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# Effect of Strontium doping on the Oxygen Diffusion in La2-xSrxCuO4±δ samples Investigated by Oxygen Isotope Back Exchange

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In order to investigate the effect of strontium on the oxygen diffusion in as grown single crystals of La2-xSrxCuO4±δ (x =0, 0.05, 0.1, 0.15) we first did Oxygen Isotope Back Exchange (OIBE) experiments between 40 0C to 1000 0C We proved that free oxygen mobility can be realized for x = 0, 0.05 already below 500 0C but is depressed for x = 0.1 and 0.15. This gives evidence that low temperature oxygen mobility can be suppressed by replacing La with Sr. In order to correlate structure and oxygen diffusion as a function of temperature we did neutron diffraction measurement on grain free 0.15 single crystal on TriCS@PSI. We are planning neutron single diffraction measurements on grain free 0.05 single crystal on RESI@FRM II , both to be combined with X-ray single crystal data. SIMS (yields the diffusion constant and anisotropy on a macroscopic scale by observing the 18O diffusion on oriented single crystals) will support this on a macroscopic scale

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