Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

The Role of Oxygen Vacancies in Improving the Performance of CoO as Bifunctional Cathode Catalyst for Rechargeable Li-O_2 Batteries

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Supporting Figures

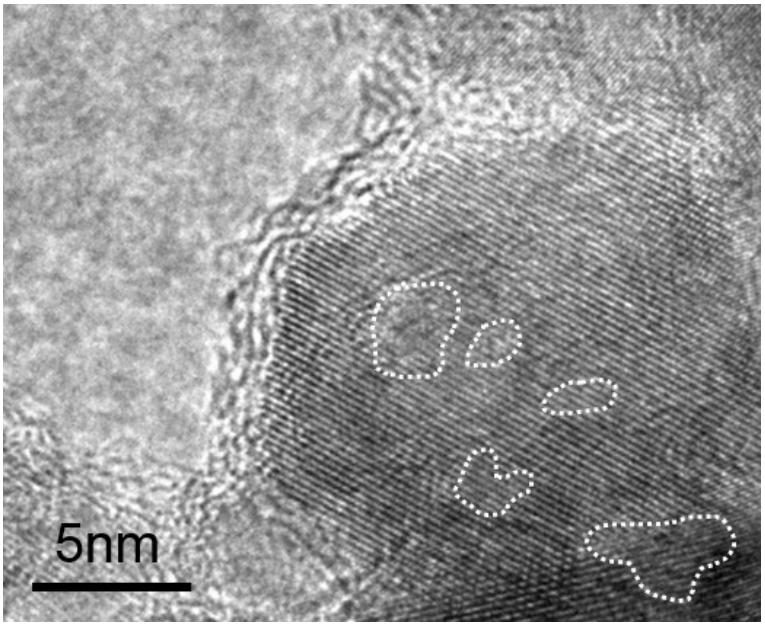

Figure S1. The HRTEM images of CoO-A. The blurred areas (circled) and the rough edges of CoO nanocrystals indicate the presence of surface defects

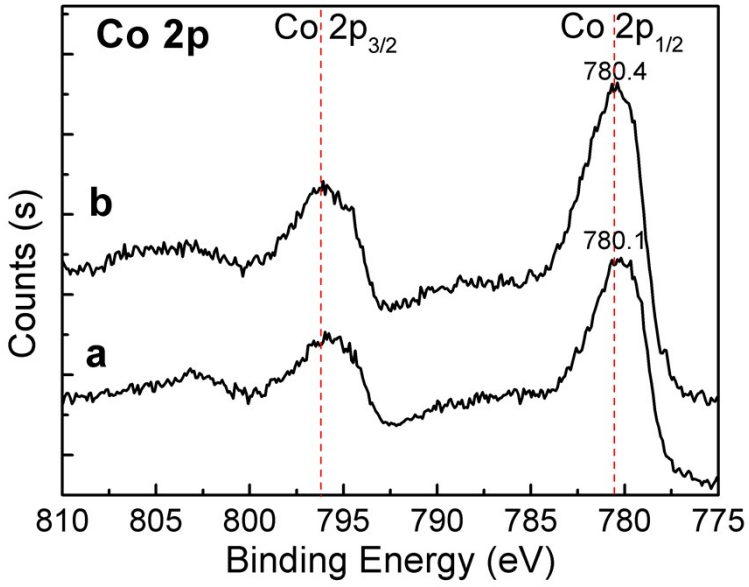

Figure S2. XPS spectra of CoO-A (a) and CoO-N (b). Two main peaks can be seen at ~780 eV and 796 eV, which can be attributed to Co (Co^{2+}) 2p3/2 and 2p1/2, respectively.

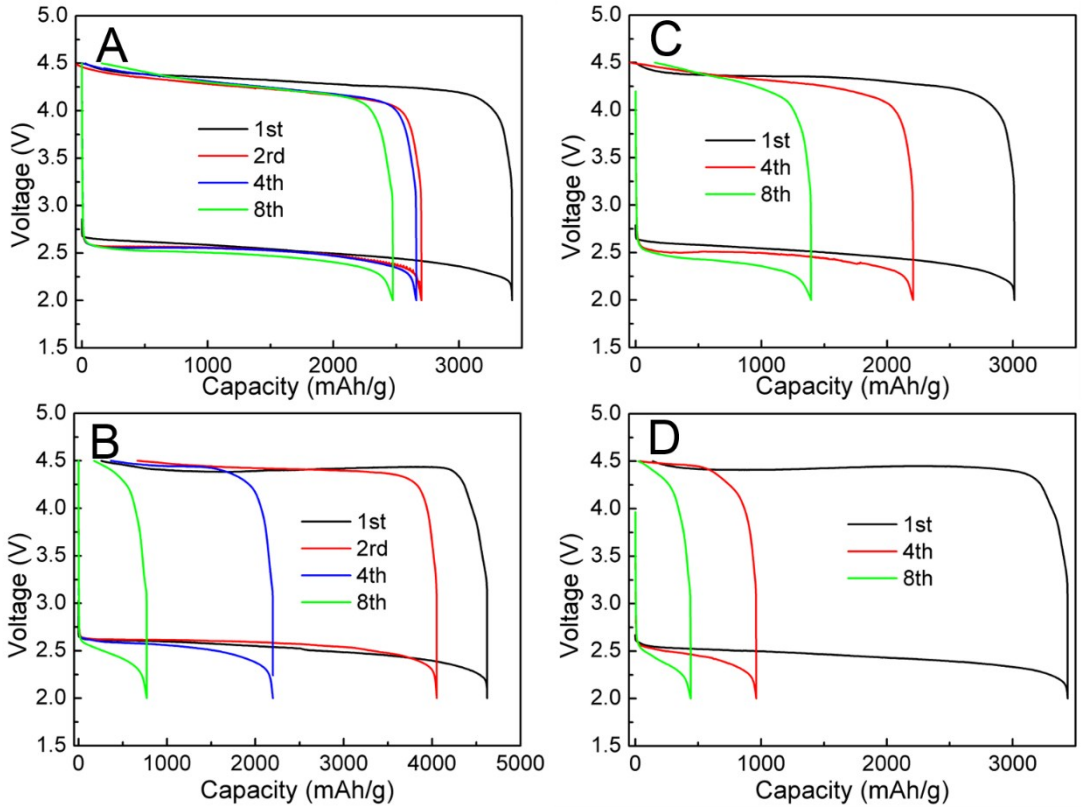

Figure S3 A, B) The full discharge-charge profiles of CoO-A (A) and CoO-N (B) at the current density of 200mA·g^{-1}. C, D) The full discharge-charge profiles of CoO-A (C) and CoO-N (D) at the current density of 400mA·g^{-1}.

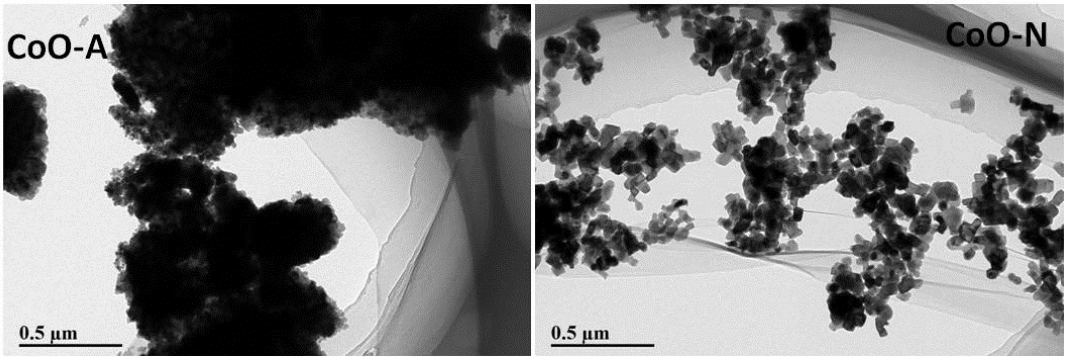

Figure S4. TEM images of CoO-A and CoO-N under a low magnification. The particles of CoO-A show a seriuos aggregation.

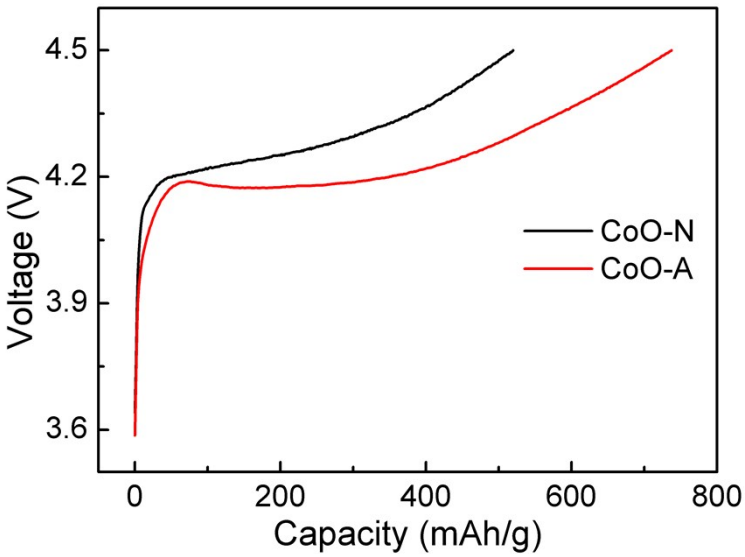

Figure S5. The the charge-only profile for batteries catalyzed by CoO-A and CoO-N at the current density of 200mA•g^{-1}. The ratio of carbon, CoO, binder and Li_2O_2 is 3:4:1:2