

Supporting Information

Structural Investigations of $\text{La}_{0.6}\text{Sr}_{0.4}\text{FeO}_{3-\delta}$ under Reducing Conditions: Kinetic and Thermodynamic Limitations for Phase Transformations and Iron Exsolution Phenomena

Thomas Götsch^{a,#}, Lukas Schlicker^{b,#}, Maged F. Bekheet^b, Andrew Doran^c, Matthias Grünbacher^a, Corsin Praty^a, Mizuki Tada^d, Hirosuke Matsui^d, Nozomu Ishiguro^e, Aleksander Gurlo^b, Bernhard Klötzer^a, Simon Penner^{a,*}

^a Institute of Physical Chemistry, University of Innsbruck, A-6020 Innsbruck, Austria

^b Fachgebiet Keramische Werkstoffe, Institut für Werkstoffwissenschaften und -technologien,
Technical University Berlin, 10623 Berlin, Germany

^c Advanced Light Source, Lawrence Berkeley National Laboratory Berkeley, California
94720, USA

^d Department of Chemistry, Graduate School of Science, Nagoya University, Furo-cho,
Chikusa-ku, Nagoya 464-8601, Japan

^e RIKEN SPring-8 Center, Sayo, Hyogo 679-5148, Japan

These authors contributed equally.

*Corresponding author: Simon Penner, simon.penner@uibk.ac.at, Tel: +43 512 507 58003

Keywords: hydrogen, oxygen defects, *in situ* X-ray diffraction, Rietveld analysis, perovskite

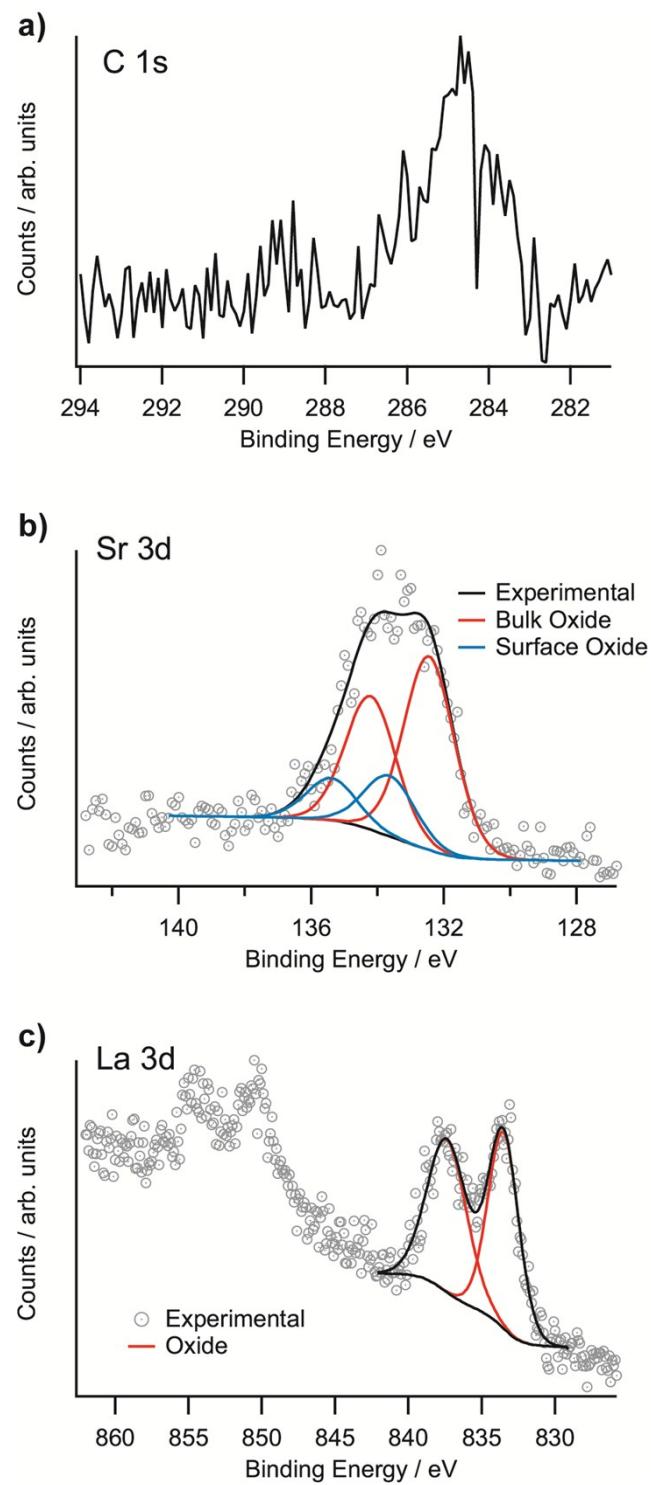


Figure S1: XP spectra of LSF – panels a), b) and c) show the individual C 1s, Sr 3d and La 3d peaks.