**MS24-O2 Spin, charge and momentum densities of YTiO3 perovskite**

Mohamed Souhassou¹, Youfack Bolivard, Nicolas Claiser, Maxime Deutsch, Claude Lacomte, Jean Michel Gillet², Pietro Cortona², Zeyin Yan³, Iurii Kibalin⁴, Béatrice Gillon⁴, Florence Porcher⁵, Arsen Gukasov⁵, Yoshiharu Sakurai⁵, Masayoshi Itou⁵, Masahisa Itoh⁵

1. CRM² Université de Lorraine Nancy France
2. Laboratoire SPMS, CentraleSupelec, Université Paris-Saclay, France
3. Laboratoire Leon Brillouin, CEA/CNRS, France
4. JASRI/ SPring8, Japan
5. Gunma University, Japan

email: Mohamed.Souhassou@univ-lorraine.fr

High resolution X-ray (XRD) and polarized neutron diffractions (PND) are routinely used to model charge and spin densities of localized electrons, while inelastic Compton scattering (ICS) is a valuable mean for determining delocalized electrons. Our objective is to construct a unique electron density model common to these three experimental data sets. We have demonstrated that a joint refinement of a multipolar model based on polarized neutron and X-ray diffraction data is possible and brings more insight in the electron distribution [1].

The inclusion of ICS data implies to go beyond the atom centered model to take into account bicentric terms. As the multipolar model is thus no more adapted, a new model based on atomic orbitals under development will be discussed and applied to a YTiO3 perovskite crystal. This compound is ferromagnetic at low temperature (below 29K), suggesting that a single d electron (0.84mB/mol) mainly localized on the Ti atom gives rise to the magnetic interactions.


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