## Supporting Information

## Fabrication of Ultrathin Solid Electrolyte Membranes of $\beta$ -Li<sub>3</sub>PS<sub>4</sub> Nanoflakes by Evaporation-Induced Self-Assembly for All-Solid-State Batteries

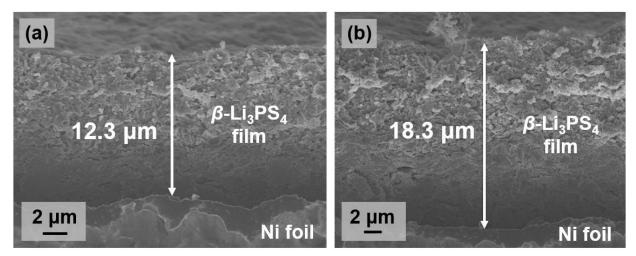
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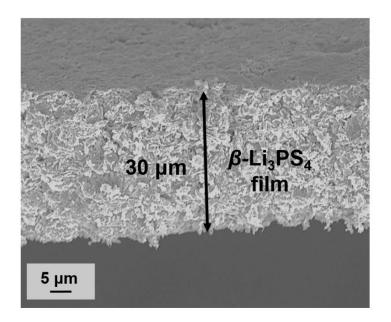
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**Figure S1**. SEM cross-sectional images of  $\beta$ -Li<sub>3</sub>PS<sub>4</sub> thin membranes produced by EISA, which have a thickness of a) ~12 µm and b) ~ 18 µm.



**Figure S2**. SEM cross-sectional image of freestanding 30  $\mu$ m  $\beta$ -Li<sub>3</sub>PS<sub>4</sub> membrane produced by EISA.