Supporting information

Enhanced performance of lithium-sulfur battery based on the single-sided chemical tailoring, and organosiloxane grafted PP separator

Fig. S1 SEM images of (a) KB and (b) KB/S; (c) TG curve of KB/S; (d) XRD patterns of KB/S cathode before and after 155 °C
Table S1. Impedance parameters of the Li-S batteries with the three different separators before and after 500 cycles

| Samples          | Before cycling | After cycling |
|------------------|----------------|---------------|
|                  | $R_s$ (Ω)      | $R_{ct}$ (Ω)  | $R_f$ (Ω) | $R_s$ (Ω) | $R_{ct}$ (Ω) | $R_f$ (Ω) |
| PP               | 8.02           | 41.46         | 11.52     | 9.1       | 186.07        | 151.11    |
| PP-O$^{y}$       | 7.43           | 38.61         | ---       | 8.48      | 67.03         | ---       |
| PP-O$^{y}$-U     | 4.5            | 31.94         | 9.47      | 5.51      | 35.06         | 14.15     |