

Supporting Information

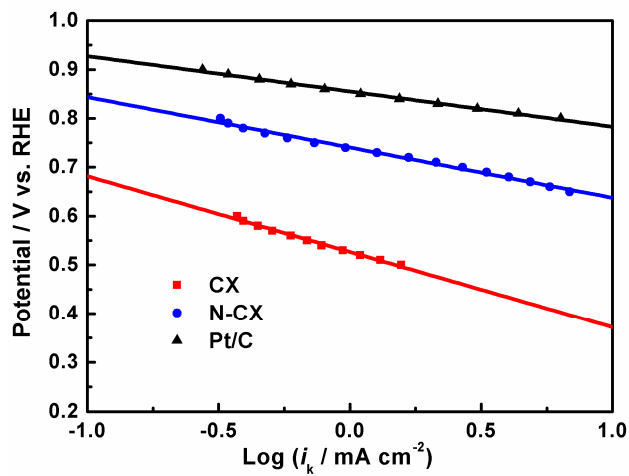


Figure S1 Tafel slopes (potential vs. $\log(i_k)$) obtained from the data in Fig.6(a) $i_k = i_d \cdot i / (i_d - i)$, where i_k , i_d , and i are the mass-transport calibrated kinetic current density, the diffusion-limited current density, and the measured current density, respectively.

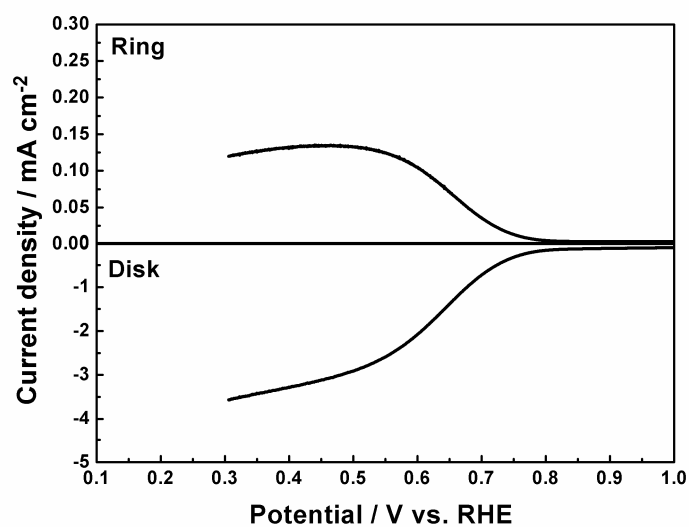


Figure S2 The electrochemical performance of N-CX catalyst was evaluated by rotating ring disk electrode measurement in O₂-saturated 0.5 M H₂SO₄ under 1600 rpm. Potential scan rate: 5 mV s⁻¹; disk area: 0.255 cm²; ring area: 0.198 cm².

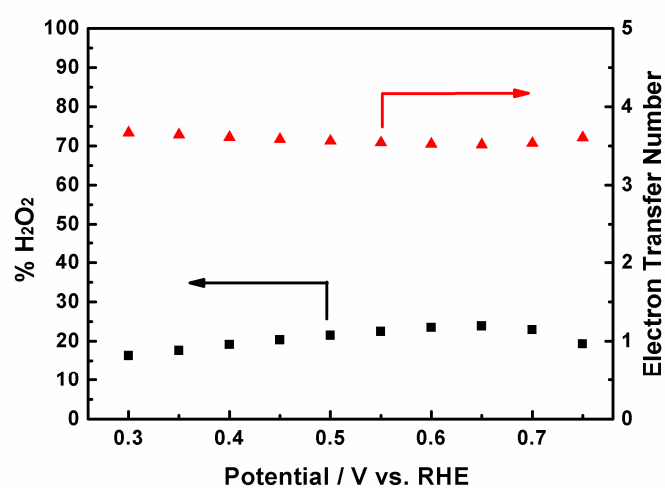


Figure S3 The percentage of produced H₂O₂ and the electron transfer number (n) as functions of potential for N-CX catalyst under a rotation speed of 1600 rpm.