

Supporting information

**Study on $\text{Li}_{0.33}\text{La}_{0.55}\text{TiO}_3$ Solid Electrolyte with High Ionic Conductivity
and Its Application in Flexible All Solid-State Battery**

Feihu Tan,^a Hua An,^a Ning Li,^a Jun Du,^b and Zhengchun Peng*^a

^a Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, College of Physics and Optoelectronic Engineering Shenzhen University, Shenzhen 518060, China

^b School of microelectronics, South University of Science and Technology, Shenzhen 518055, China

Corresponding author: zcpeng@szu.edu.cn

Table S1. Volume change rate of some lithium electrodes

Electrode	Volume change rate [%]	DOI
$\text{Li}_{0.1}\text{TiO}_2$	0-2	10.1002/1521-3757(20010917)113:18<3471::AID-ANGE3471>3.0.CO;2-Y 10.1016/j.jpowsour.2013.03.185 10.1021/jp412196v
$\text{Li}_{0.1}(\text{NCM})\text{O}_2$	4-8	10.1039/C9TA03191J 10.1021/acsmaterialslett.9b00441 10.1021/acsaem.9b01354
$\text{Li}_{0.1}\text{Mn}_2\text{O}_4$	4-24	10.1016/j.electacta.2017.07.089 10.1016/j.electacta.2012.02.032
SiO_2	100-400	10.1002/sml.201905430 10.1021/acsaem.9b01354
$\text{Li}_{0.1}\text{CoO}_2$	3-10	10.1016/j.measurement.2016.09.023 10.1016/j.electacta.2015.12.224
$\text{Li}_{0.1}\text{FeO}_2$	2-8	10.1002/adfm.201902822 10.1016/S0378-7753(03)00152-6

Table S2. Ionic conductivity of LLTO thin film electrolytes

	journal	ionic conductivity	DOI
1	Journal of The Electrochemical Society	3.8×10^{-5} S/cm	10.1149/2.006404jes/meta
2	Advanced materials	2.0×10^{-5} S/cm	10.1002/adma.201906221
3	Solid State Ionics	7.27×10^{-6} S/cm	10.1016/j.ssi.2019.115032
4	Solid State Ionics	0.96×10^{-6} S/cm	10.1016/j.ssi.2018.07.005
5	Electrochimica Acta	1.1×10^{-5} S/cm	10.1016/j.electacta.2004.02.065
6	Journal of Alloys and Compounds	5.25×10^{-5} S/cm	10.1016/j.jallcom.2010.10.086
7	Journal of The Electrochemical Society	3.0×10^{-4} S/cm	10.1149/2.0411701jes/meta
8	Electrochemical and Solid-State Letters	2.0×10^{-5} S/cm	10.1149/1.1843571/meta

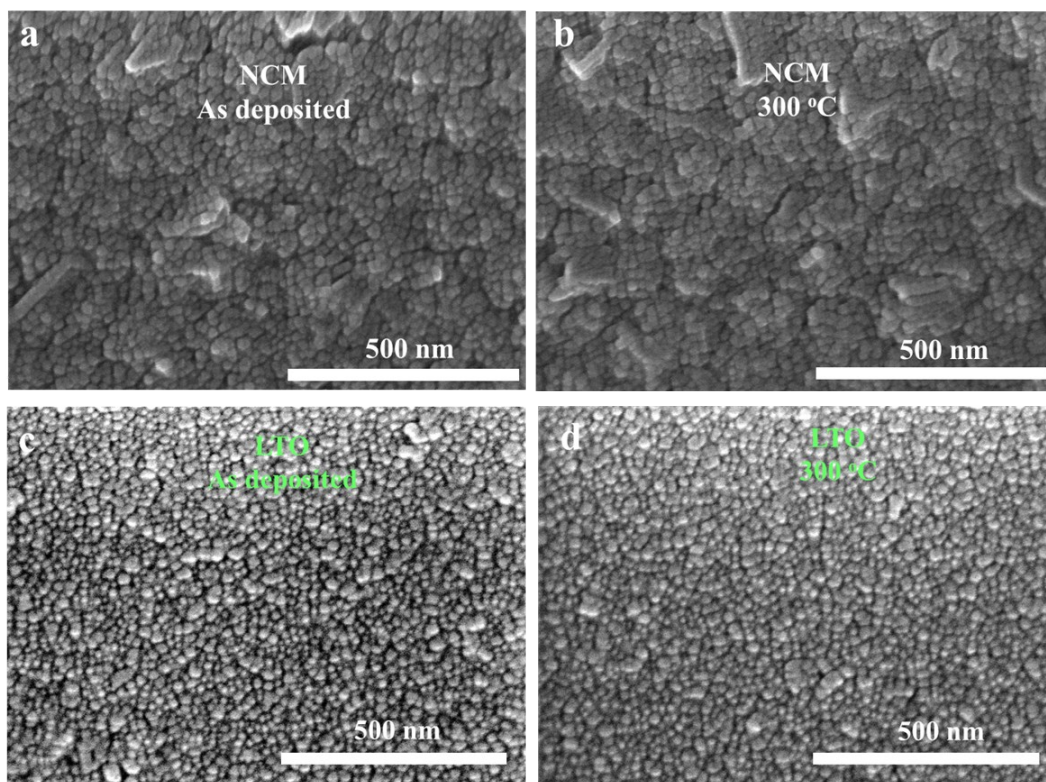


Figure S1. SEM image of (a) as deposited NCM (b) NCM annealed at 300 °C (c) as deposited LTO (d) LTO annealed at 300 °C