Electronic Supplementary Information for

## Si/Ag Composite Building by Interconnected Micro-Nano Bimodal Porous Structure as High-Performance Anode for Li-Ion

## Batteries

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Fig. S1 Pore size distribution of the BP Si/Ag composite.



Fig. S2 EDS measurement of the BP Si sample.



Fig. S3 The XRD patterns of (a) Si<sub>10</sub>Al<sub>90</sub> alloy, (b) Si<sub>8</sub>Ag<sub>2</sub>Al<sub>90</sub> alloy, (c) BP Si, (d) BP Si/Ag composite, and (e) the standard XRD patterns of pure Al, Si, and Ag.



Fig. S4 EDS measurement of the (a)  $\rm Si_8Ag_2Al_{90}$  alloy and (b) BP Si/Ag composite.



Fig. S5 The XRD patterns of the samples obtained by etching SiAgAl alloy in HCl solution for (a) 2 h

and (b) 5 h.



**Fig. S6** The digital photographs of the experiments about immersing SiAl alloy foils in different solutions for (a) 2, (b) 5, (c) 10, and (d) 24 h at room temperature.



Fig. S7 The SEM image of the product obtained through immersing  $Si_{10}Al_{90}$  alloy in 1 M HCl

solution for 10 h.



Fig. S8 The SEM image of the BP Si/Ag sample after cycling at 200 mA g<sup>-1</sup> for 150 cycles between

0.01**-**1 V.