Electronic supplementary information

Electrochemical Properties of Stoichiometric CuS Coated on Carbon Fiber Paper and Cu Foil Current Collectors as Cathode Material for Lithium Batteries

Gulnur Kalimuldina, Izumi Taniguchi

a Department of Chemical Engineering, Tokyo Institute of Technology, Tokyo 152-8552, Japan
b Department of Chemical Science and Engineering, Tokyo Institute of Technology, Tokyo 152-8552, Japan

* Corresponding author e-mail: taniguchi.i.aa@m.titech.ac.jp
**Fig. S1** 1st charge-discharge profiles of bare CFP electrode at 0.02 C between 1.2-3.0 V.

**Fig. S2** (a) Charge-discharge profile of stoichiometric CuS coated on a CFP current collector and cycled at 0.1 C between 1.8-2.6 V at the 1st, 2nd, and 5th cycles. (b) Cycling performance at 0.1 C for 30 cycles.
**Fig. S3** Cycling performance of stoichiometric CuS coated on a CFP current collector at 0.1 C for 30 cycles.

**Fig. S4** An enlargement of the XRD patterns (49-52 °) of the bare Cu foil and the Cu foil after soaking in the electrolyte for 1 and 3 days.
Fig. S5 Recovered lithium metals after the 1st charge at 0.02 C of the cells with stoichiometric CuS coated on (a) a CFP current collector, (b) a Cu foil current collector.

Fig. S6 Recovered separator and lithium metal after the 20th charge at 0.1 C from the cell with stoichiometric CuS electrode coated on a Cu foil current collector.

Fig. S7 Cycling performance of stoichiometric CuS coated on a CFP current collector with a CFP interlayer at 0.1 C for 30 cycles.