

**CoO@Co and N-doped mesoporous carbon composite derived from
Ionic liquids as cathode catalyst for rechargeable Lithium-oxygen
batteries**

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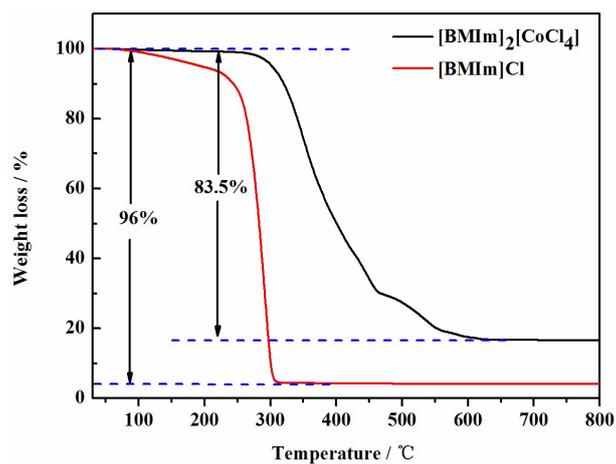


Figure S1. TGA curves at a heating rate of 10 °C min⁻¹ for [BMIm]Cl and [BMIm]₂[CoCl₄] obtained in N₂ flow.

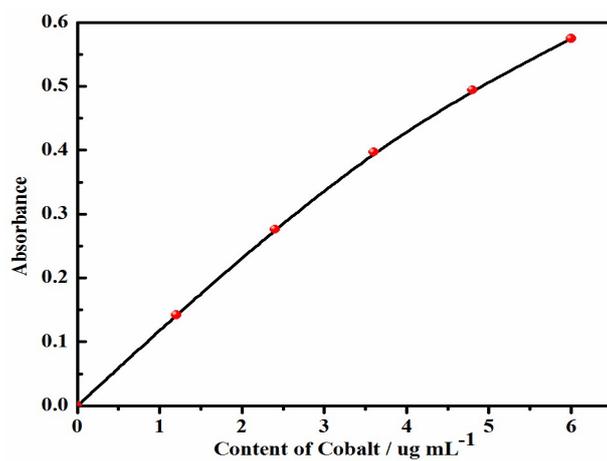


Figure S2. The calibration curve for AAS measurement.

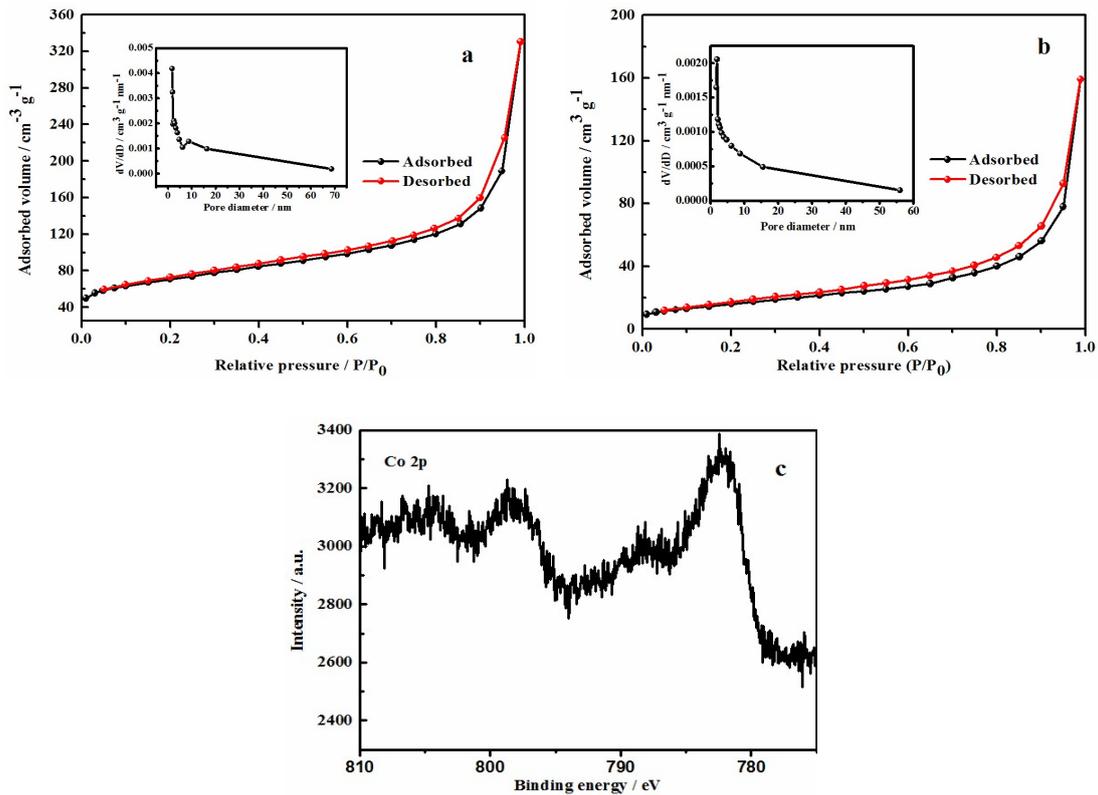


Figure S3. Nitrogen adsorption-desorption isotherms and the pore size distribution (insert) of XC 72 (a) and C-IL (b). (c) High-resolution Co 2p spectrum of m-CoO@Co/C-IL.

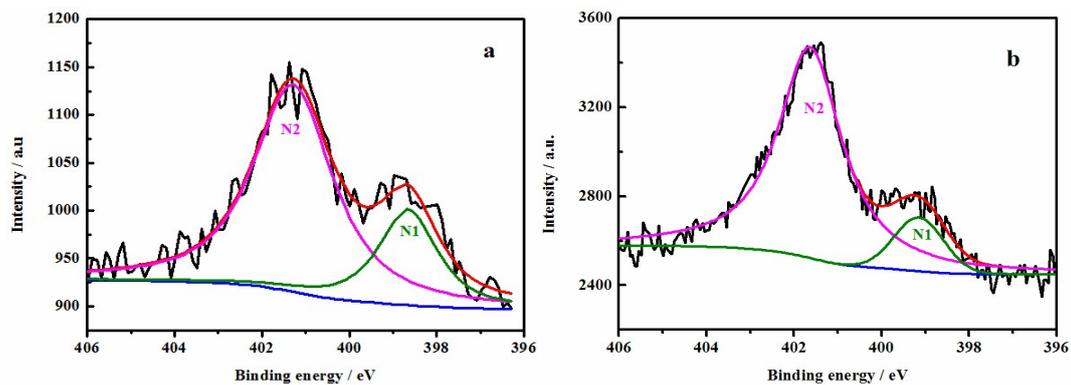


Figure S4. High-resolution N 1s spectrum for (a) C-IL and (b) m-CoO@Co/C-IL.

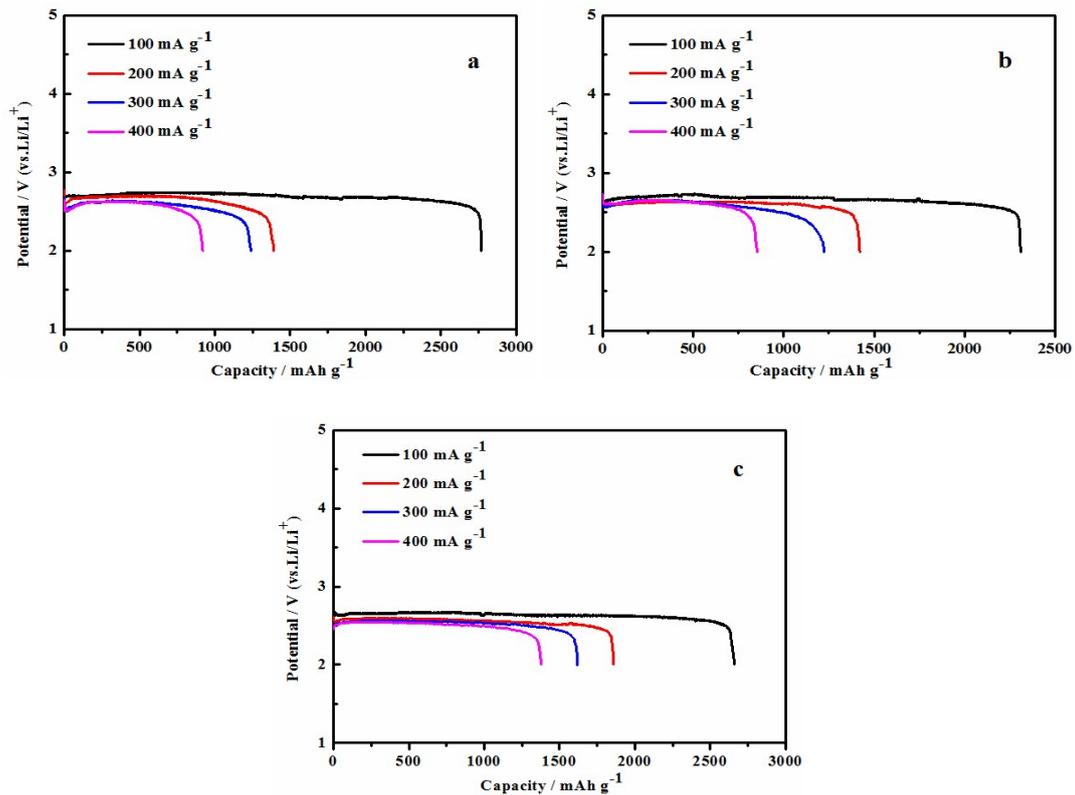


Figure S5. Discharge curves at different current density for (a) XC 72, (b) C-IL and (c) CoO@Co/C-IL electrodes.

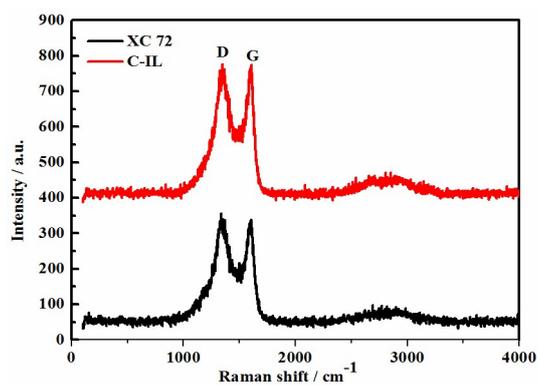


Figure S6. Raman spectroscopy of XC 72 and C-IL.

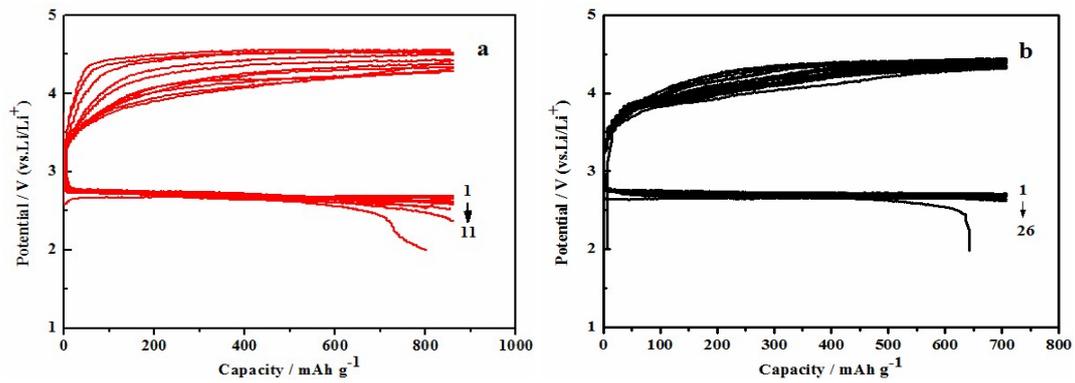


Figure S7. Discharge-charge profiles of cycles for (a) XC 72 and (b) C-IL electrode.

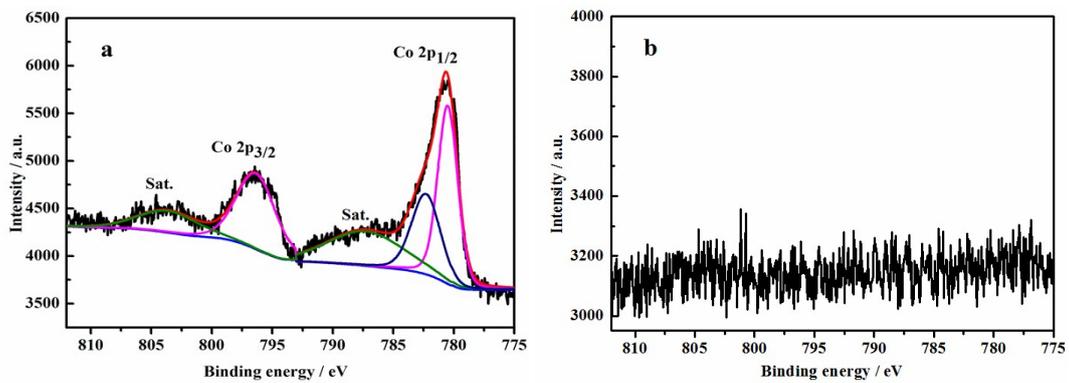


Figure S8. High-resolution Co 2p spectrum for CoO@Co/C-IL electrode (a) before discharge, (b) after discharge.

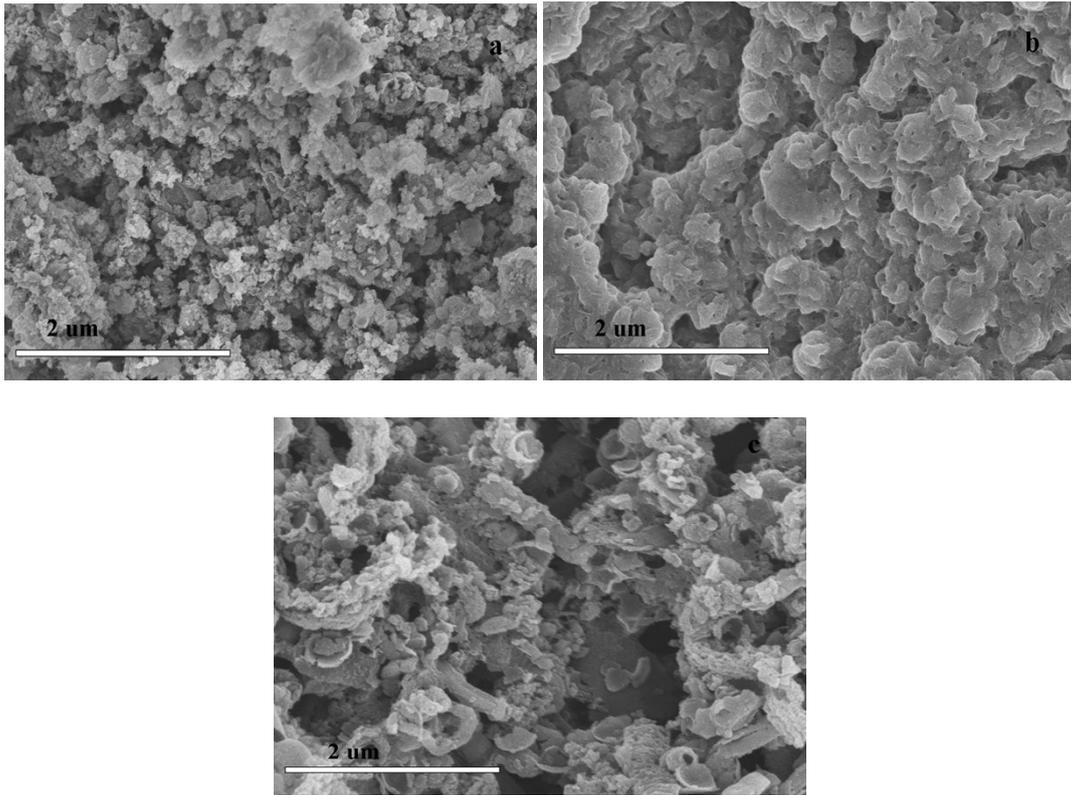


Figure S9. SEM image of C-IL electrode (a) before discharge, (b) after discharge, (c) after charge.