

X-ray powder diffraction

Complex physical properties are found in many transition-metal oxides; for instance superconductivity, metal-insulator or ferroelectric transitions. The crystal structure very often plays an important role in these phenomena. In the oxygen-deficient cobalt oxide $\text{YBaCo}_2\text{O}_{5.5}$, the metal-insulator transition at $T = 295 \text{ K}$ is accompanied with changes in the crystal structure. We will use synchrotron X-ray powder diffraction in order to follow the changes in the oxygen bond distances around the cobalt metal centres.