Supporting Information

## Synthesis of $\text{Li}_7\text{P}_3\text{S}_{11}$ Solid Electrolyte in Ethyl Propionate Medium for All-Solid-State Li-ion Battery

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Figure S1: Digital photograph of the as-prepared suspension after centrifugation for 5 min at 4000 rpm.

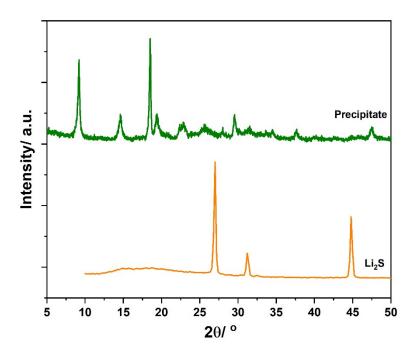


Figure S2: XRD patterns of the precipitate obtained after decanting the yellow supernatant shown in Figure S1 and  $\text{Li}_2\text{S}$ .

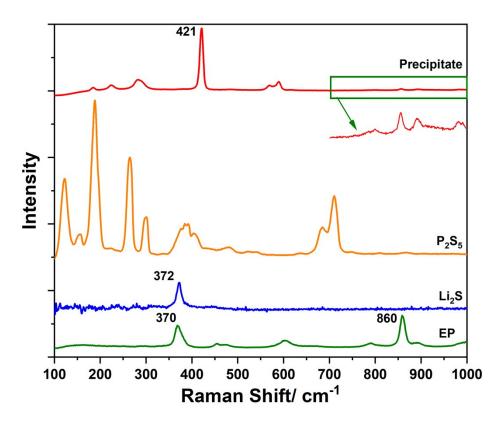


Figure S3: Raman spectrum of the precipitate obtained after decanting the yellow supernatant showing in Figure S1; the spectra of EP, Li<sub>2</sub>S and P<sub>2</sub>S<sub>5</sub> were included for comparision. The inset showed the enlargement of the spectrum of white precipitate.