

Accepted Manuscript

Title: Synthesis of One-Dimensional RuO₂ Nanorod for Hydrogen and Oxygen Evolution Reaction: An Efficient and Stable Electrocatalyst

Authors: Roshan Nazir, Uttaran Basak, Surojit Pande



PII: S0927-7757(18)31318-9
DOI: <https://doi.org/10.1016/j.colsurfa.2018.10.009>
Reference: COLSUA 22894

To appear in: *Colloids and Surfaces A: Physicochem. Eng. Aspects*

Received date: 7-8-2018
Revised date: 20-9-2018
Accepted date: 3-10-2018

Please cite this article as: Nazir R, Basak U, Pande S, Synthesis of One-Dimensional RuO₂ Nanorod for Hydrogen and Oxygen Evolution Reaction: An Efficient and Stable Electrocatalyst, *Colloids and Surfaces A: Physicochemical and Engineering Aspects* (2018), <https://doi.org/10.1016/j.colsurfa.2018.10.009>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Synthesis of One-Dimensional RuO₂ Nanorod for Hydrogen and Oxygen Evolution Reaction: An Efficient and Stable Electrocatalyst

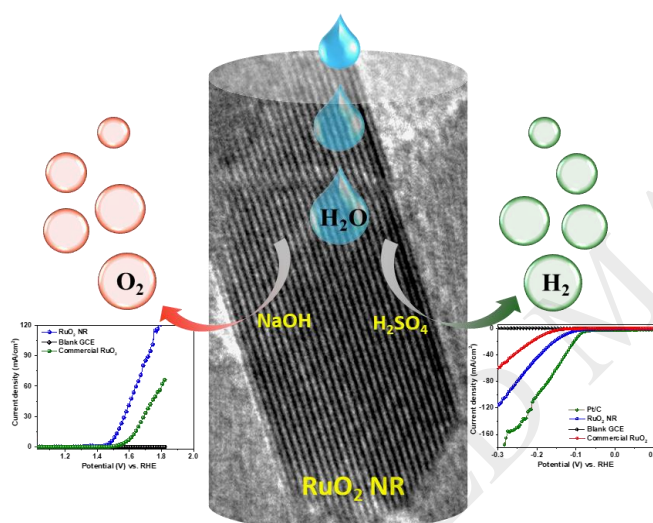
Roshan Nazir,^a Uttaran Basak,^a Surojit Pande^{a*}

^aDepartment of Chemistry, Birla Institute of Technology and Science, Pilani, Rajasthan, 333031,

India. E-mail: spande@pilani.bits-pilani.ac.in, surojitpande@gmail.com

Tel.: +91-1596 515709. Fax: +91-1596 244183

Graphical abstract



Abstract

RuO₂ nanorod (NR), an efficient and stable catalyst for hydrogen and oxygen evolution reaction is developed via wet-chemical route. Initially, a carbon slurry has been prepared using glucose and urea via heating at 140 °C for 6 h. During the preparation of carbon slurry Ru³⁺ salt has been added to disperse homogeneously. Finally, calcination at 500 °C for 10 h has been performed using homogeneously distributed Ru³⁺ ion in carbon slurry to get RuO₂ NR. The synthesized RuO₂ NR has been well characterized using FESEM, TEM, PXRD, and XPS analysis. The average aspect ratio of a single RuO₂ rod is ~ 4.37. The synthesized RuO₂ NR has been used extensively as an electrocatalyst for hydrogen and oxygen evolution reaction. RuO₂

Download English Version:

<https://daneshyari.com/en/article/11012358>

Download Persian Version:

<https://daneshyari.com/article/11012358>

[Daneshyari.com](https://daneshyari.com)