

Supporting Information

High Capacity Metal-Rich Copper Sulfide as Intercalation-Type Cathode Material for All Solid-State Batteries

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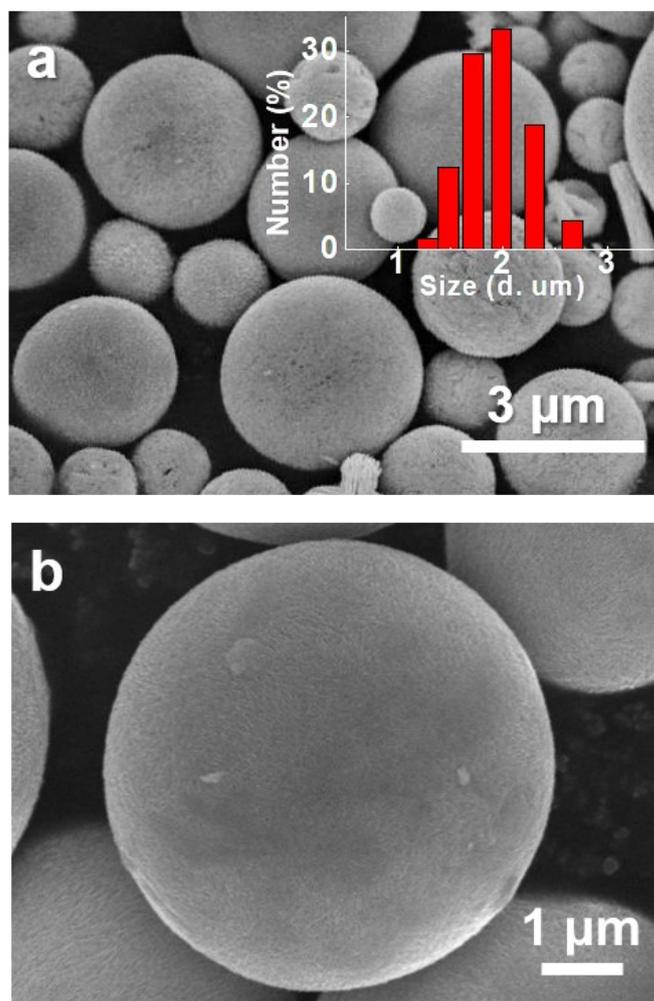


Fig. S1. (a–b) Low- and high-magnification SEM images. The inset in Fig. S1a shows a particle size distribution.

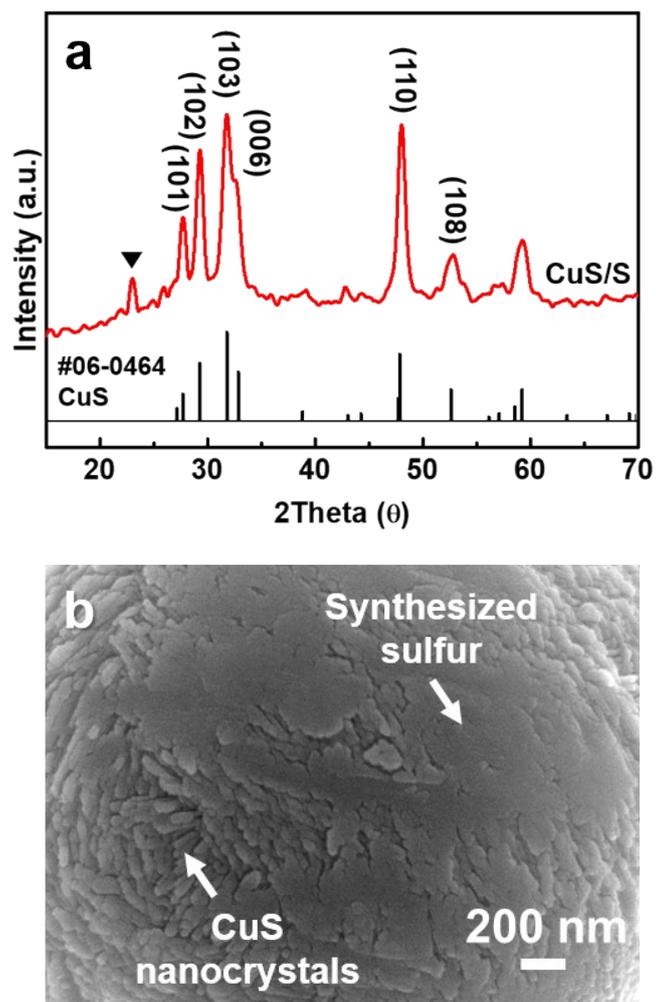


Fig. S2. (a) XRD patterns of as-prepared copper sulfide microspheres after the solvothermal reaction. (b) High-magnification SEM image of the CuS/S composite consisting of CuS nanocrystals.

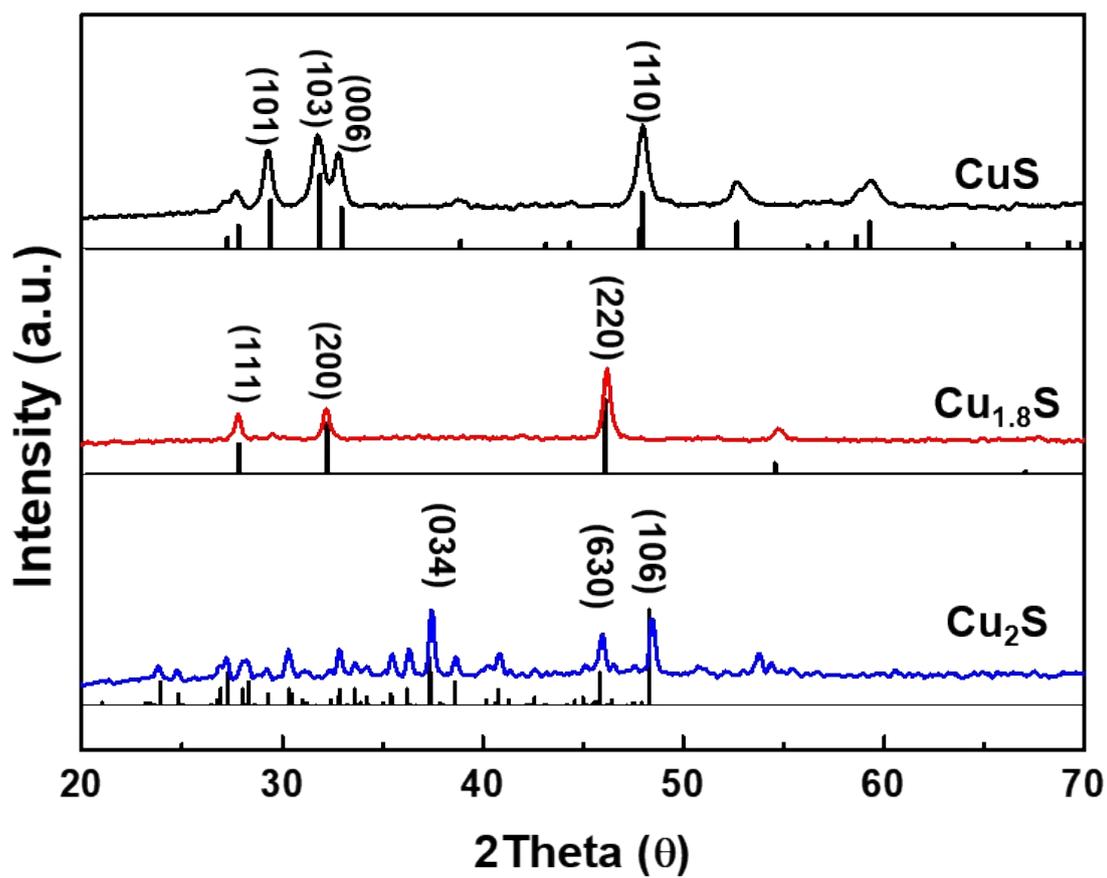


Fig. S3. XRD patterns of CuS (black line), Cu_{1.8}S (red line), and Cu₂S (blue line).

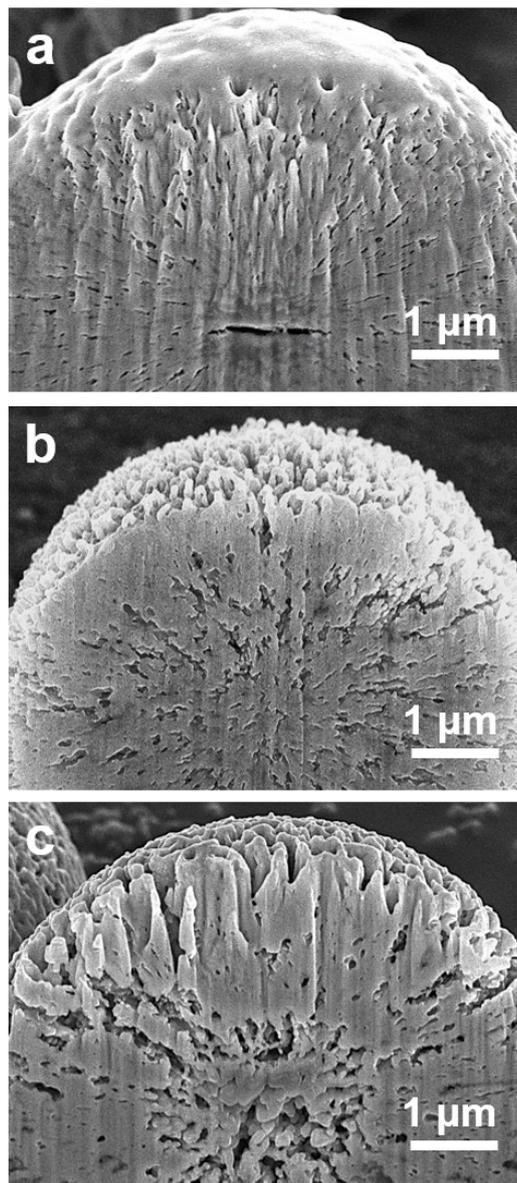


Fig. S4. Cross-section view SEM images of (a) HP-CuS MS, (b) HP- Cu_{1.8}S MS, and (c) HP-Cu₂S MS.

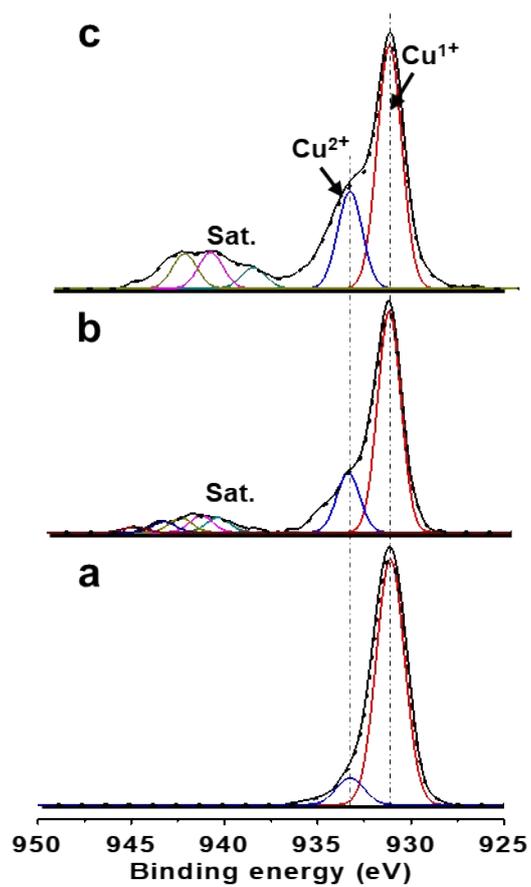


Fig. S5. XPS spectra of (a) HP-CuS MS, (b) HP-Cu_{1.8}S MS, and (c) HP-Cu₂S MS for Cu 2p

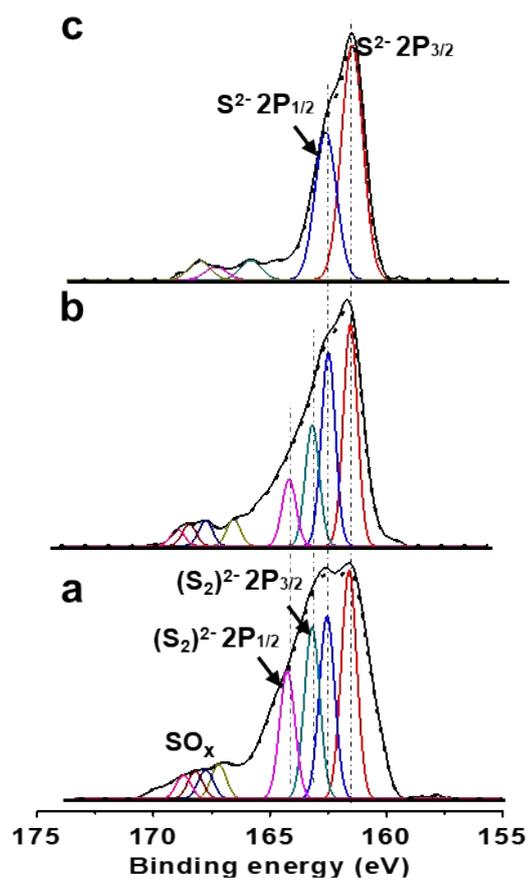


Fig. S6. XPS spectra of (a) HP-CuS MS, (b) HP-Cu_{1.8}S MS, and (c) HP-Cu₂S MS for S 2p.

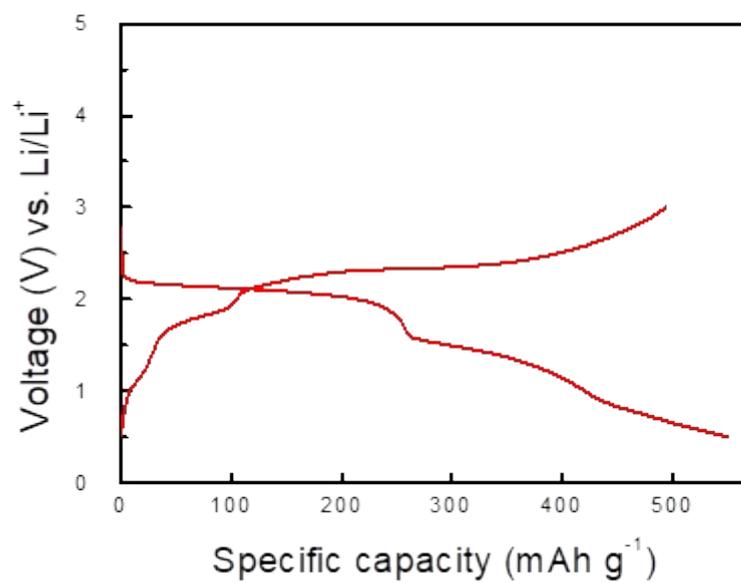


Fig. S7. Electrochemical properties of ASSBs using and Cu_{1.8}S-based cathode (CS-BC) with Li anode. Initial voltage profiles for the ASSBs at 0.05 C.

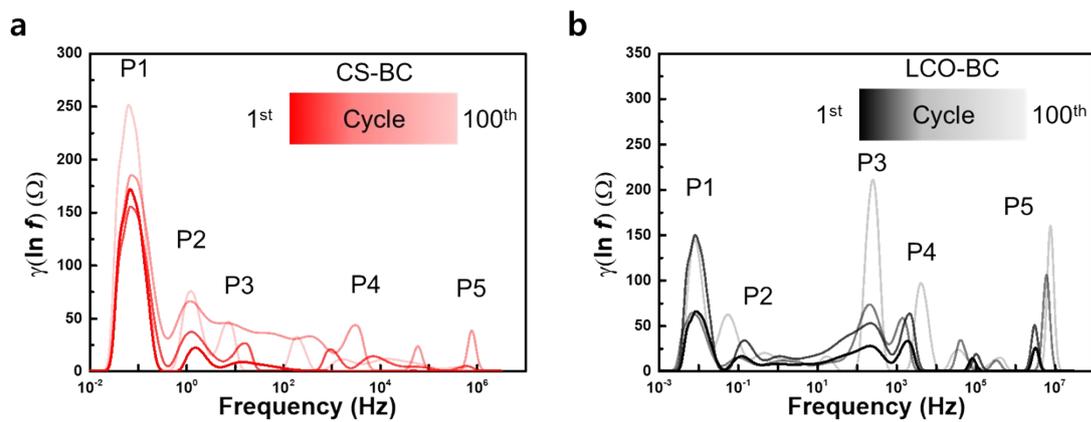


Fig. S8. DRT analysis over 50 cycles for (a) CS-BC and (b) LCO-BC.

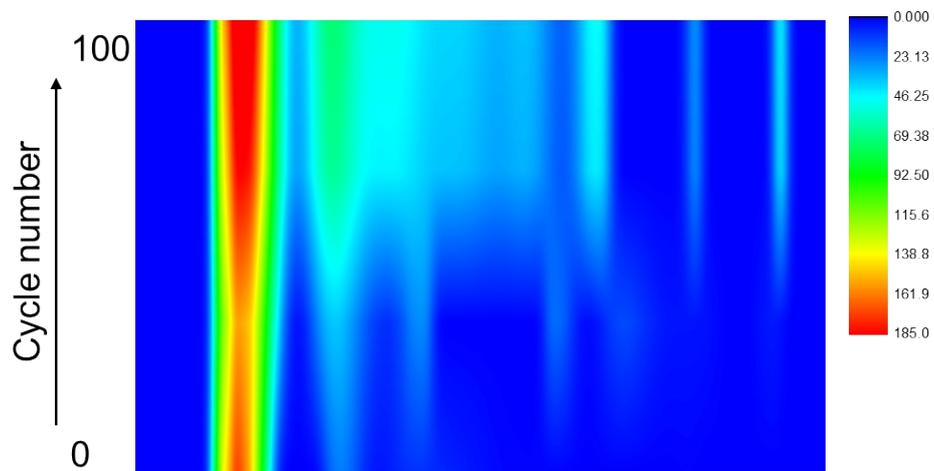


Fig. S9. 2D intensity color maps of DRT analysis over 100 cycles for CS-BC.

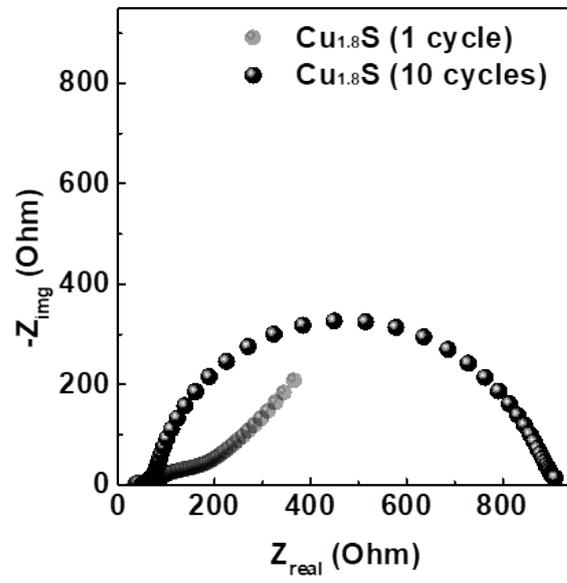


Fig. S10. EIS spectra of LIBs using CS-BC after 1 and 10 cycles.