Supporting Information

Polycarbonate-Based Solid-State Sodium Batteries with Inclusion of $NaAlO_2$ Microparticle Additives

Kenza Elbouazzaoui[1], Charles Aram Hall[1], Kristina Edström[1], Jonas Mindemark[1], Daniel Brandell[1,*]

[1]*Department of Chemistry – Ångström Laboratory, Uppsala University, Box 538, SE-751 21, Uppsala, Sweden*

**Corresponding author: Daniel.Brandell@kemi.uu.se*

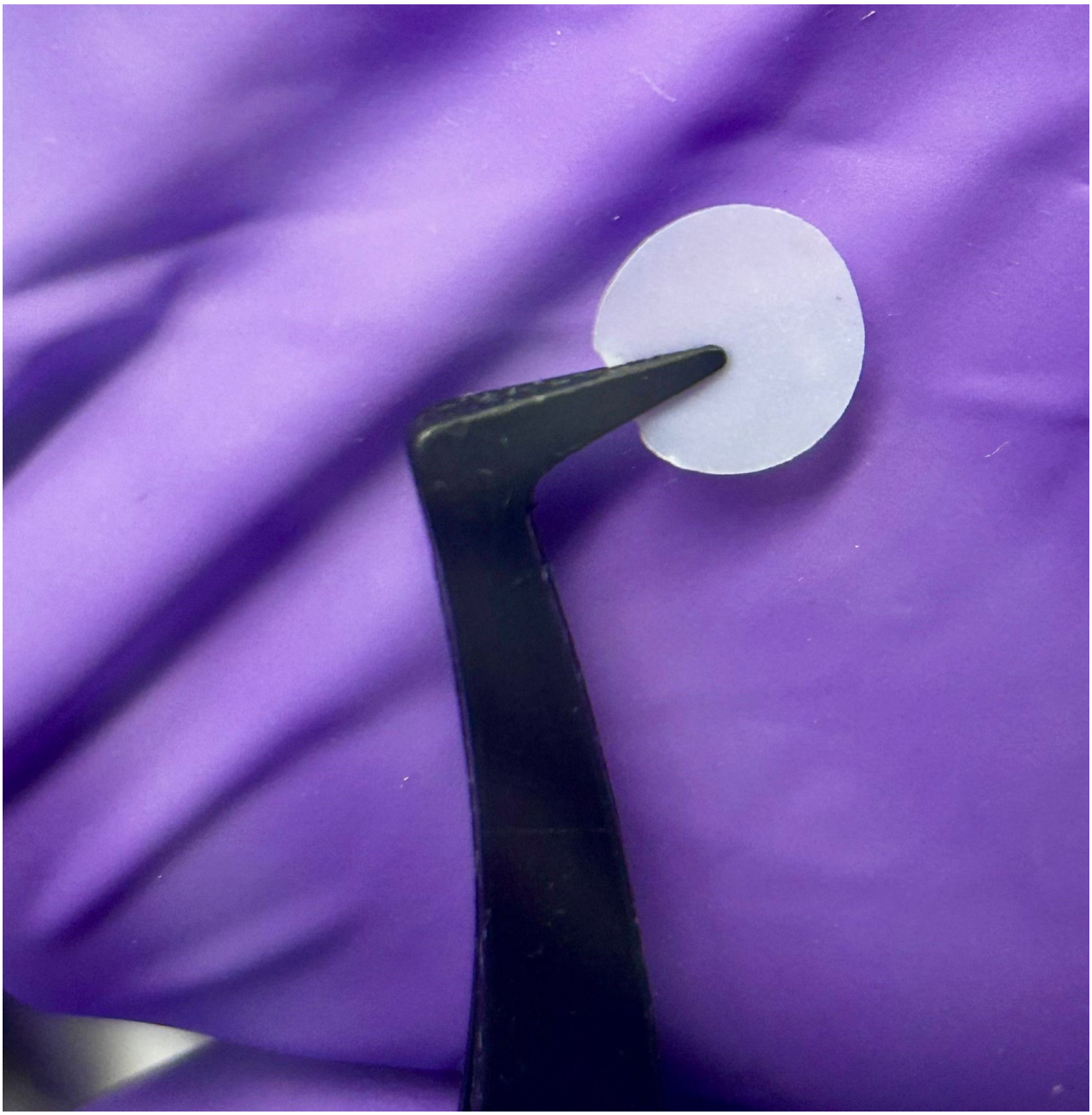

Figure S1. Photograph of PTMC:LiTFSI CPE with 20 wt% NAO particles.

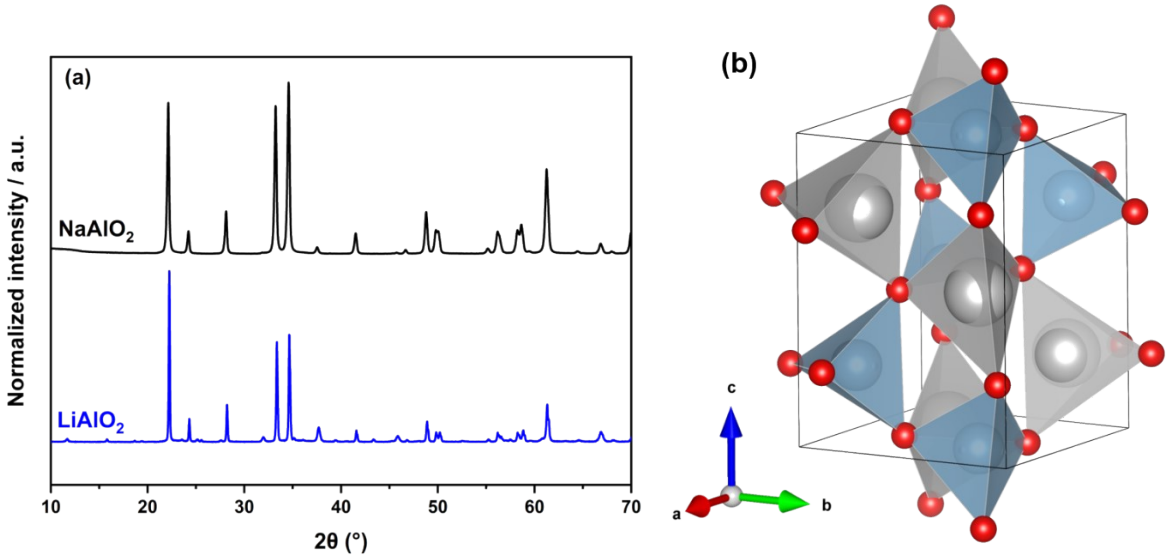

Figure S2. (a) XRD patterns of the as-synthesized γ-NAO compared to the synthesized LAO previously reported in Ref. 1; (b) Representation of the crystal structure of γ-NAO using Vesta software.[2] The grey, blue and red balls represent Na, Al, and O atoms, respectively. Na and Al atoms are centered in grey and blue tetrahedra, respectively, sharing corners at the oxygen atoms.

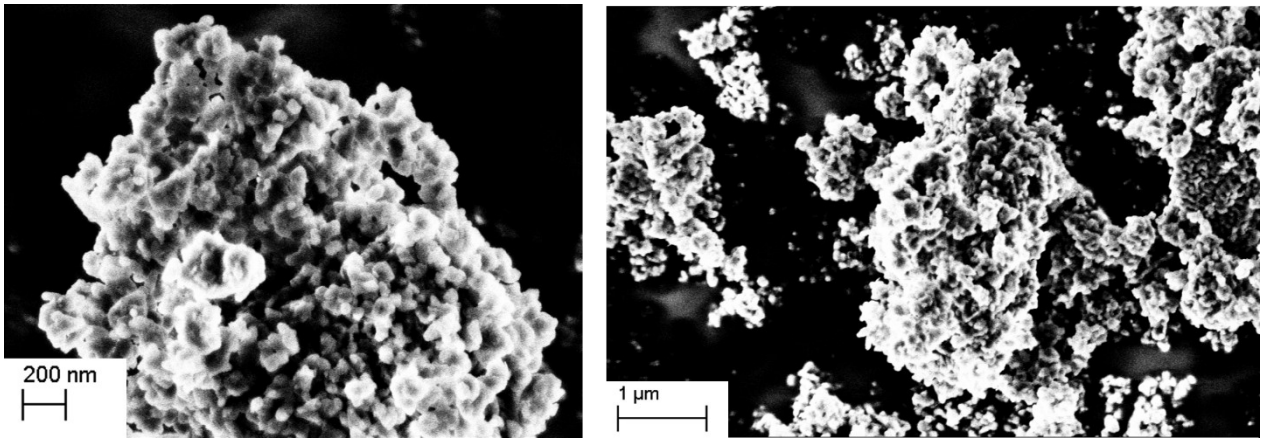

Figure S3. SEM images of the as-synthesized NAO particles.

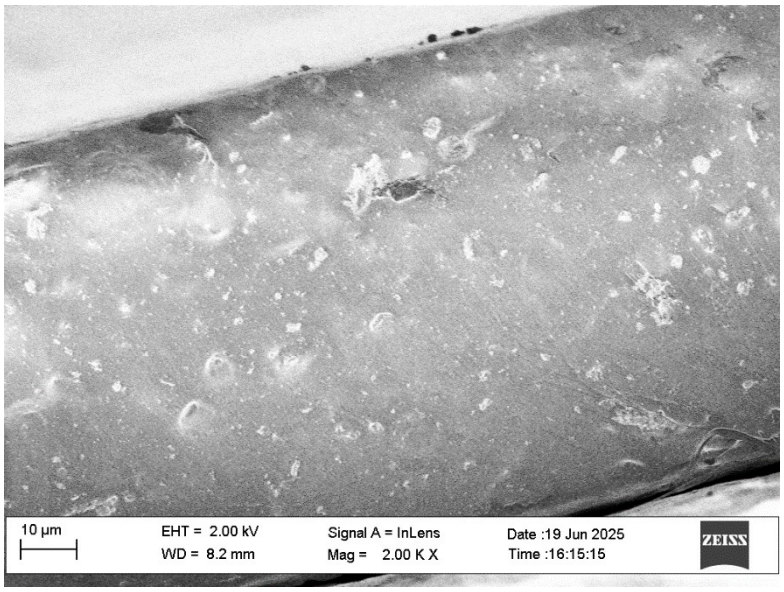

Figure S4. Cross-section SEM image of the PTMC:NAO CPE film at 20 wt% of NAO loading.

Table S1. Comparison of ionic conductivity and Na^+-transference number of different Na-based polymer-ceramic composite electrolytes.

CPE	Ionic conductivity (S cm^{-1})	Transference number	Temperature (°C)	Ceramic filler nature	Particle size	Ref.
PTMC:20 wt% NAO	**1.44×10^{-6}**	**0.9**	**60**	***Passive***	***~ 5 µm***	***This work***
[PEO:NaTFSI]+5 wt% SiO_2	1.1×10^{-3}	0.51	80	Passive	7 nm	[3]
[PEO:$NaClO_4$]+25 wt% $Na_3Zr_2Si_2PO_{12}$	5.6×10^{-4}	NA	60	Active	50-200 nm	[4]
[PEO:NaTFSI]+50 wt% $Na_{3\cdot4}Zr_{1\cdot8}Mg_{0\cdot2}Si_2PO_{12}$	2.8×10^{-3}	NA	80	Active	~ 500 nm	[5]
[PEO:$NaClO_4$]+10wt % β- Al_2O_3	3.95×10^{-4}	0.34	60	Passive	~ 300 nm	[6]
[PEO:$NaClO_4$]+5 wt% TiO_2	2.62×10^{-4}	NA	60	Passive	3.4 nm	[7]

References

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