

Supporting Information for

Oxygen ordering and mobility in $\text{YBaCo}_4\text{O}_{7+\delta}$

By

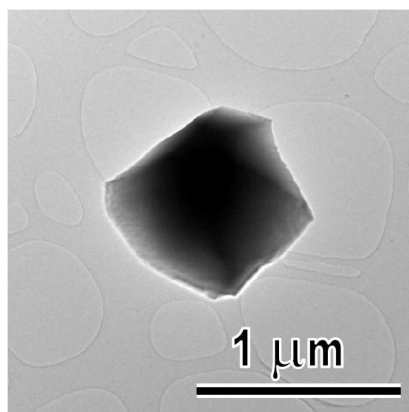
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Figure S1

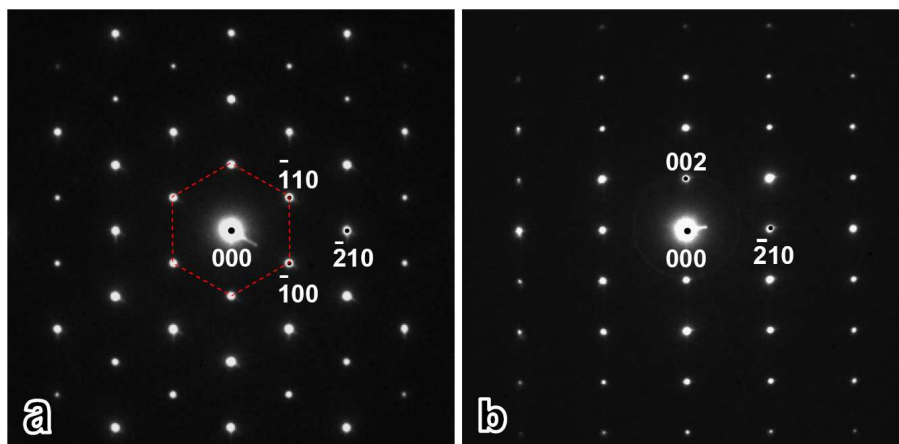
Figure S1 shows an example of typical fragments of single crystal grains supported on the carbon film used for electron diffraction analysis in our work. The grains are usually around $1\mu\text{m}$ across.



(Figure S1)

Figure S2

Shown in Figure S2 are two electron diffraction patterns (EDPs) taken from the oxygen-stoichiometric YBaCo_4O_7 parent structure with the incident electron beam parallel to its zone axis of (a) $[001]$, and (b) $[120]$. By comparison with the similar EDPs from the oxygenated $\text{YBaCo}_4\text{O}_{8.5}$ material that are shown in our paper, Figure S2 show no feature of structural modulation. The $[001]$ incidence diffraction pattern (Figure S2a) demonstrates the 6-fold symmetry of the hexagonal structure. From the $[120]$ EDP in Figure S2b, the unit-cell size was measured to be $a = 6.30(1)\text{\AA}$ and $c = 10.23(7)\text{\AA}$, giving the ratio $c/a = 1.62(5)$.



(Figure S2)