Electronic Supplementary Information for

Hydrothermal Shape Controllable Synthesis of $La_{0.5}Sr_{0.5}MnO_3$ Crystals and Facet Effect on Electron Transfer of Oxygen Reduction

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Table S1. Starting Chemicals, reacting conditions and final shapes of the $La_{0.5}Sr_{0.5}MnO_3$ particles

Sample name	Reactant chemicals							T (^oC)	Time (h)	Morphology
	$La(NO_3)_3$ (mL)	$Sr(NO_3)_3$ (mL)	$KMnO_4$ (mL)	$MnCl_2$ (mL)	KOH (g)	Urea (g)	H_2O (mL)			
$La_{0.5}Sr_{0.5}MnO_3$-c	1.95	1.95	1.00	2.03	6.00	0	0	280	16	Cubic
$La_{0.5}Sr_{0.5}MnO_3$-r	1.95	1.95	1.00	2.03	6.00	2.40	0	280	16	Rhombicuboctahedron
$La_{0.5}Sr_{0.5}MnO_3$-o	1.95	1.95	1.00	2.03	6.00	2.60	0	290	16	Octahedron
$La_{0.5}Sr_{0.5}MnO_3$-s	1.95	1.95	1.00	2.03	6.00	2.40	0	300	16	Sphere
$La_{0.5}Sr_{0.5}MnO_3$-ao	1.95	1.95	1.00	2.03	6.67	2.30	6.70	280	72	Acute octahedron
$La_{0.5}Sr_{0.5}MnO_3$-mc	1.95	1.95	1.00	2.03	6.67	2.30	6.70	260	72	Meso-cubic
$La_{0.5}Sr_{0.5}MnO_3$-mr	1.95	1.95	1.00	2.03	6.67	2.12	6.70	260	17	Meso-rhombicuboctahedron
$La_{0.5}Sr_{0.5}MnO_3$-lc	2.34	2.34	1.20	2.44	8.00	2.24	8.00	280	16	Large cubic

Table S2. Composition results of as-synthesized $La_{0.5}Sr_{0.5}MnO_3$ particles

Sample	ICP result La:Sr:Mn:K	EDS result La:Sr:Mn:K
$La_{0.5}Sr_{0.5}MnO_3$-c	0.49:0.51:1:0.00002	0.50:0.50:1:0.00001
$La_{0.5}Sr_{0.5}MnO_3$-o	0.52:0.50:1:0.00001	0.49:0.52:1:0.00002
$La_{0.5}Sr_{0.5}MnO_3$-r	0.50:0.49:1:0.00001	0.50:0.51:1:0.00002
$La_{0.5}Sr_{0.5}MnO_3$-s	0.50:0.50:1:0.00003	0.50:0.49:1:0.00001

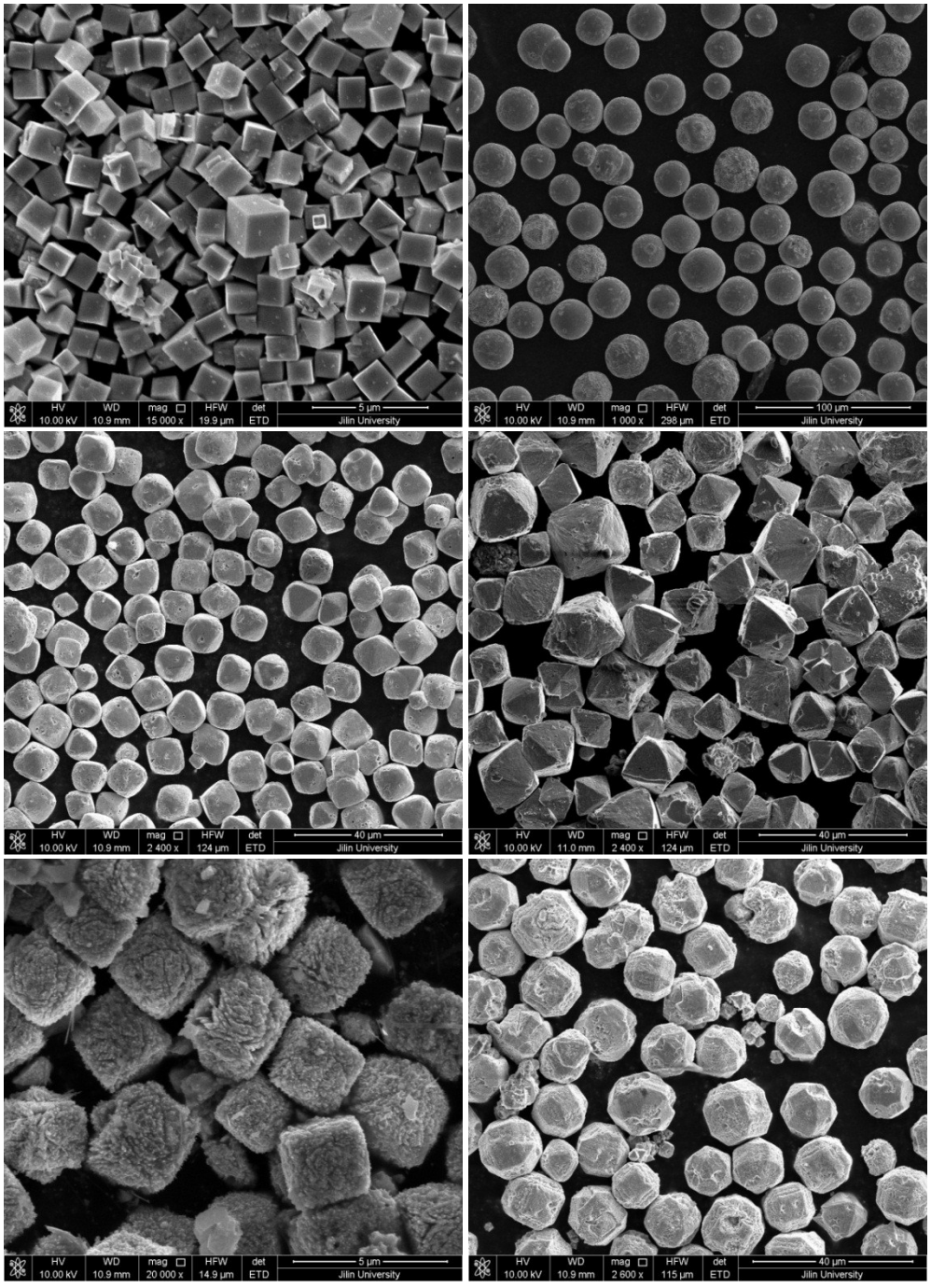

Fig. S1. General view of as-prepared LSMO samples with different shapes (a) $La_{0.5}Sr_{0.5}MnO_3$-c; (b) $La_{0.5}Sr_{0.5}MnO_3$-s; (c) $La_{0.5}Sr_{0.5}MnO_3$-ro; (d) $La_{0.5}Sr_{0.5}MnO_3$-ao; (e) $La_{0.5}Sr_{0.5}MnO_3$-mc and (f) $La_{0.5}Sr_{0.5}MnO_3$-r.

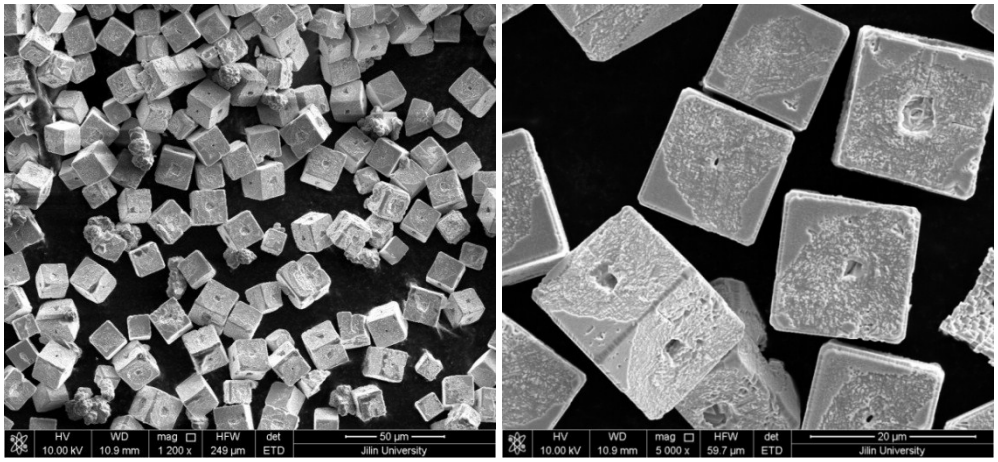

Fig. S2. Other shapes of LSMO single crystal grown in different hydrothermal conditions.

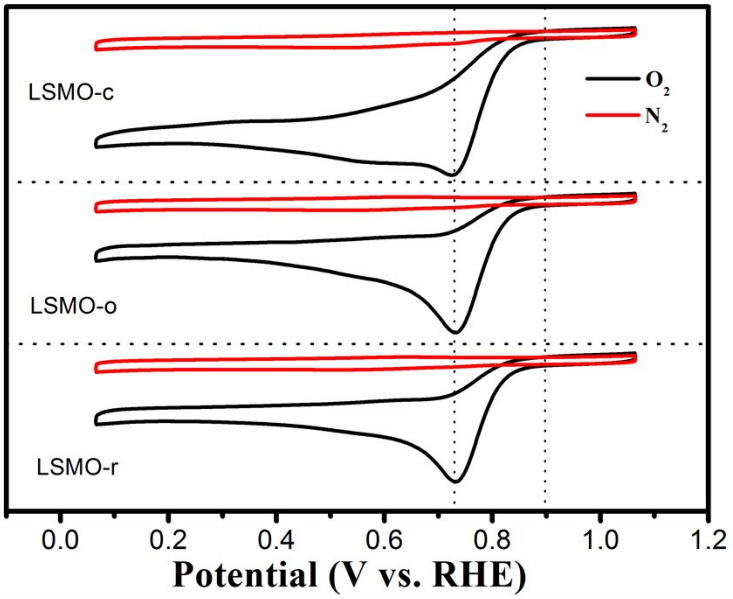

Fig. S3. CV curves in oxygen and nitrogen satiated 0.1 M KOH solution for as-prepared polyhedral LSMO samples.