



Highlighting a study on the peculiar role of surface oxygen anions in lithium- and manganese-rich layered oxides by a group of researchers led by Prof. Helmut Ehrenberg from Karlsruhe Institute of Technology.

Phosphoric acid and thermal treatments reveal the peculiar role of surface oxygen anions in lithium and manganese-rich layered oxides

Oxidized O^{n-} species ($0 < n < 2$) are formed on the surface of H_3PO_4 -treated $Li[Li_{0.2}Ni_{0.2}Mn_{0.6}]O_2$ oxides (LLNMO), resulting from Li-ion deficiency and lattice distortion. Metastable O^{n-} could be easily released from the oxygen surface lattice forming O_2 via thermal treatment, accompanied by atomic rearrangement, surface reconstruction and layered-to-rock-salt/spinel transitions. The results demonstrate that the surface lattice structure plays a critical role in the electrochemical performance of LLNMO.

As featured in:



See Weibo Hua, Sylvio Indris, Julia Maibach *et al.*, *J. Mater. Chem. A*, 2021, **9**, 264.