

Optimization of Oxygen Evolution Dynamics on RuO₂ via Controlling of Spontaneous Dissociation Equilibrium

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Temperature dependent EIS at $E @ j = 10 \text{ mA cm}^{-2}$

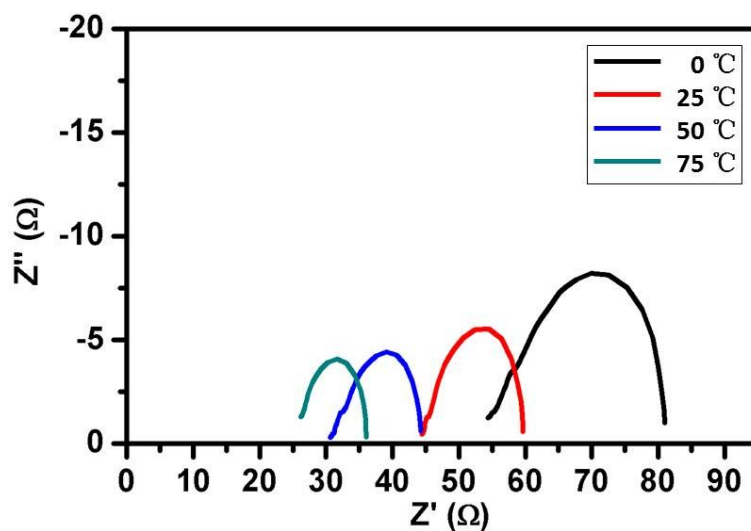


Figure S1 Electrochemical impedance spectroscopy for RuO_2 under different temperature @ $j = 10 \text{ mA cm}^{-2}$.

Temperature dependent Tafel slope

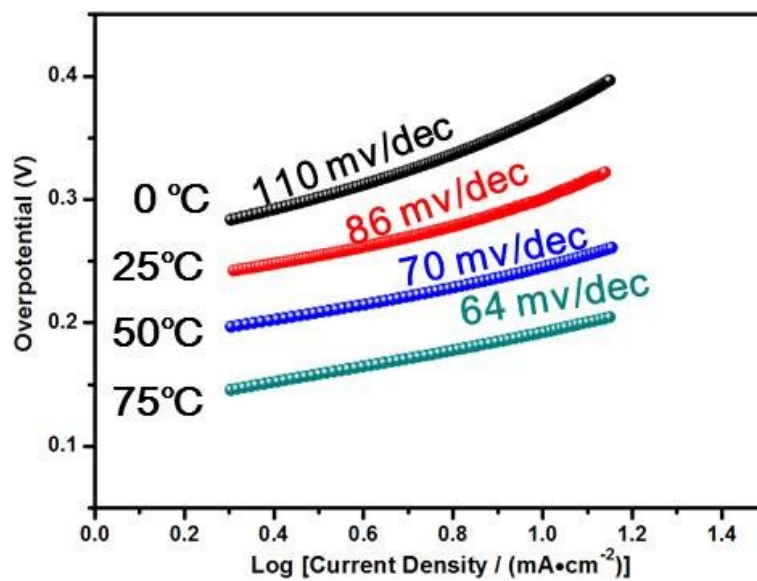


Figure S2 Tafel curve for RuO_2 under different temperature.

The influence of ionic strength

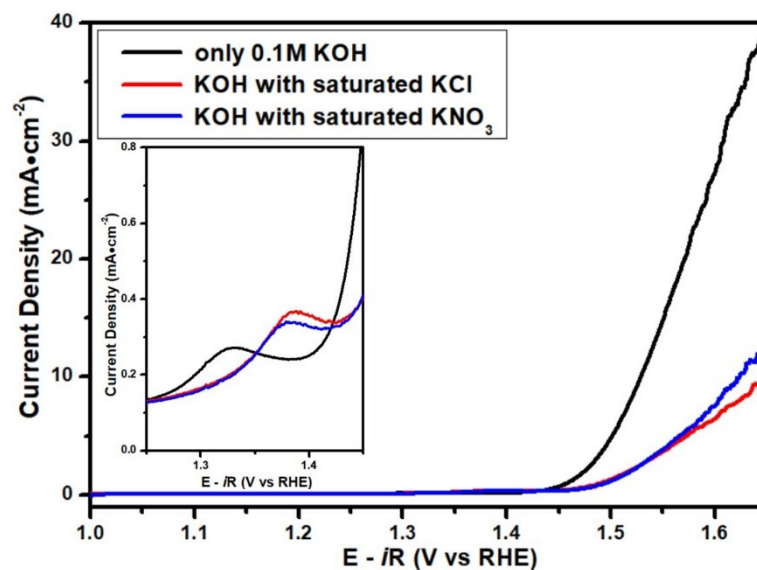


Figure S3 The influence of ionic strength for OER performance. With adding supporting electrolyte, E_{O_2} (insert) and OER catalytic activity decreases rapidly.

pH dependent Tafel slope

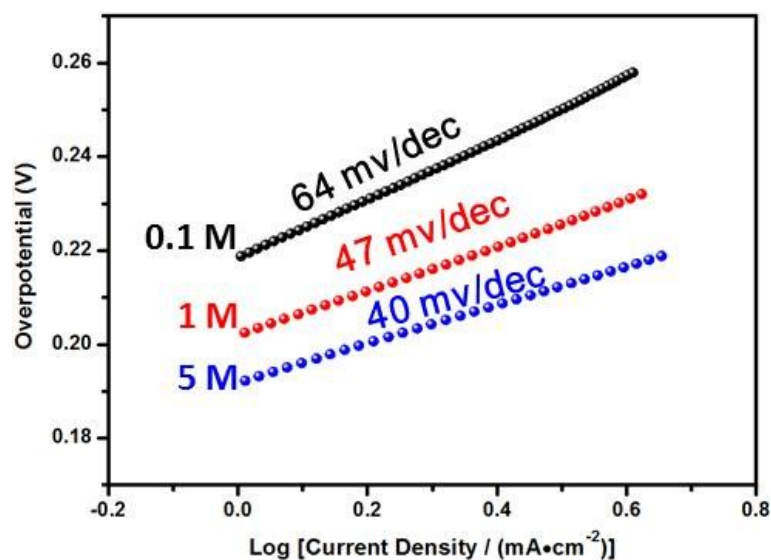


Figure S4 Tafel curve for RuO_2 in different concentration KOH electrolyte.

Faraday efficiency

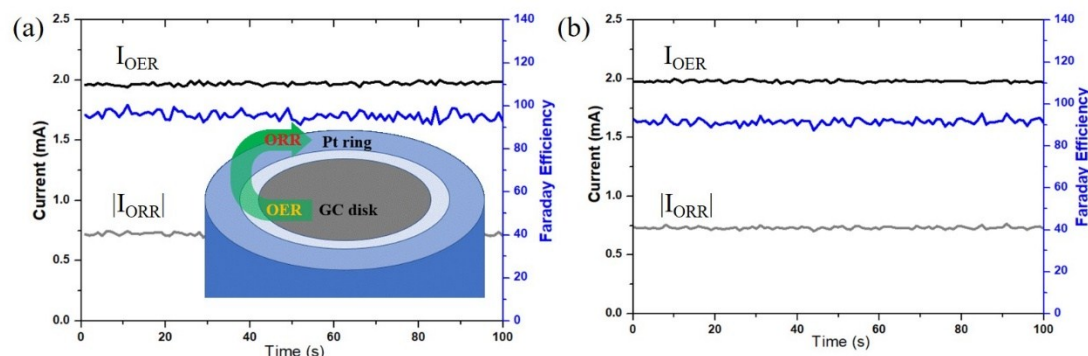


Figure S5 Faraday efficiency test using the RRDE method and the inset presents the test mechanism of the RRDE. $FE = |I_{ORR}| / (I_{OER} * C_e)$. C_e : oxygen collection coefficient for RRDE (38.3%). (a) 0.1M KOH and 25°C; (b) 1M KOH and 50 °C.

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