

Supporting Information

Electrochemical performance and reaction mechanism of all-solid-state lithium-air batteries composed of lithium, $\text{Li}_{1+x}\text{Al}_y\text{Ge}_{2-y}(\text{PO}_4)_3$ solid electrolyte and carbon nanotube air electrode

*Hirokazu Kitaura, Haoshen Zhou**

Energy Technology Research Institute,

National Institute of Advanced Industrial Science and Technology,

Umezono, 1-1-1, Tsukuba, 305-8568, JAPAN.

E-mail: hs.zhou@aist.go.jp.

XRD patterns and Raman spectra before and after discharge

The all-solid-state lithium-air cell was discharged to 1500 mAh g⁻¹ and the air electrode was analyzed by XRD and Raman. Figure S1 shows the XRD patterns of the air electrode before and after discharge. The peaks attributed to the LAGP and outer package of the cell were observed in both patterns and significant changes were not observed in the air electrode before and after discharge. Figure S2 shows the Raman spectra of the air electrode before and after discharge. Only the Raman band derived from LAGP was observed in both spectra. From these results, we could not confirm the discharge products.

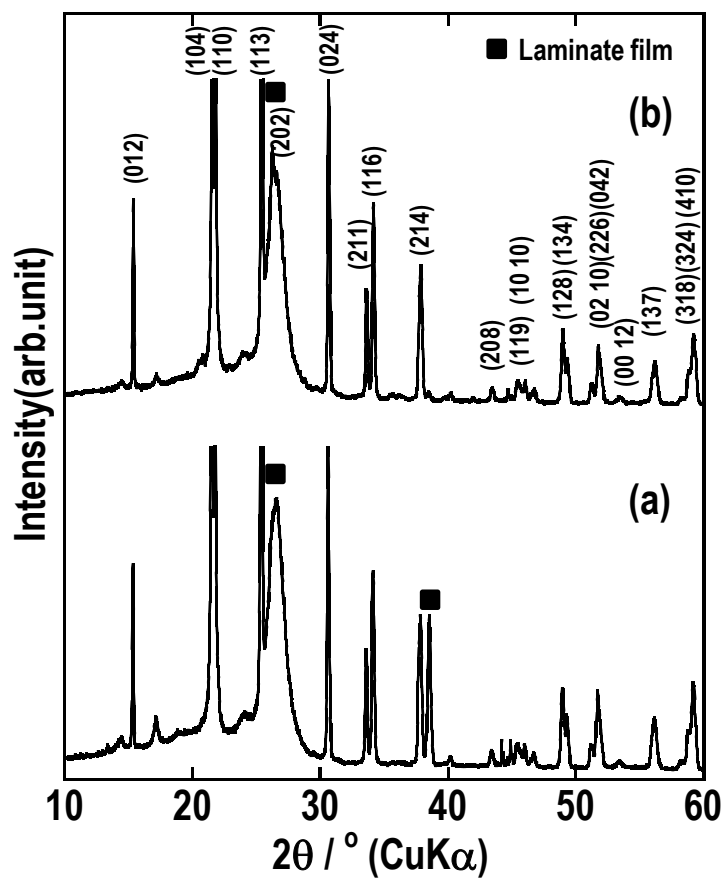


Figure S1 XRD patterns of the air electrodes before (a) and after (b) discharge.

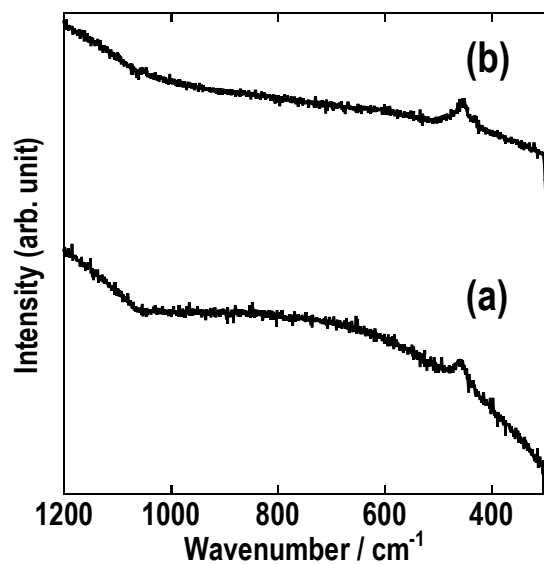


Figure S2 Raman spectra of the air electrodes before (a) and after (b) discharge.