Electronic Supplementary Information (ESI)

Inhibiting Shuttle Effect in Lithium-Sulfur Battery using Layer-by-Layer Assembled Ion-Permselective Separator

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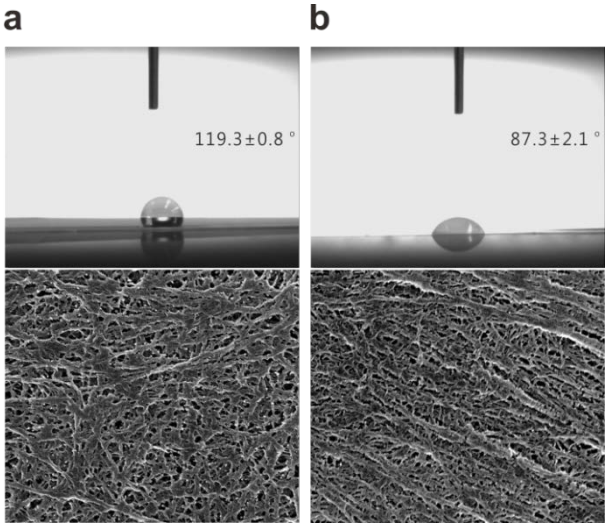

Figure S1. Contact angle and SEM images of a) bare PE and b) O_2-plasma treated PE separator.

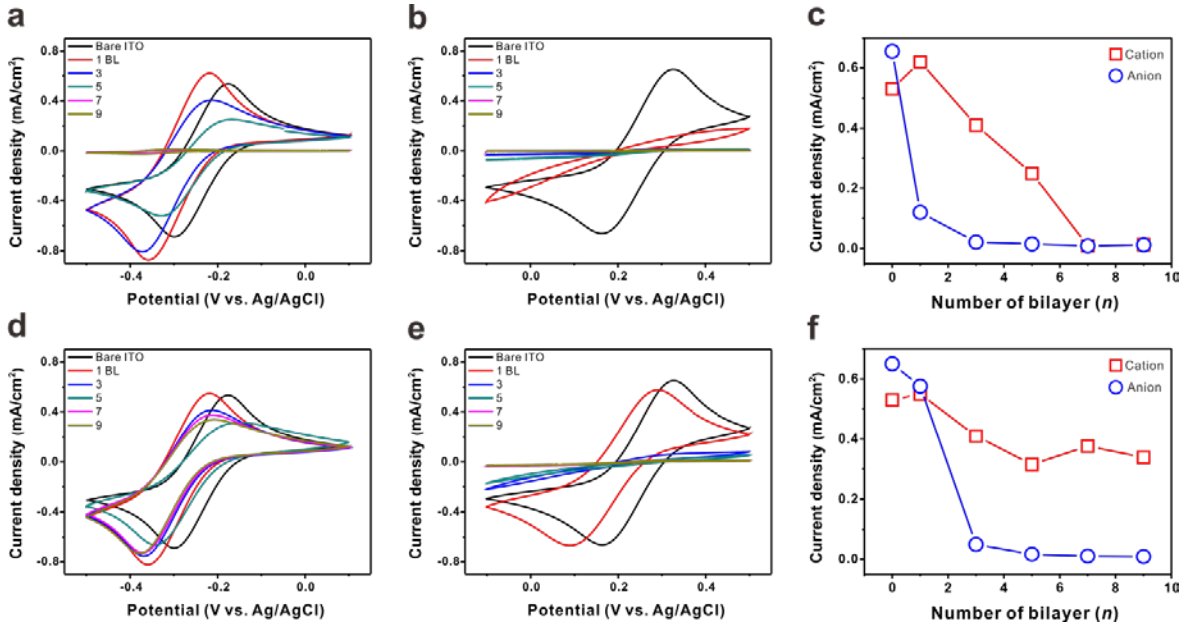

Figure S2. Cyclic voltammograms (CV) of $(PAH/PAA)_n$ multilayer of (a-b) pH 6/3 and (d-e) pH 8.5/8.5 coated on ITO glass by LbL assembly in aqueous 0.5 M Na_2SO_4 neutral electrolyte solution containing 5.0 mM of (a, d) $Ru(NH_3)_6^{3+}$ as the cationic and (b, e) $Fe(CN)_6^{3-}$ as the anionic probes, respectively. Comparison of the anodic peak current density of each ion species at c) pH 6/3 and f) pH 8.5/8.5

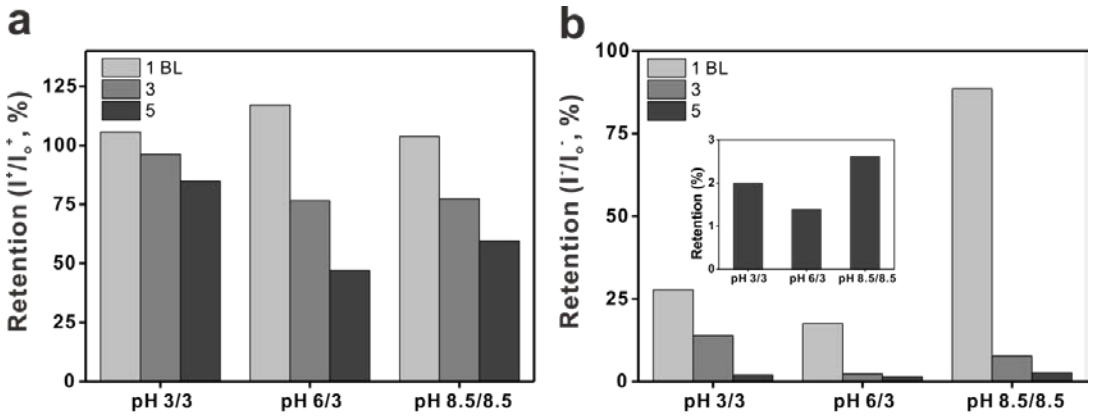

Figure S3. a) Cationic retention and b) anionic retention of 1, 3, 5 BL of $(PAH/PAA)_n$ assembled at pH 3/3, 6/3, and 8.5/8.5.

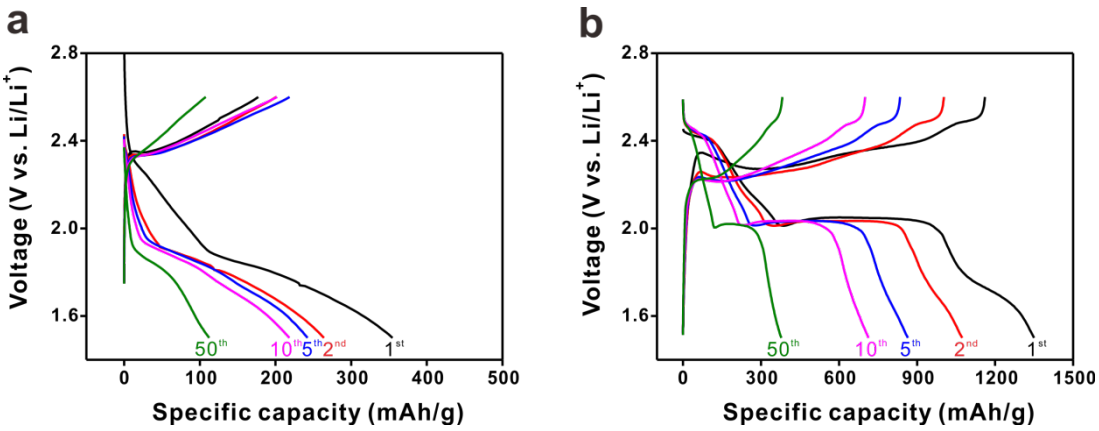

Figure S4. Voltage versus specific discharge capacity profiles of the $(PAH/PAA)_5$ at a) pH 6/3 and b) pH 8.5/8.5.