Layered Ternary Sulfide $CuSbS_2$ Nanoplates for Flexible Solid-State Supercapacitors

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Supporting Information

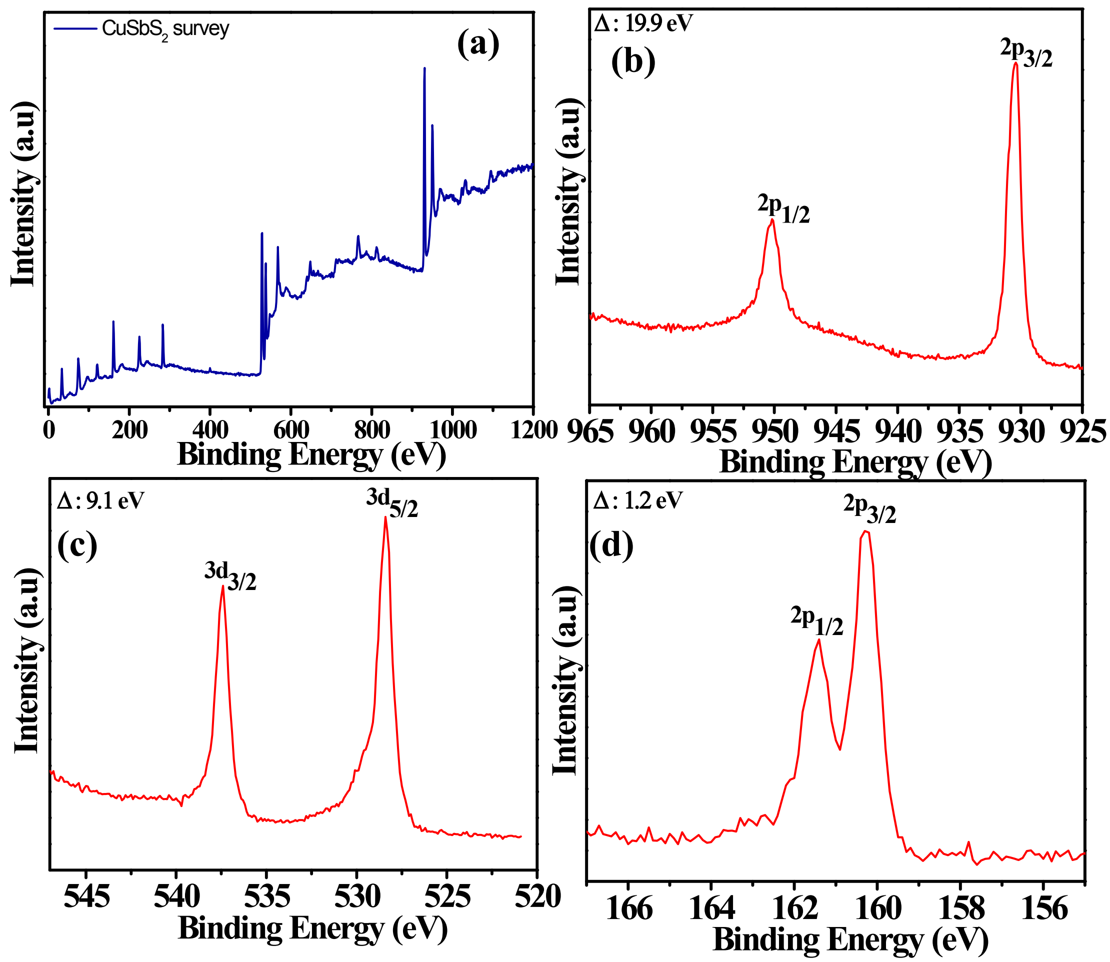

Figure S1. (a) XPS survey spectrum of $CuSbS_2$ nanoplates. (b)-(d) High resolution XPS spectra of Cu, Sb and S, respectively.

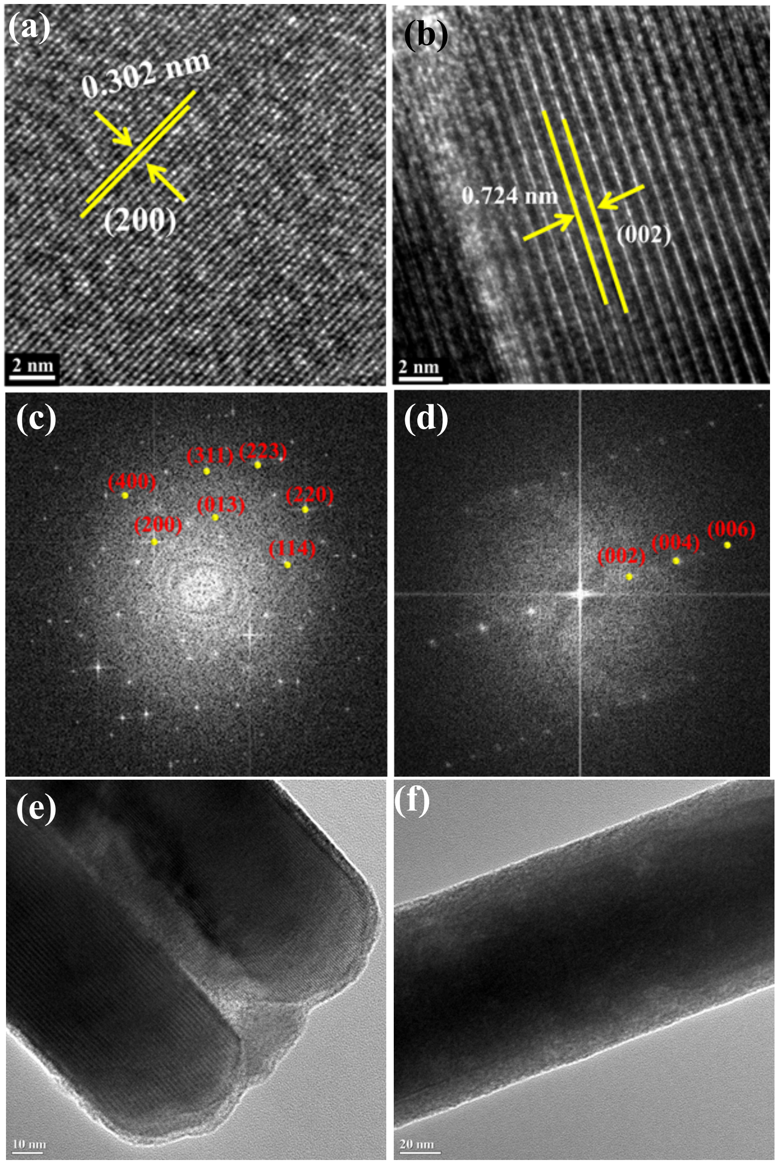

Figure S2. (a) and (b) Top and side view HRTEM images of a $CuSbS_2$ nanoplate. (c) and (d) Fast Fourier transform (FFT) of HRTEM images shown in (a) and (b). (e) and (f) TEM images of 55 ± 6.5 nm and 105 ± 5.5 nm nanoplates

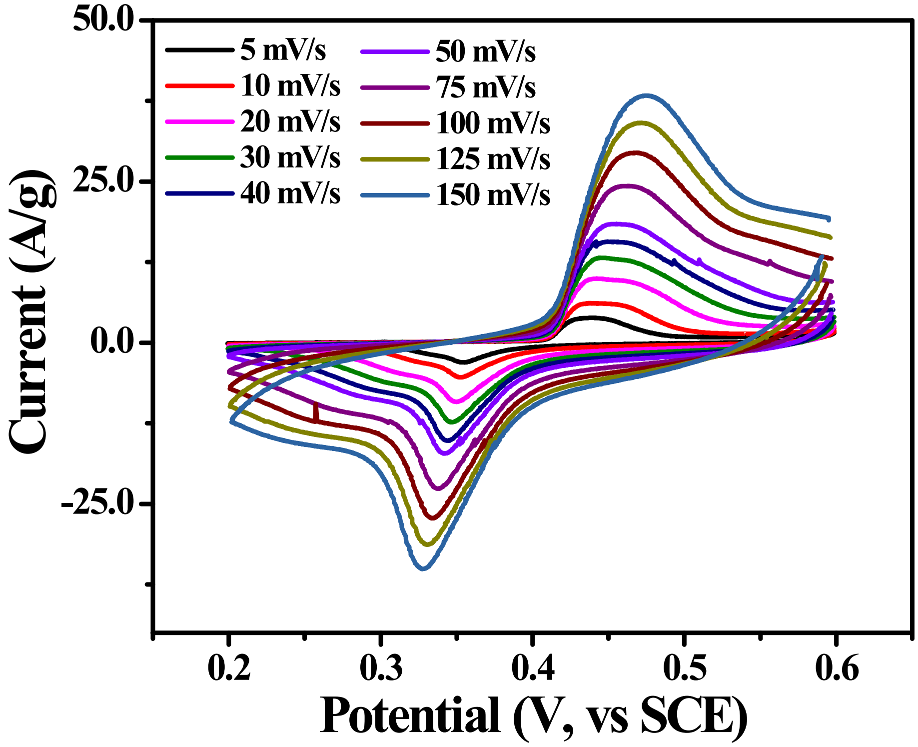

Figure S3. Cyclic voltammogram curves of $CuSbS_2$ at various scan rates using KOH as electrolyte.

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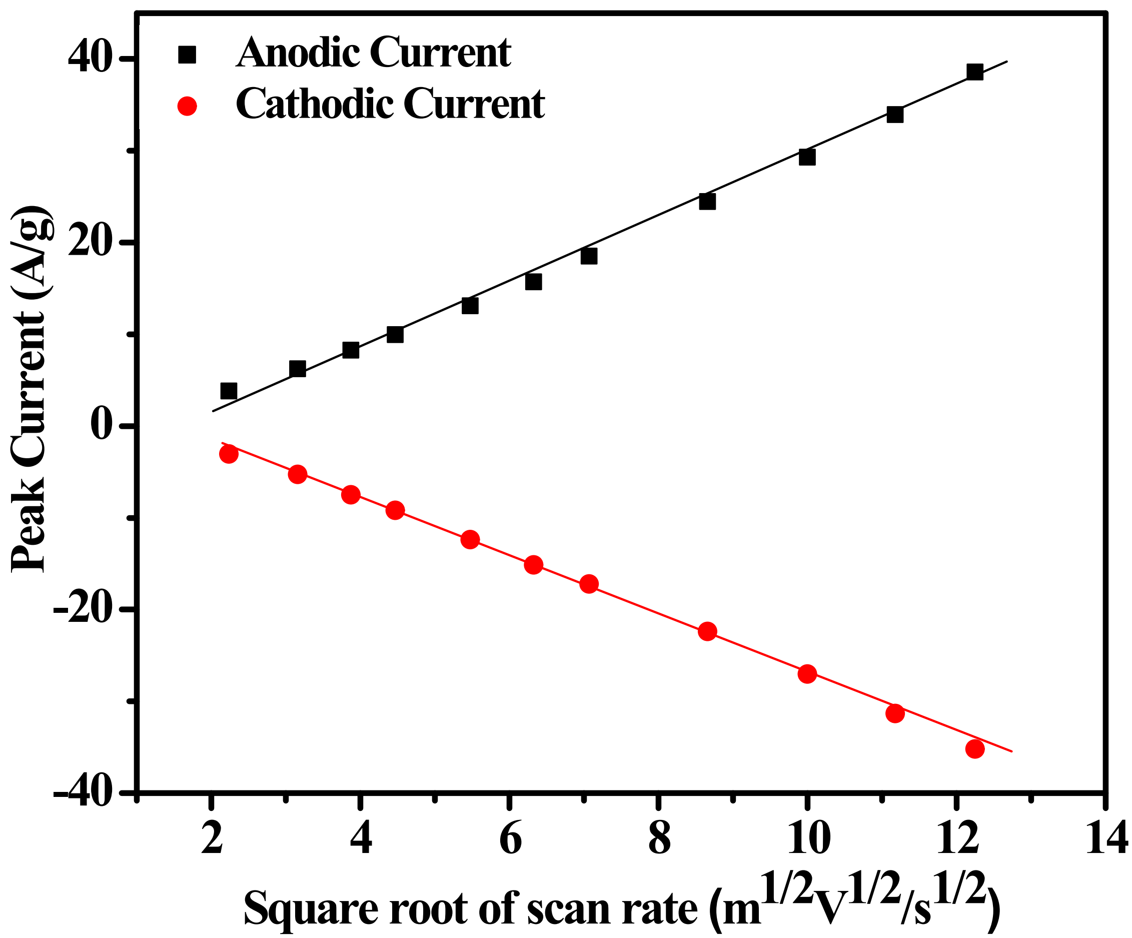

Figure S4. Plots of the anodic and cathodic wave current versus the square root of the scan rate.

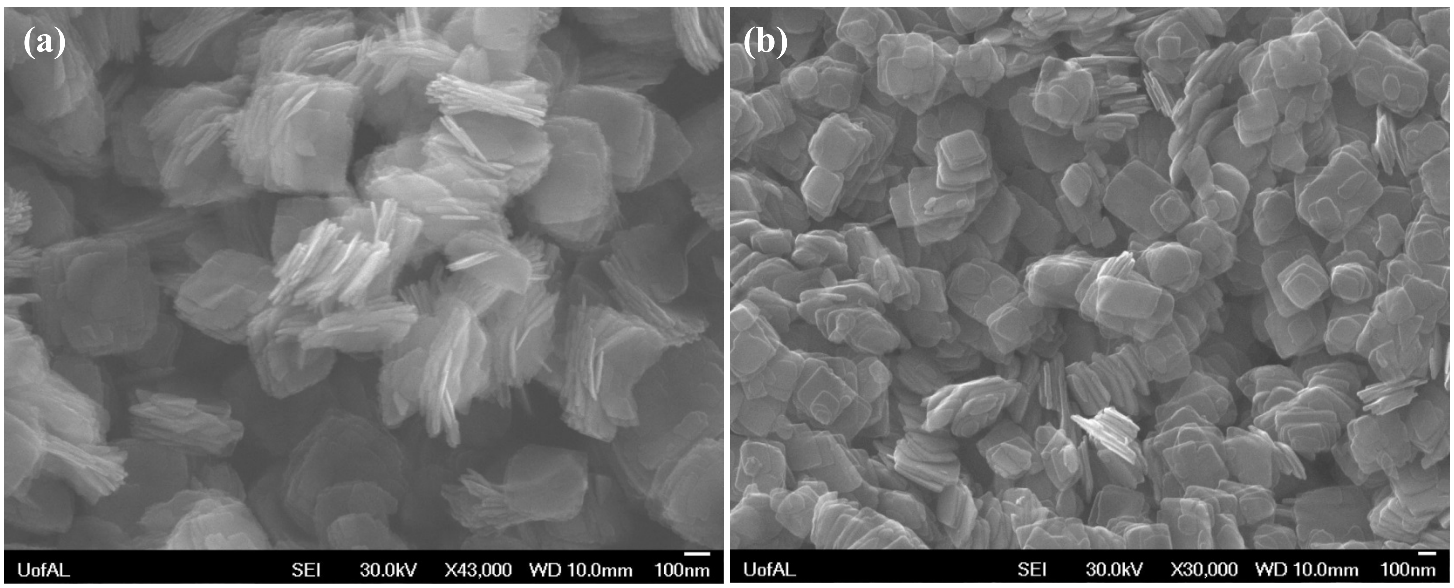

Figure S5. SEM images of (a) 7.2 ± 1.4 nm and (b) 19 ± 1 nm thick $CuSbS_2$ nanoplates.

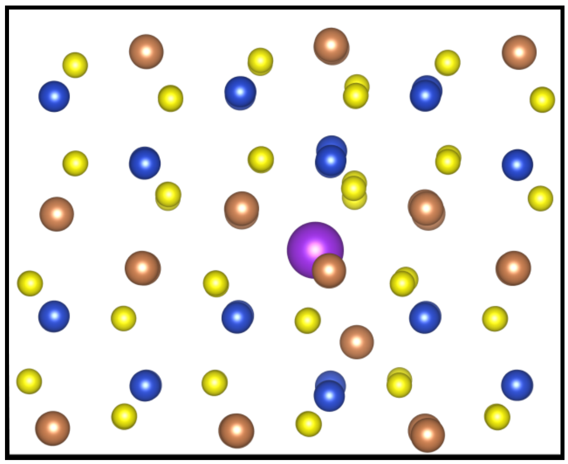

Figure S6. Intercalated K ion in van der Waals gap of $CuSbS_2$. The adsorbed ion has taken the place of its nearest Sb ion, which is pushed into the interior of the layer. Cu sites are blue, Sb are orange, and S are yellow.

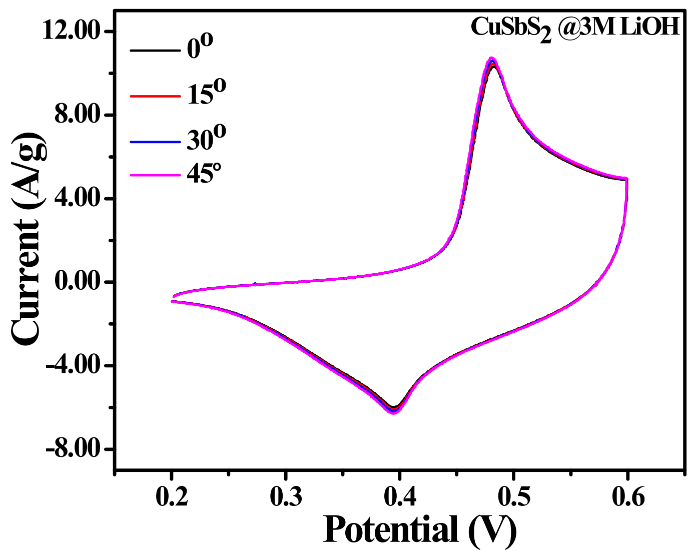

Figure S7. (a) Cyclic voltammogram curves of $CuSbS_2$ nanoplates at different bending angles.

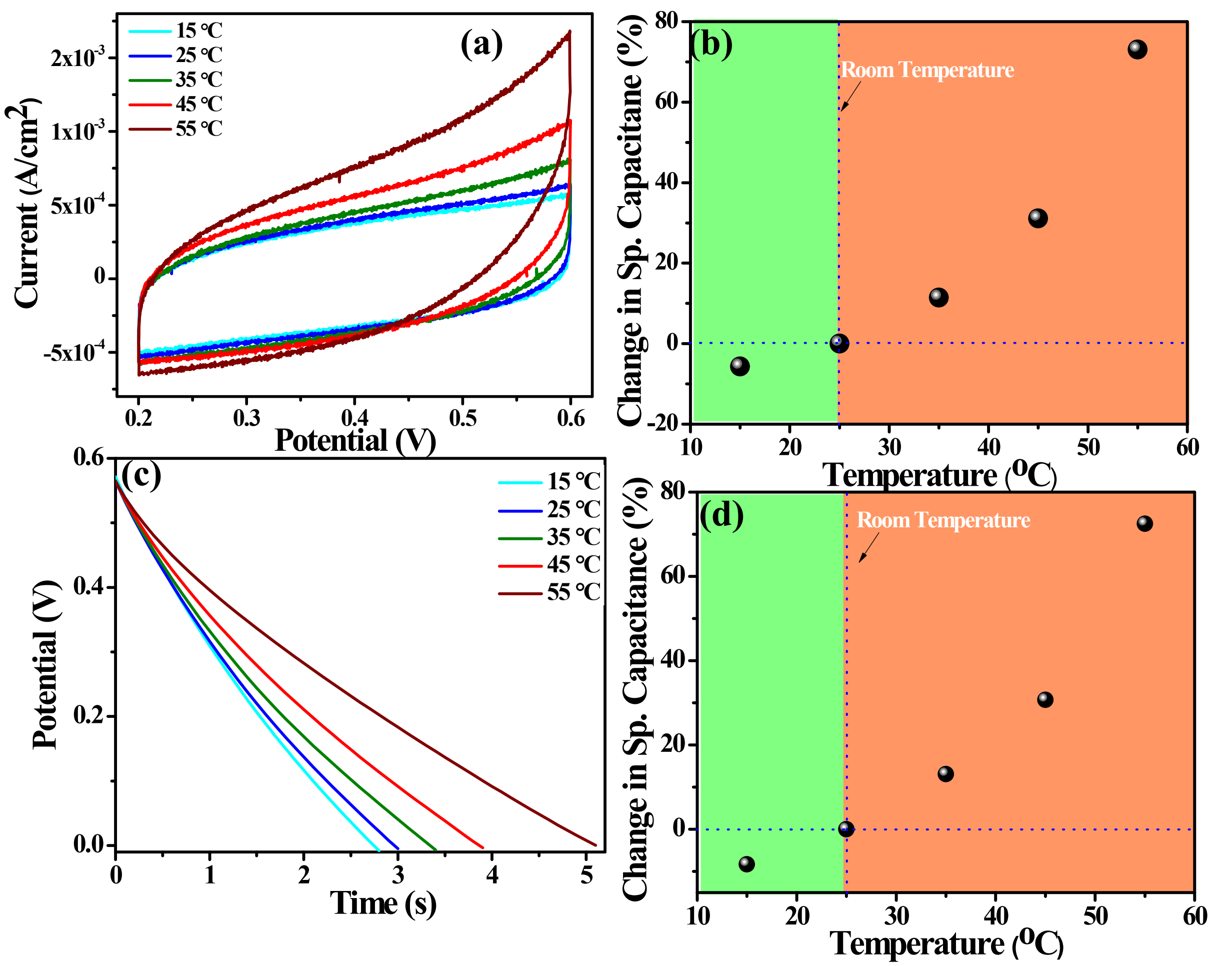

Figure S8. (a) Cyclic voltammogram curves of $CuSbS_2$ nanoplate supercapacitor device at different temperatures using LiOH. (b) A graph showing changes in specific capacitance with temperatures. Specific capacitance values are deduced from the CV curves. (c) Galvanostatic discharge characteristics of $CuSbS_2$ nanoplate device at different temperatures. (d) A graph showing change in specific capacitance with temperature. C_{sp} was calculated from the galvonostatic charge-discharge measurements.