

**Visualizing Morphological and Compositional Evolution of Interface of InLi-anode|thio-LISiON
Electrolyte in All-Solid-State Li-S Cell by *in operando* Synchrotron X-ray Tomography and Energy
Dispersive Diffraction**

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This file contains the figures Figure S1-S4.

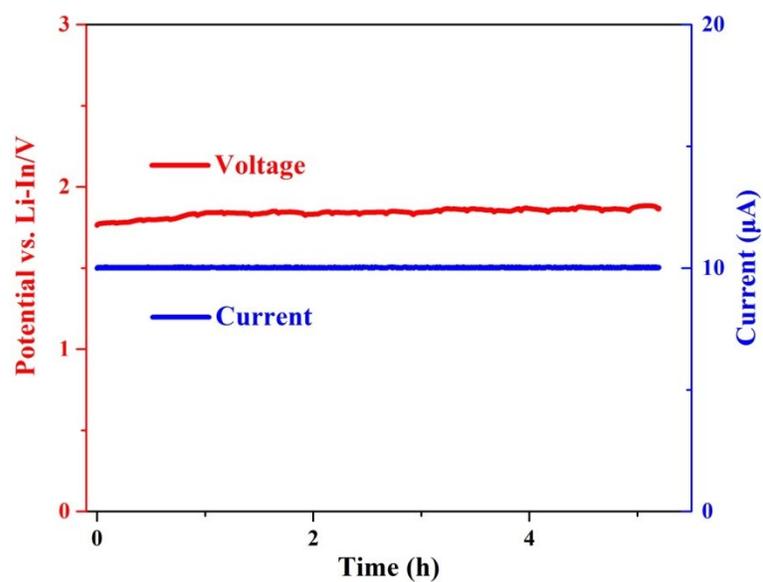


Figure S1 Electrochemical curve during the 10 μA conditional charging.

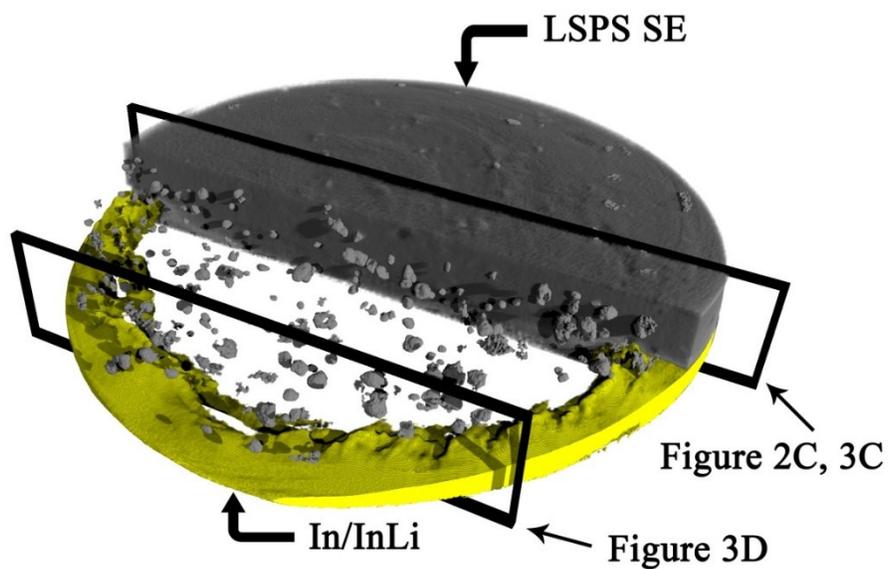


Figure S2 3D rendering showing the location of the regions shown in Figure 2C/Figure 3C and Figure 3D.

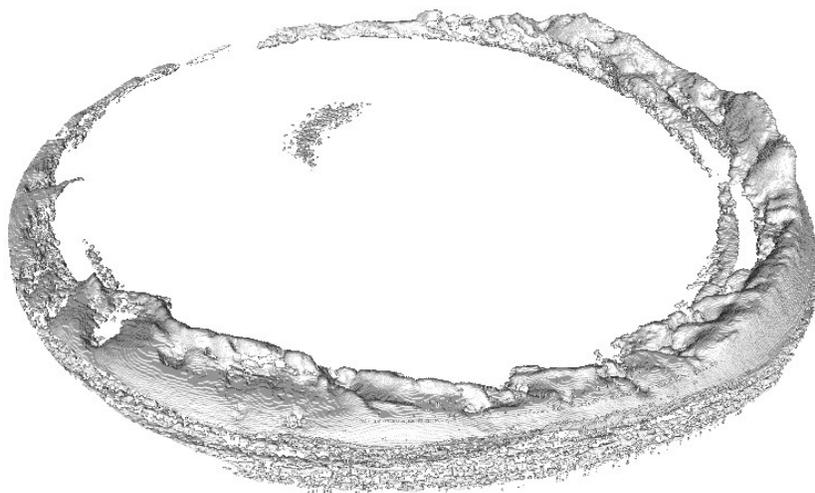


Figure S3 3D rendering showing the net volume expansion after the 0.1C charge process, calculated from the tomography datasets measured at the beginning and the end of 0.1C charge process. Note that this process ignores the slightest volume expansion that has been blocked by the largest ones due to the X-ray absorption.

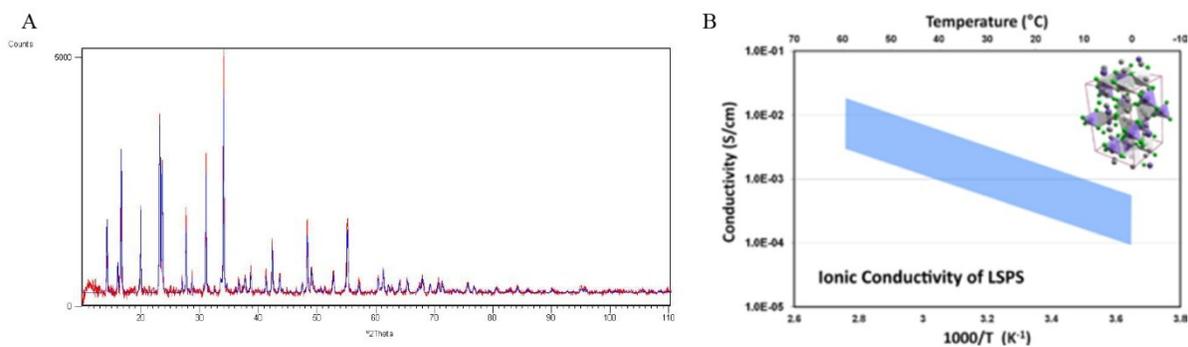


Figure S4 XRD pattern (A) and ionic conductivity (B) of the employed LSPS solid electrolyte. The ionic conductivity is obtained from the NEI Corporation.