

"A novel approach toward unveiling the role of solution phase impurities on the ORR on Pt(poly) in acid electrolytes"

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Abstract: A chronoamperometric method will be presented that allows correlations to be established between the rates of the oxygen reduction reaction, ORR, on the Pt disk of a rotating Pt-ring|Pt-disk electrode, the coverage of adsorbed halide, q_{X^-} , $X^- = Cl^-$ or Br^- , the amount of solution phase hydrogen peroxide, H_2O_2 , generated at the disk and the applied potential. Experiments were carried out in O_2 -saturated 0.1 M $HClO_4$ aqueous solutions containing Cl^- or Br^- at concentrations in the μM range and involved application of a potential step from a value at which there is no X^- adsorption, E_0 , to a more positive potential at which X^- undergoes adsorption under strict diffusion control.