III. International
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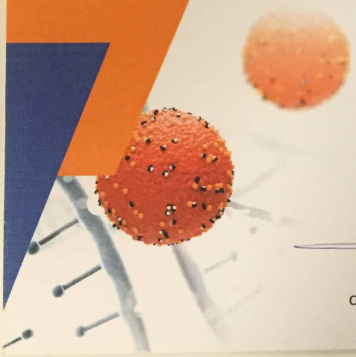
# Veton Haziri



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# Electrochemistry of Oxygen Bubbles on Conductive and Non-Conductive Solids

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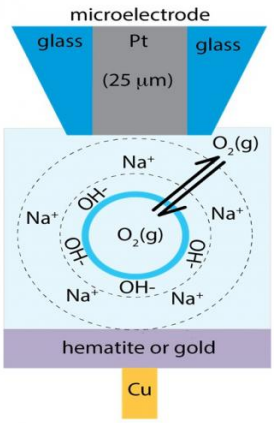


Gases emerged from electrochemical reactions at mineral surfaces are produced in the form of bubbles which are created within the reaction system. The electrical properties of gas bubbles are important in determining the interaction of bubbles and the way bubbles interact with other materials, to provide a basis for technical application in many fields. The study of water/gas bubble interface is essential to understand the behavior of the gas in aqueous solution and the interaction of the gas with mineral surfaces in the environment and in technological settings. One of such reactions of interest is the electrochemical splitting of water at hematite surfaces, from which oxygen bubbles are produced. In water or electrolyte condition, gas bubbles are observed to migrate against the direction of the electrical field, indicating them to be negatively charged. This is caused by the hydroxide layer at the bubble/water interface. An electrochemical system can be modeled by an equivalent circuit. In this study, electrochemical impedance spectroscopy (EIS) was used to extract electrochemical parameters affected by time, applied potential on the different substrates and the bubble size on measurements in different pH. By applying EIS, a technique that investigates the frequency-resolved impedance of charge carriers, knowledge about interesting electrochemical processes will be unfolded.

**Keywords:** Oxygen Bubble, Hematite, Gold, Electrochemical Impedance Spectroscopy