO_x

Structural and electronic ordering in co-doped nickelates compounds, such as $\text{Pr}_{2-x}\text{Sr}_x\text{NiO}_{4+\delta}$, leads to a complex phase diagram and interesting physical properties. Interstitial oxygen ordering has been shown to be the fundamental for the high oxygen ion mobility, making of this material a model for SOFCs electrodes. On top of that, charge and spin ordering, in the form of stripes and checker-boards, yields to the exotic physics that is shared with high- T_c superconductors. One of the frontiers that still need more investigation in these type of materials is the possible correlation between oxygen and electronic ordering, together with their related dynamics, which are taken into consideration in this study. High-quality single crystals, with different oxygen and Sr-content, were grown and preliminary characterized via STOE at the ICGM of Montpellier and successively measured through single crystal diffraction at ESRF (ID28 side-station) and neutron scattering at FRM II (PUMA), to have an insight on this possible structural-electronic correlation. Preliminary findings from this Master thesis project will be presented and commented, showing the progress achieved up to the present moment.

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