

Supporting Information

Synergistic Effect of Oxygen Vacancy and Dual Electrocatalysts in Activating Anion Redox in Lithia-based Cathodes

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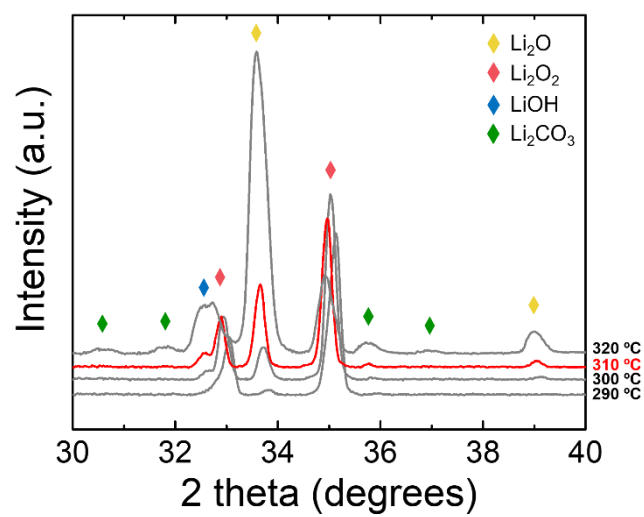


Fig. S1 XRD patterns of the heat-treated Li_2O_2 at temperatures from 290 °C to 320 °C.

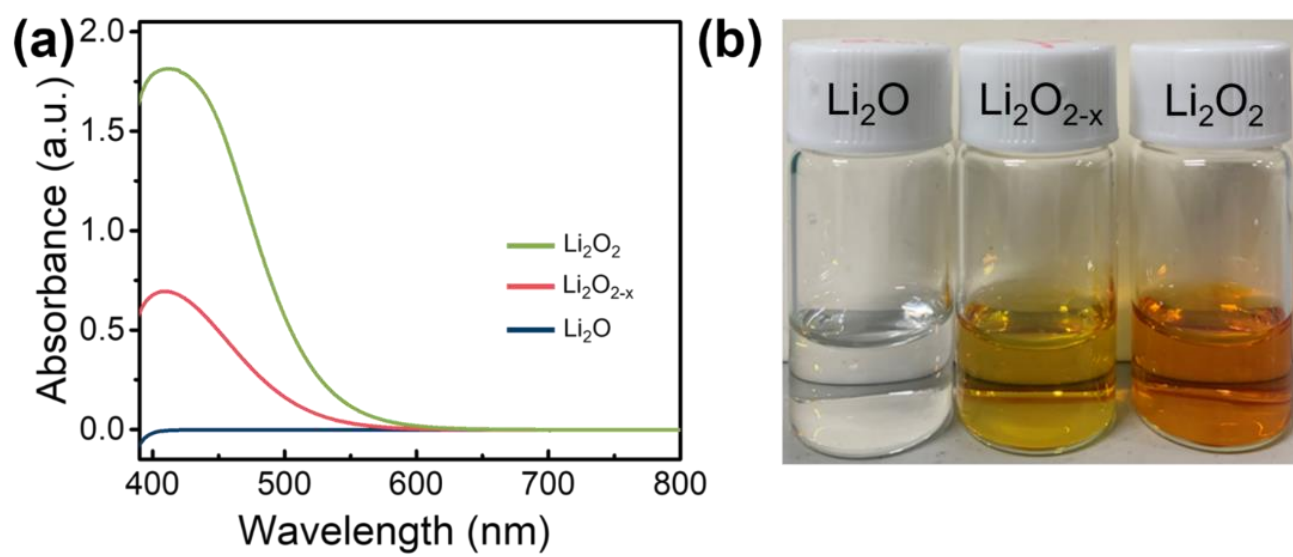


Fig. S2 (a) UV-Vis adsorption spectra and (b) a photograph of the titration solutions with Li₂O, Li₂O₂, and Li₂O_{2-x}.

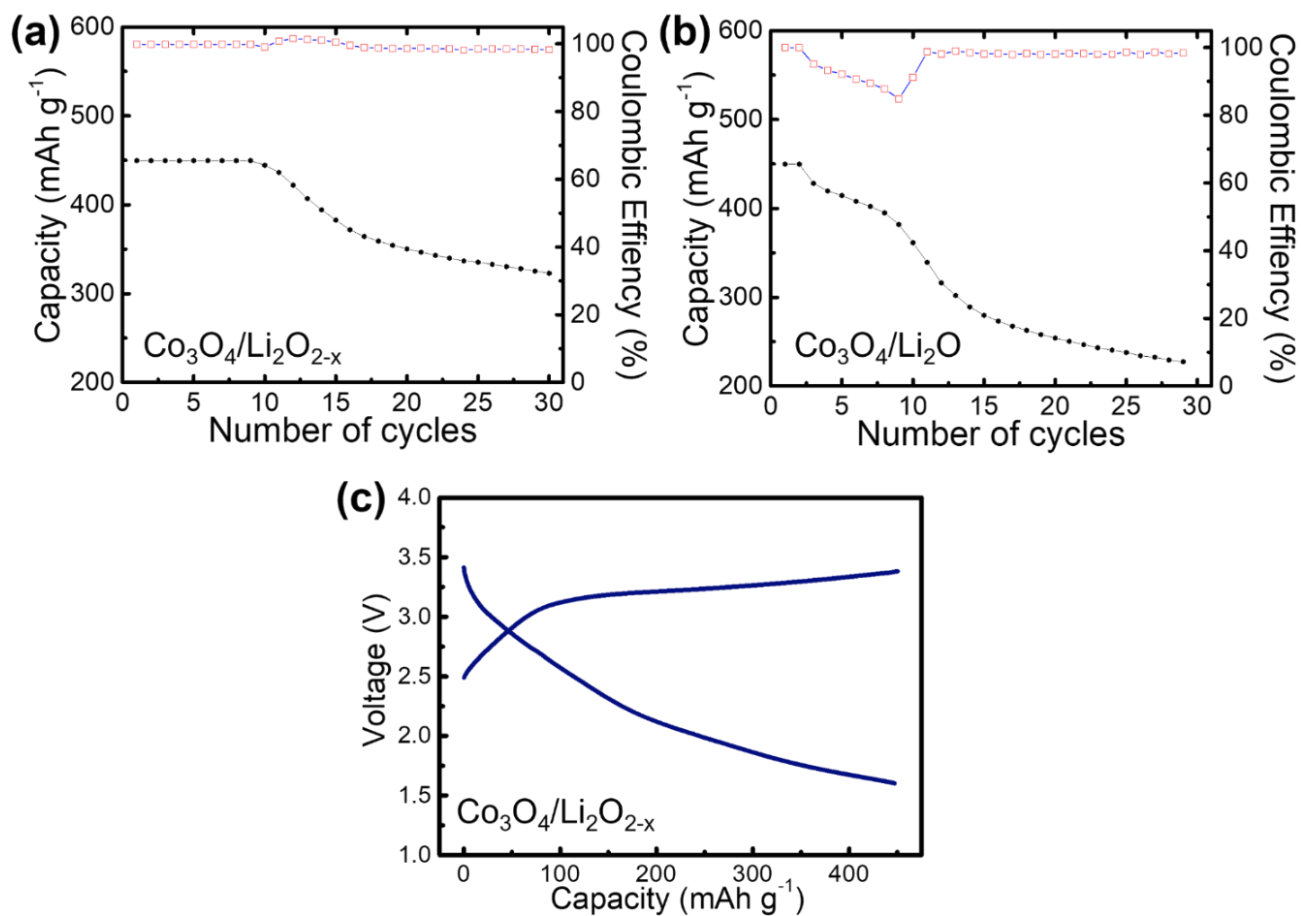


Fig. S3 Specific capacity (mAh g^{-1}) and Coulombic efficiency (%) versus cycle number of (a) $\text{Co}_3\text{O}_4/\text{Li}_2\text{O}_{2-x}$ and (b) $\text{Co}_3\text{O}_4/\text{Li}_2\text{O}$ electrodes tested in half-cell configurations in 1 M LiPF_6 in EC/DEC at 30 mA g^{-1} . (c) Galvanostatic charge/discharge curve of $\text{Co}_3\text{O}_4/\text{Li}_2\text{O}_{2-x}$.

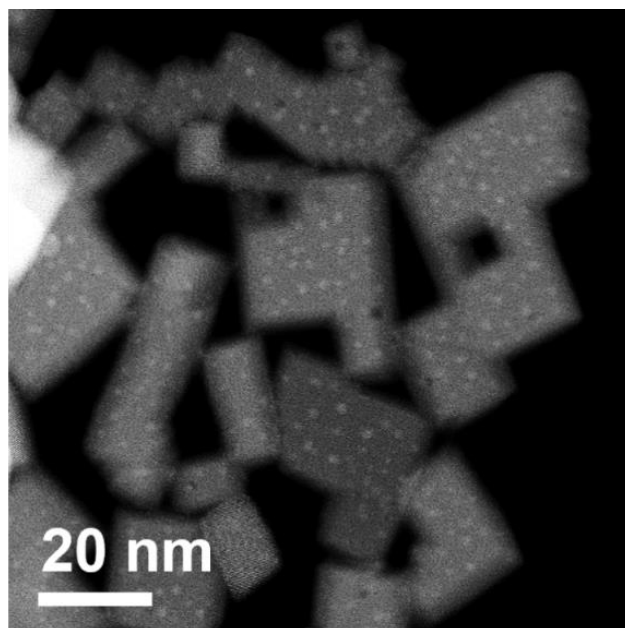


Fig. S4 STEM image of Ru-CeO₂ synthesized with urea.

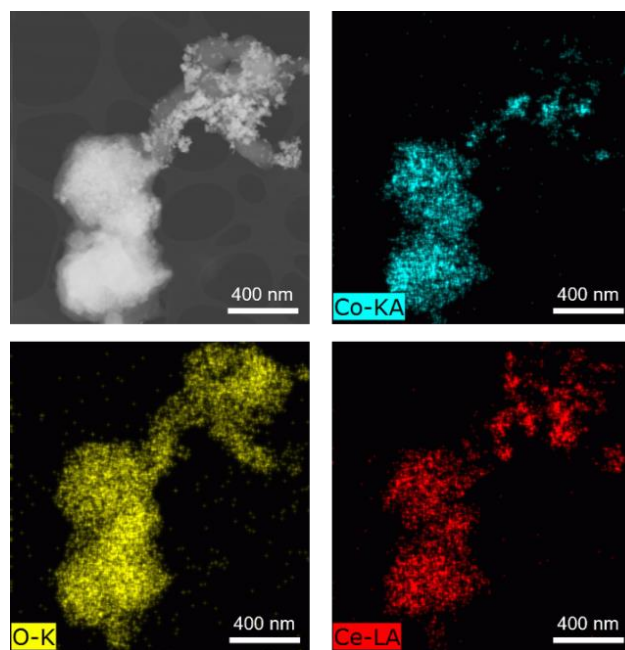


Fig. S5 TEM image and EDS elemental mapping of $\text{Co}_3\text{O}_4/\text{Ru-CeO}_2/\text{Li}_2\text{O}_{2-x}$.

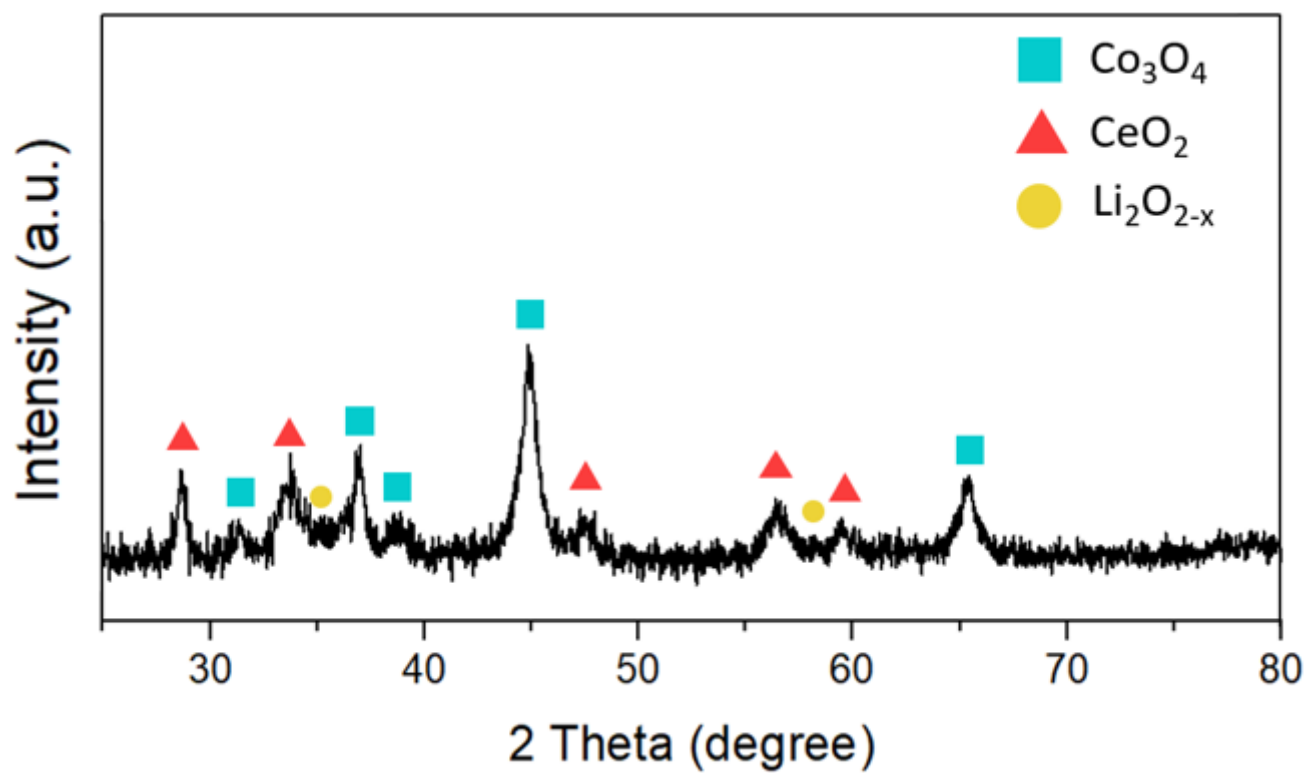


Fig. S6 XRD patterns of $\text{Co}_3\text{O}_4/\text{Ru-CeO}_2/\text{Li}_2\text{O}_{2-x}$.

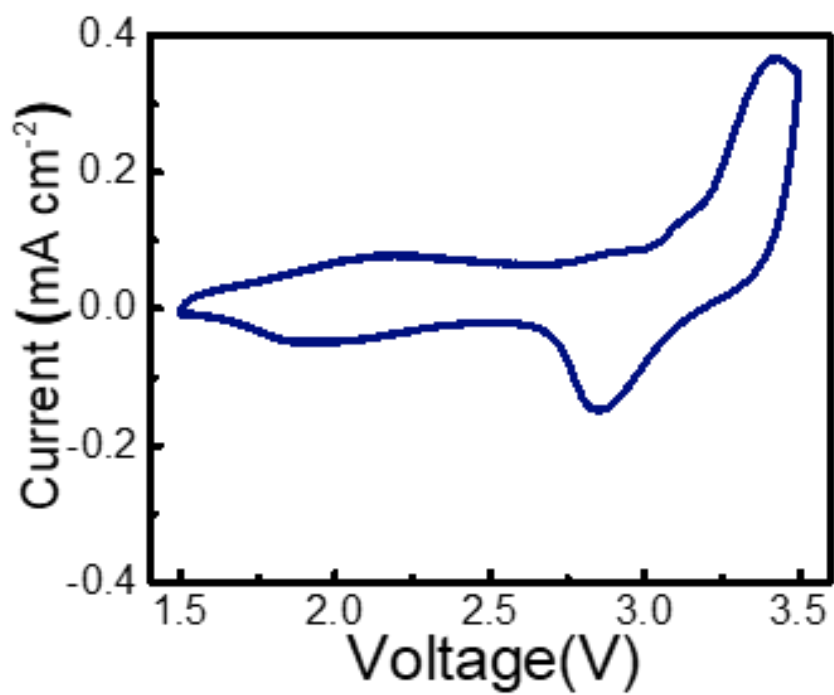


Fig. S7 Cyclic voltammogram for Co₃O₄/Ru-CeO₂/Li₂O_{2-x} electrode in 1 M LiPF₆ in EC/DEC at a scan rate of 0.1 mV s⁻¹ in the voltage range of 3.5-1.5 V (vs. Li/Li⁺).

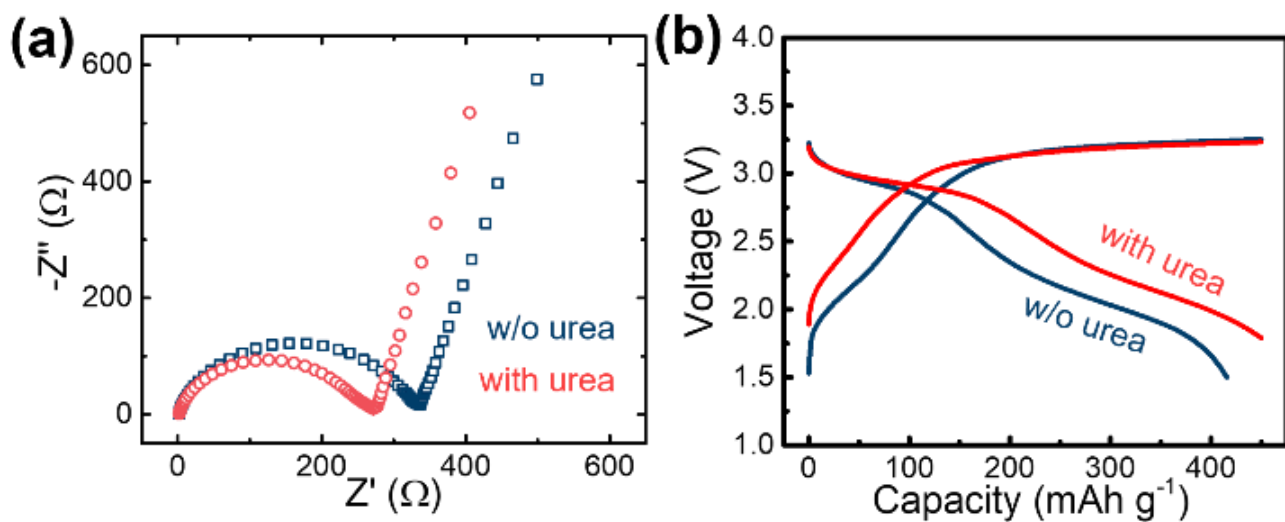


Fig. S8 (a) Nyquist plots and (b) galvanostatic charge/discharge curves of $\text{Co}_3\text{O}_4/\text{Ru-CeO}_2/\text{Li}_2\text{O}_{2-x}$ with/without urea tested in half-cells.