

## Urchin-like NiS micro/nano-structure: controlled synthesis, cationexchange and lithium-ion battery applications

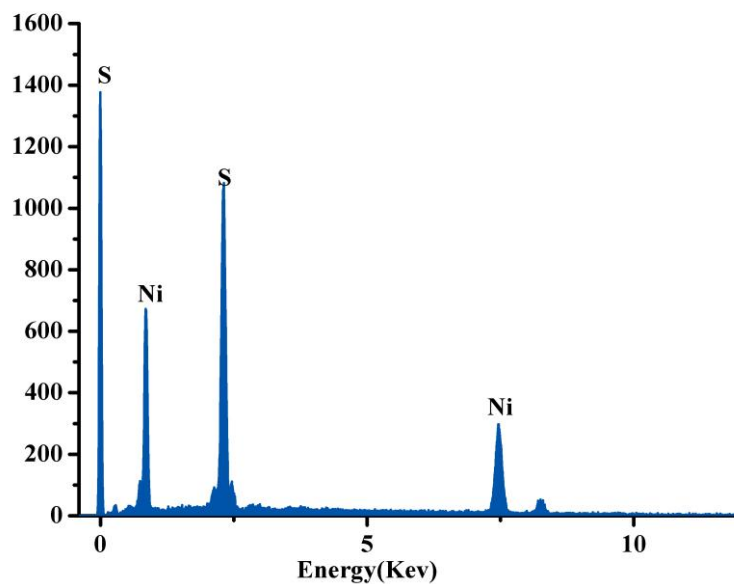


Fig. S1: EDS measurement of as-synthesized NiS

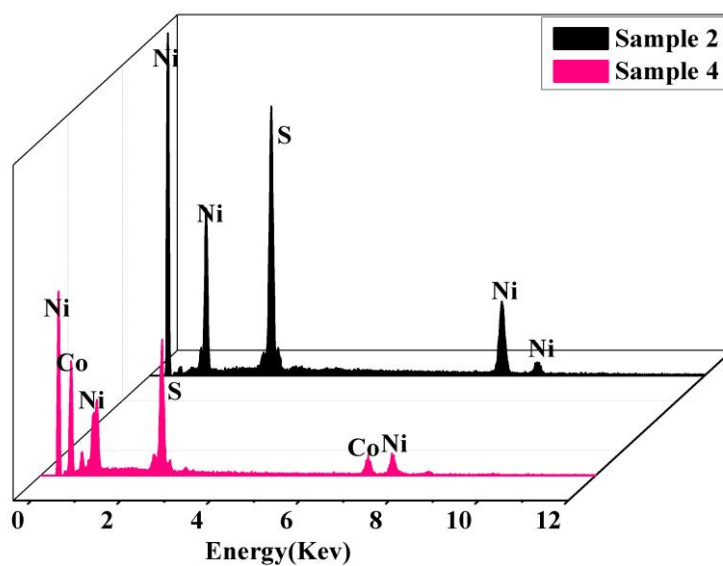


Fig. S2: EDS measurement of as-synthesized Sample 2 and Sample 4

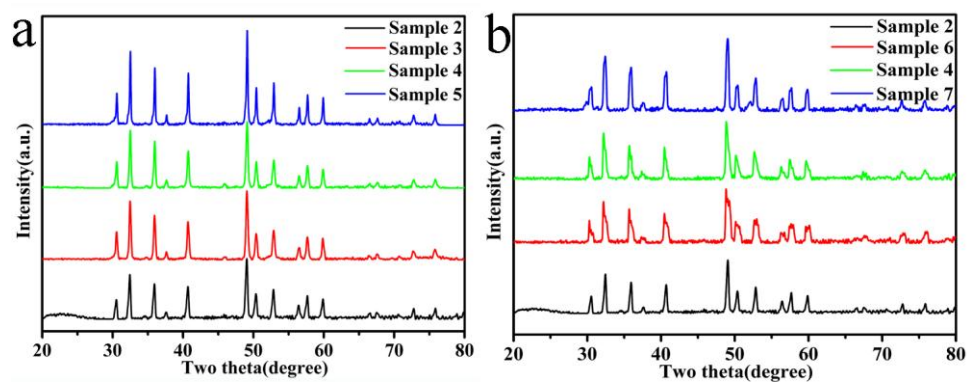


Fig. S3 the XRD patterns of Sample 2, Sample 3, Sample 4, Sample 5, Sample 6 and Sample 7

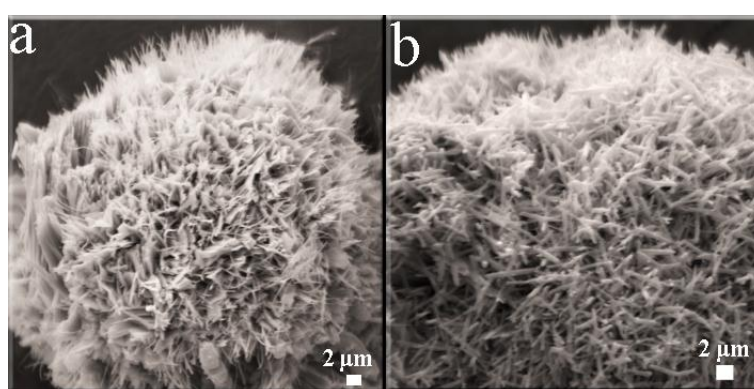


Fig. S4 the SEM images of as-prepared Sample 6, and Sample 7

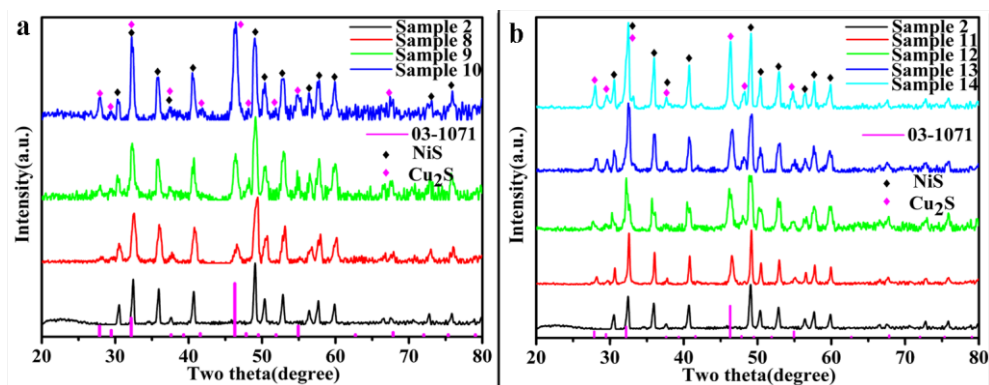


Fig. S5 the XRD patterns comparison of Sample 2, Sample 8, Sample 9, Sample 10, Sample 11 and Sample 12, Sample 13 and Sample 14

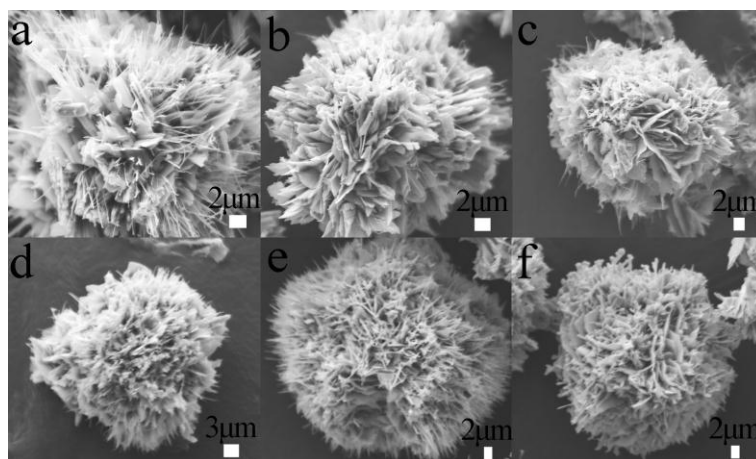


Fig. S6 the SEM images of as-prepared Sample 8, Sample 10, Sample 11, Sample 12, Sample 13 and Sample 14

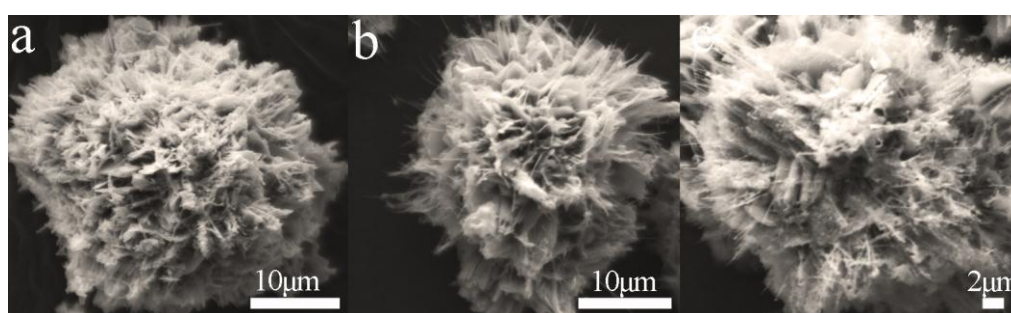


Fig. S7 the SEM images of as-prepared Sample 15, Sample 16 and Sample 17

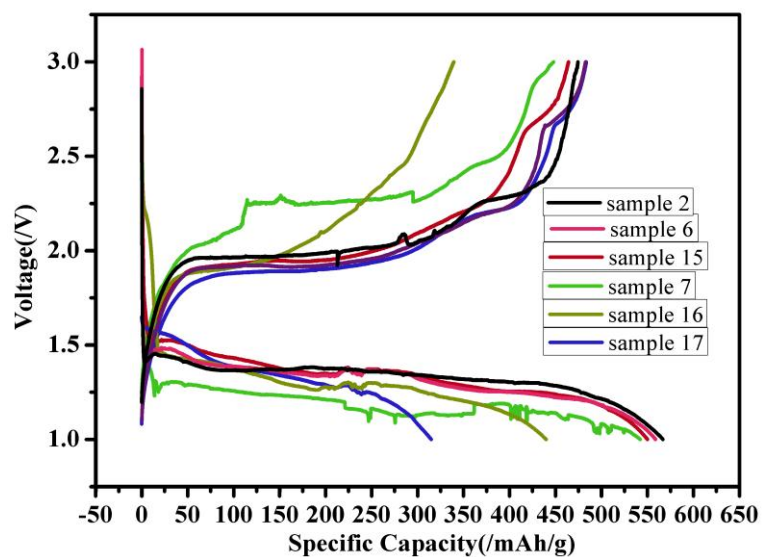


Fig. S8 the typical voltage-specific capacity curves of the as-obtained samples cell cycled between 1.0V and 3.0V at 10.0mA/g at room temperature.