

*Supplementary materials*

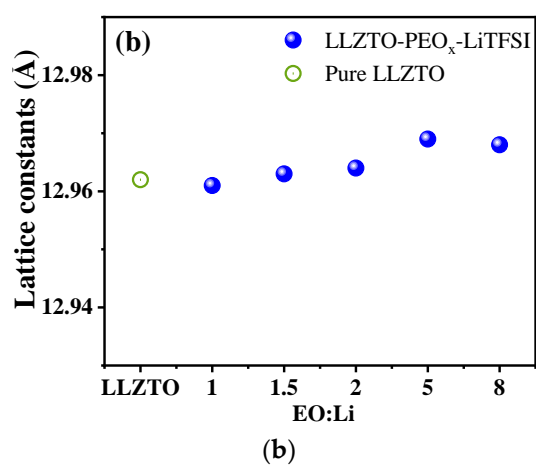
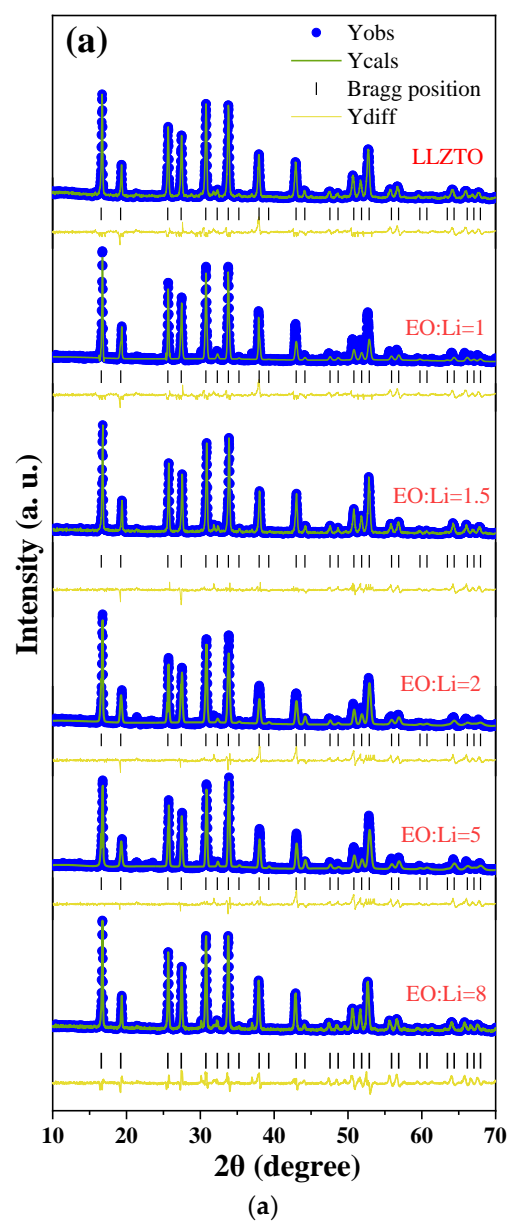
# Cold Sintering of $\text{Li}_{6.4}\text{La}_3\text{Zr}_{1.4}\text{Ta}_{0.6}\text{O}_{12}$ /PEO Composite Solid Electrolytes

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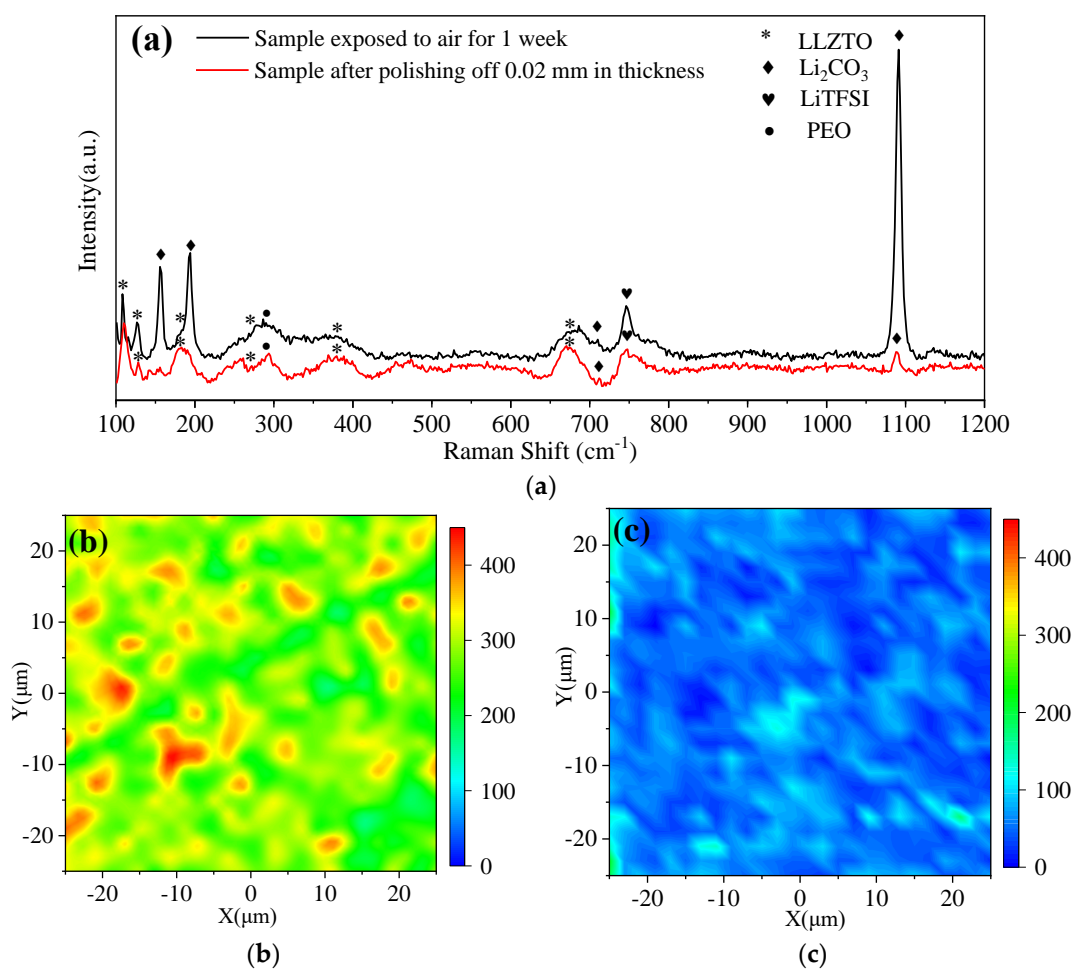
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**Figure S1.** (a) Rietveld refinement results of XRD patterns for LLZTO-PEO<sub>x</sub>-LiTFSI, (b) Lattice constants of the cold-sintered LLZTO composite electrolytes.



**Figure S2.** (a) Typical Raman spectra of the air-exposed LLZTO-PEO<sub>2</sub>-LiTFSI sample before and after being polished, Raman mapping images of the (b) air-exposed LLZTO-PEO<sub>2</sub>-LiTFSI before being polished and (c) after being polished.