

## **Supporting Information**

### **Room Temperature Rechargeable Solid State Fluoride Ion Batteries**

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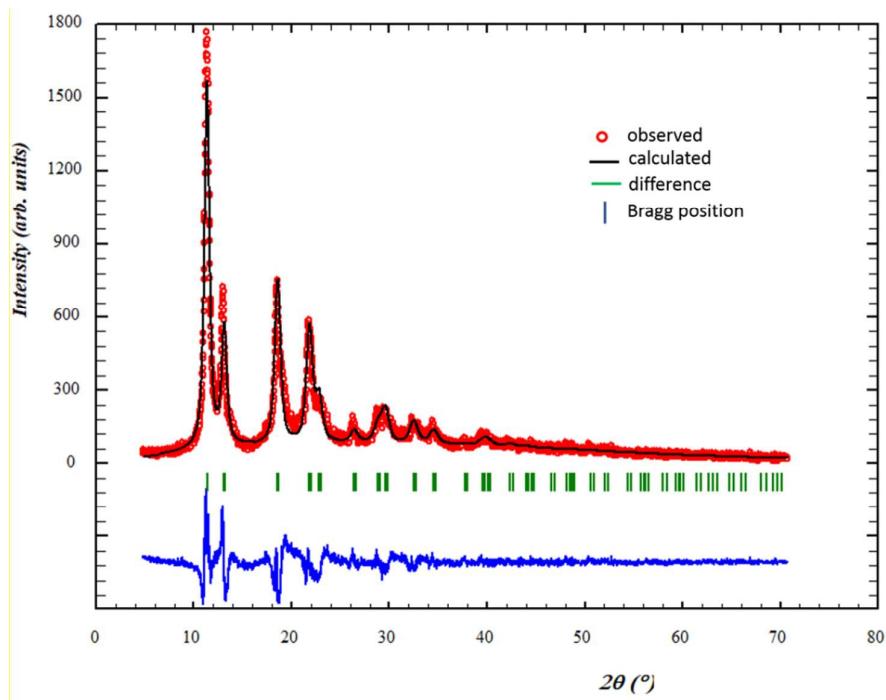
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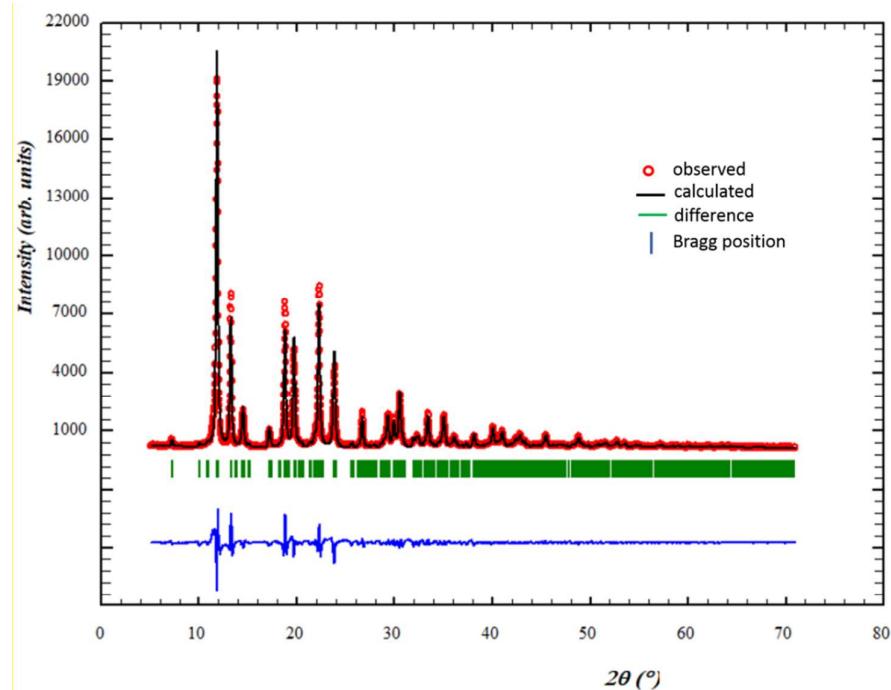
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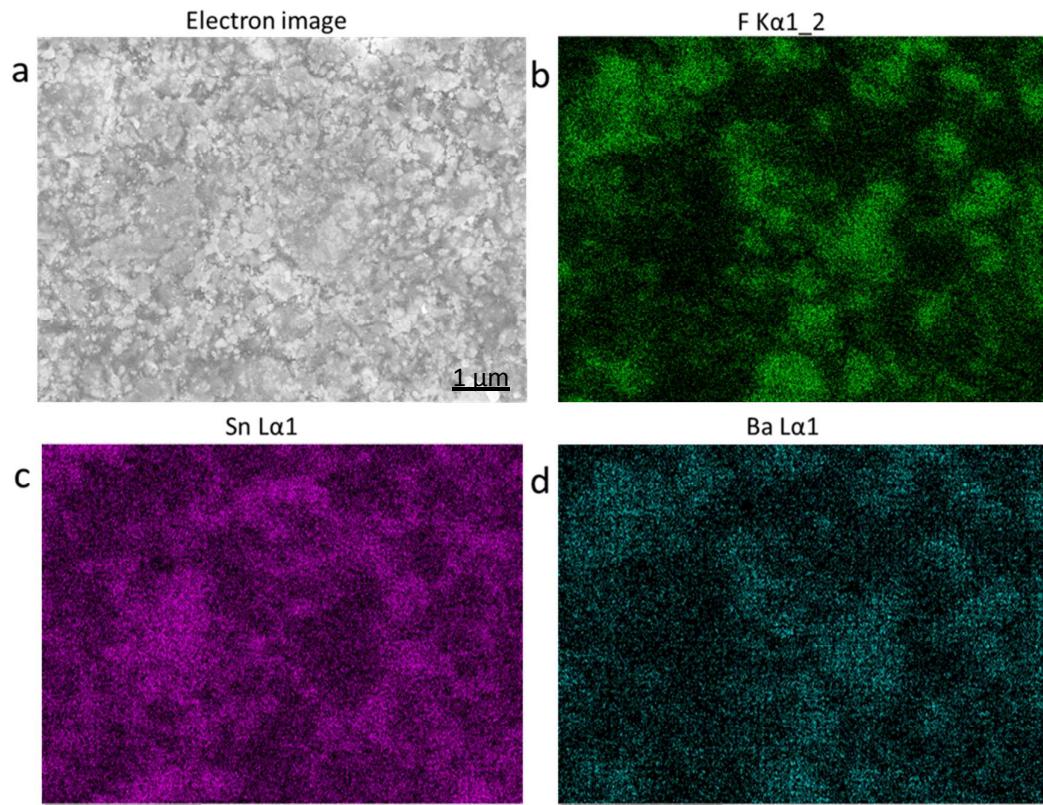
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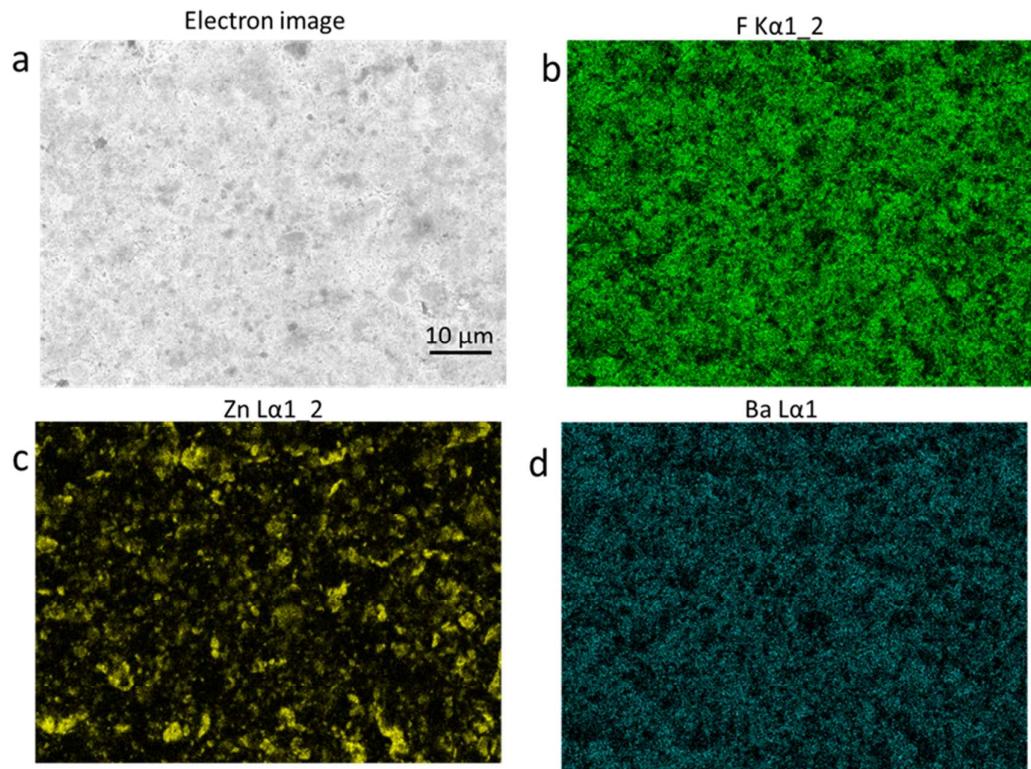
**Figure S1.** Observed and calculated XRD patterns of as ball milled BaSnF<sub>4</sub>.



**Figure S2.** Observed and calculated XRD patterns of as annealed BaSnF<sub>4</sub>



**Figure S3.** EDX images of Sn anode pellet (a) electron image and the elemental mapping (b-d) of F, Sn and Ba.



**Figure S4.** EDX images of Zn anode pellet (a) electron image and the elemental mapping (b-d) of F, Zn and Ba.

**Table S1.** Calculated redox energies of various redox couples

No.	Redox Couple	EMF (V vs. Ce/CeF <sub>3</sub> )	Volume change M → MF <sub>x</sub> (%)
1	Bi/BiF <sub>3</sub>	2.66	+59
2	Sn/SnF <sub>2</sub>	2.206	+101
3	Zn/ZnF <sub>2</sub>	1.57	+127