Composite solid electrolyte with Li$^+$ conducting 3D porous garnet-type framework for all-solid-state lithium batteries

Chao Li$^a$, Ying Huang$^{a,1}$, Xudong Liu$^a$, Chen Chen$^a$, Xuansheng Feng$^b$, Zheng Zhang$^a$, Panbo Liu$^a$

$^a$ MOE Key Laboratory of Material Physics and Chemistry Under Extraordinary Conditions, Ministry of Education, School of Chemistry and Chemical Engineering, Northwestern Polytechnical University, Xi'an 710072, PR China

$^b$ Shandong Provincial Key Laboratory of High Strength Lightweight Metallic Materials, Advanced Materials Institute, Qilu University of Technology (Shandong Academy of Sciences), Jinan 250014, China

$^1$ Corresponding author.

E-mail address: yingh@nwpu.edu.cn (Y. Huang).
Fig. S1 Surface morphology of Li metal anode: (a) before galvanostatic cycling, (b) after 200h cycling and (c) after 800h cycling at 0.05mA·cm⁻².
Fig. S2 Voltage profiles of Li/PEO-LLZAO/Li symmetric batteries at different current density of 0.05, 0.1, 0.2 mA·cm⁻².
Fig. S3 Voltage profiles of the symmetric cell using PEO-LLZAO as electrolyte
Fig. S4 Cycle performance of LiFePO$_4$/Li cell with PEO-LLZO as electrolyte at 0.1 C at 60 °C
Fig. S5 Rate capability of the LiCoO$_2$/PEO-LLZAO/Li at various current densities from 0.1 C to 1 C.