Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.
This journal is © The Royal Society of Chemistry 2019

Supporting Information

High-Performance Li_6PS_5Cl-Based All-Solid-State Lithium-Ion Battery

Shuo Wang[a], Xiaofu Xu[b], Xue Zhang[a], Chengzhou Xin[a], Bingqing Xu[a], Liangliang Li[a, *], Yuan-Hua Lin[a], Yang Shen[a], Baohua Li[b], Ce-Wen Nan[a, *]

[a] State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Beijing 100084, China

[b] Engineering Laboratory for the Next Generation Power and Energy Storage Batteries, Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, China

*Corresponding author e-mail: liliangliang@mail.tsinghua.edu.cn

Phone: +86-10-62797162

Fax: +86-10-62771160

Postal address: State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Beijing 100084, China

*Corresponding author e-mail: cwnan@mail.tsinghua.edu.cn

Phone: +86-10-62773587

Fax: +86-10-62771160

Postal address: State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Beijing 100084, China

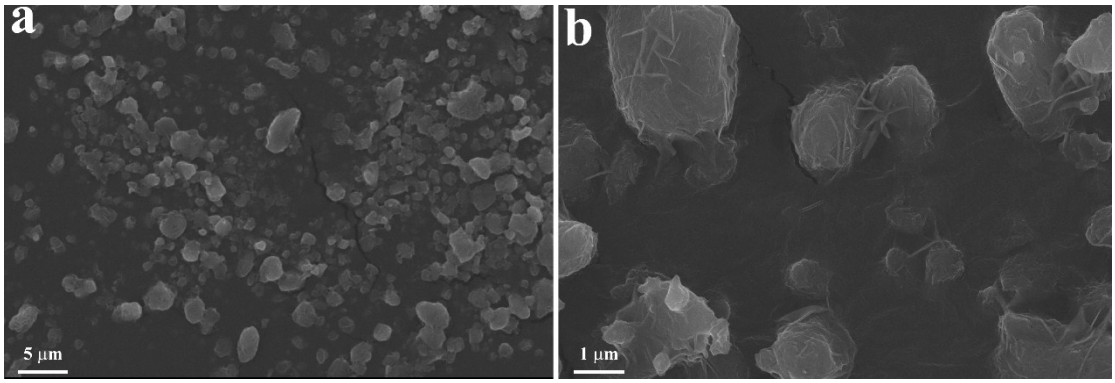

Fig. S1. SEM images of the composite cathode powder.

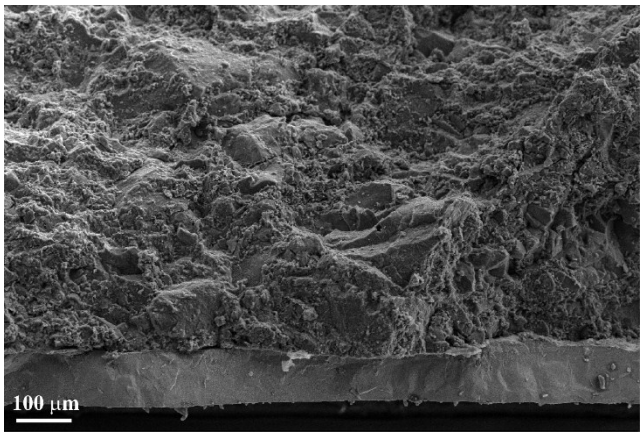

Fig. S2. Cross-sectional SEM image at the interface between the Li_6PS_5Cl electrolyte layer and the Li-In anode before cycling.

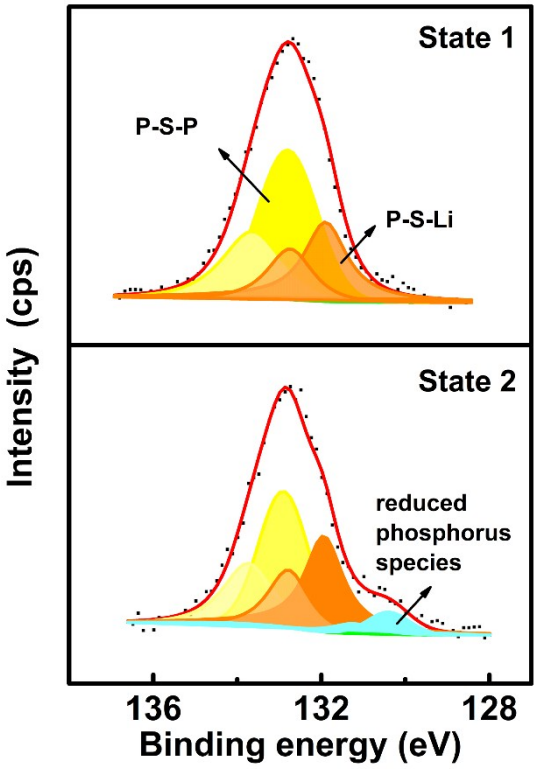

Fig. S3. *Ex-situ* P 2p XPS spectra of different states during the charge/discharge process.