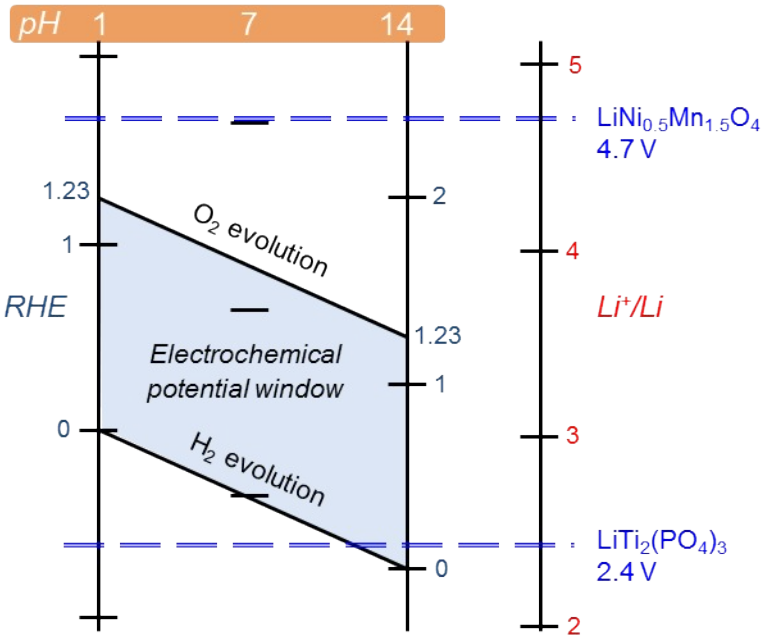
Electronic Supplementary Material (ESI) for ChemComm.

Supporting Information for

Enhanced Resistance to Oxidative Decomposition of Aqueous Electrolytes for Aqueous Lithium-ion Batteries

Kohei Miyazaki, Toshiki Shimada, Satomi Ito, Yuko Yokoyama, Tomokazu Fukutsuka, Takeshi Abe



Scheme S1. Electrochemical potential window of water and redox potential of active materials.

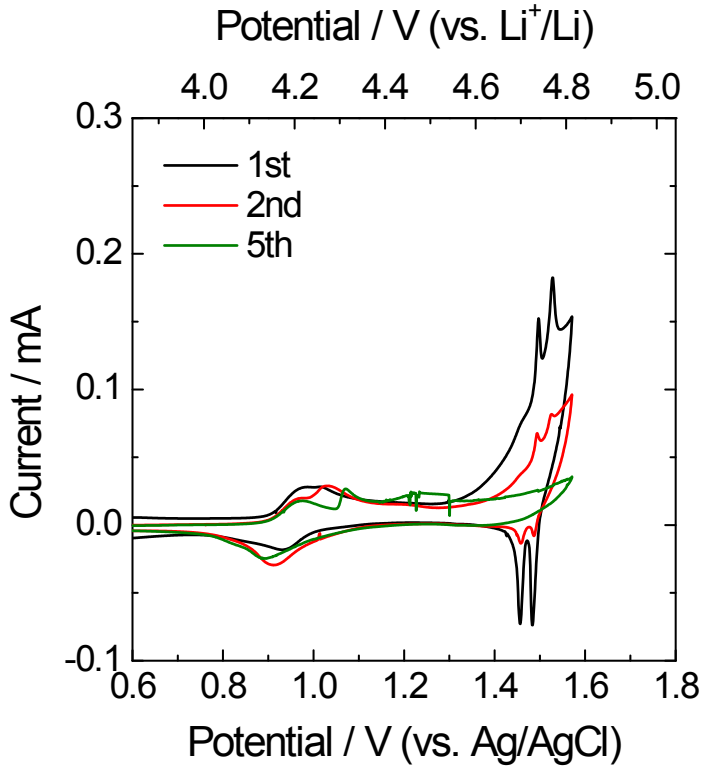


Figure S1. Cyclic voltammograms of LNMO with an aqueous solution of 0.5 mol dm^{-3} $LiNO_3$ with saturated PDSS.

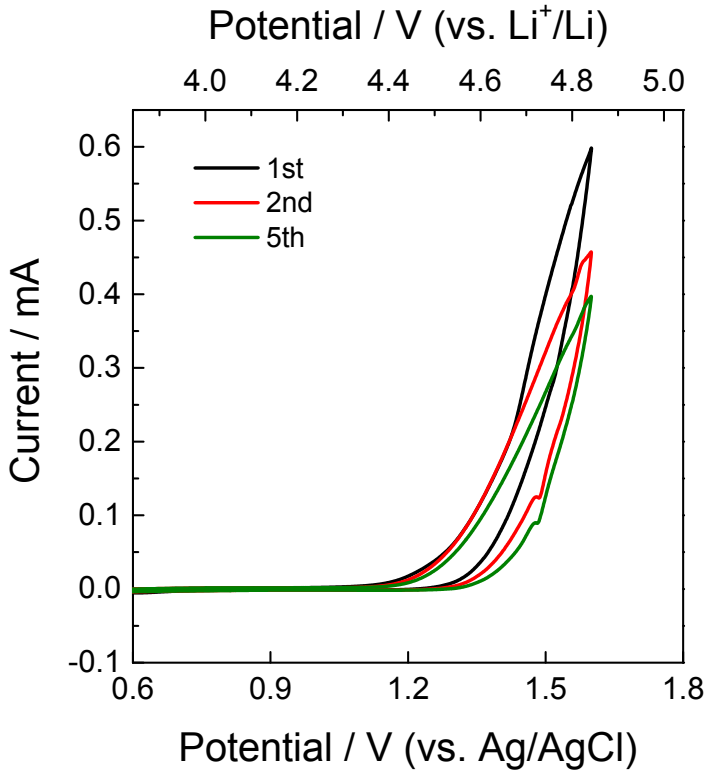


Figure S2. Cyclic voltammograms of LNMO with an aqueous solution of 0.25 mol dm^{-3} Li-PO_4 buffer.

Table S1. Elemental ratios of LNMO thin films before and after potential cycles

	As-prepared	After cycles	Xe etched
C	81.7	76.6	76.2
O	13.6	18.9	19.2
Mn	3.4	2.6	2.8
Ni	1.0	1.0	1.2
S	0.3	0.9	0.7

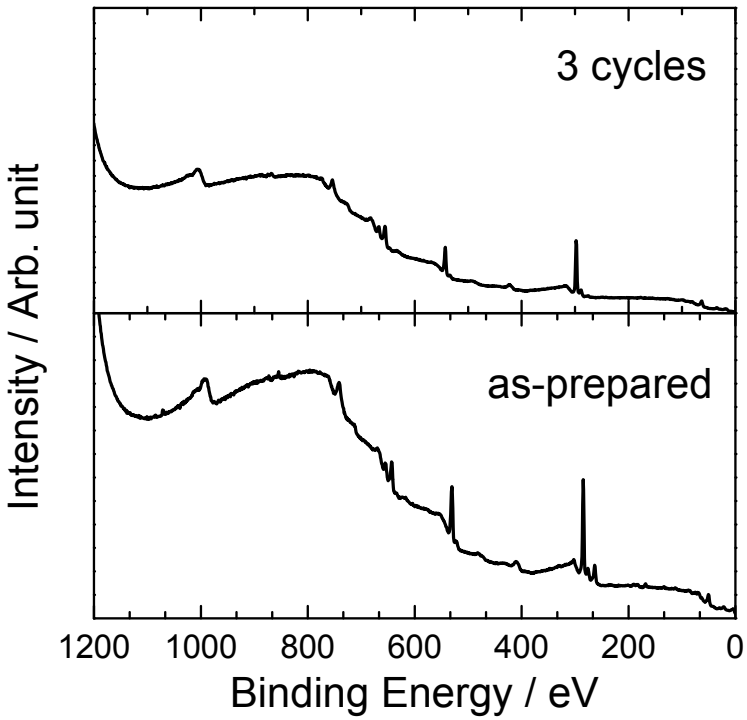


Figure S3. Surface analysis of XPS measurement.

Table S2. Spin-spin relaxation time (T_2) and viscosity of PDSS aqueous solutions

PDSS	T_2 (ms)	Viscosity (cPa·s)
0.1 mol dm^{-3}	2296	1.0
2.0 mol dm^{-3}	1482	6.0

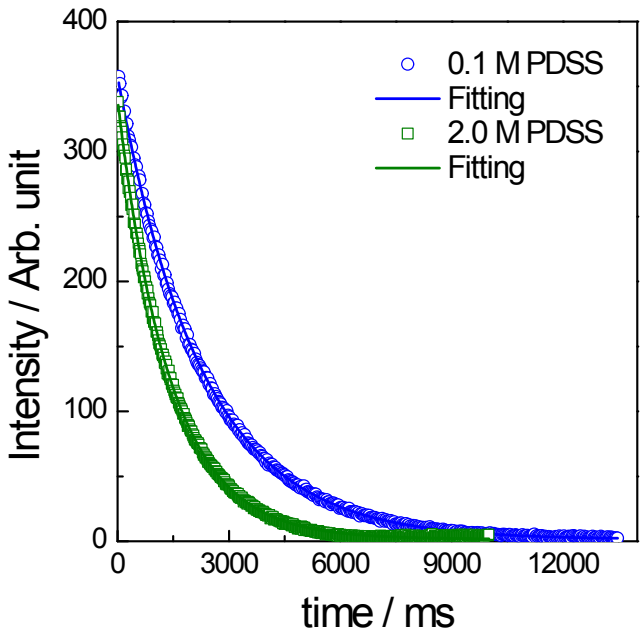


Figure S4. Relaxation curves from ^{1}H CPMG experiment at 25 ºC.

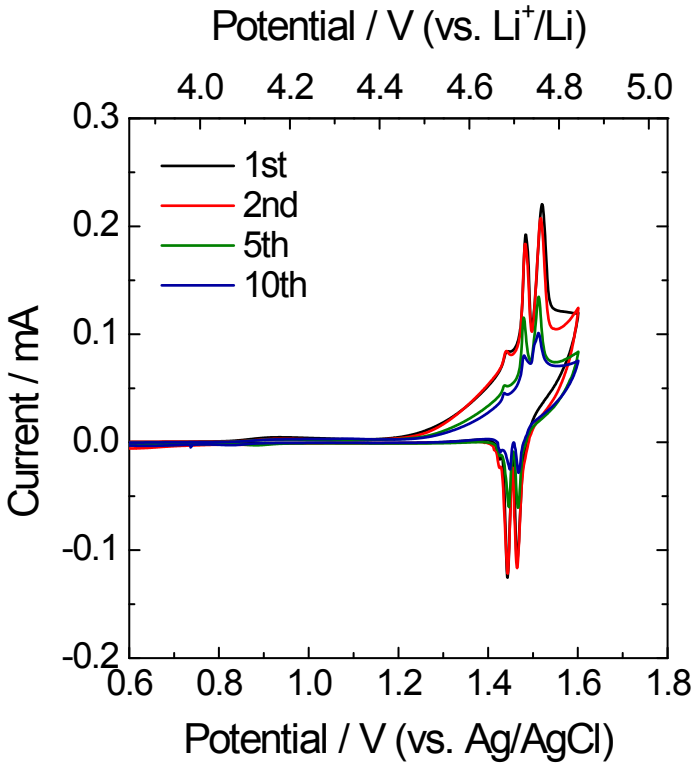


Figure S5. Cyclic voltammograms of LNMO on Au substrate with an aqueous solution of 0.25 mol dm^{-3} Li-PO_4 buffer with saturated PDSS (pH 7).