

Accepted Manuscript

Title: Atomic layer deposition-developed two-dimensional α -MoO₃ windows excellent hydrogen peroxide electrochemical sensing capabilities

Authors: Zihan Wei, Zhenyin Hai, Mohammad Karbalaee Akbari, Dongchen Qi, Kaijian Xing, Qing Zhao, Francis Verpoort, Jie Hu, Lachlan Hyde, Serge Zhuiykov



PII: S0925-4005(18)30258-2
DOI: <https://doi.org/10.1016/j.snb.2018.01.243>
Reference: SNB 24092

To appear in: *Sensors and Actuators B*

Received date: 3-11-2017
Revised date: 9-1-2018
Accepted date: 30-1-2018

Please cite this article as: Zihan Wei, Zhenyin Hai, Mohammad Karbalaee Akbari, Dongchen Qi, Kaijian Xing, Qing Zhao, Francis Verpoort, Jie Hu, Lachlan Hyde, Serge Zhuiykov, Atomic layer deposition-developed two-dimensional α -MoO₃ windows excellent hydrogen peroxide electrochemical sensing capabilities, *Sensors and Actuators B: Chemical* <https://doi.org/10.1016/j.snb.2018.01.243>

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.

Atomic layer deposition-developed two-dimensional α -MoO₃ windows excellent hydrogen peroxide electrochemical sensing capabilities

Zihan Wei^a, Zhenyin Hai^a, Mohammad Karbalaei Akbari^a, Dongchen Qi^b, Kaijian Xing^b, Qing Zhao^c, Francis Verpoort^{a,d,e}, Jie Hu^c, Lachlan Hyde^f, Serge Zhuiykov^{*a}

^a Ghent University Global Campus, Department of Applied Analytical & Physical Chemistry 119 Songdomunhwa-ro, Yeonsu-gu, Incheon, South Korea

^b Department of chemistry and physics, La Trobe Institute for Molecular Science, La Trobe University, Melbourne, VIC. 3086, Australia

^c College of Information Engineering, Taiyuan University of Technology, Taiyuan 030024, Shanxi, PR China

^d National Research Tomsk Polytechnic University, Lenin Avenue 30, 634050 Tomsk, Russian Federation

^e Laboratory of Organometallics, Catalysis and Ordered Materials, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing; Center for Chemical and Material Engineering, Wuhan University of Technology, Wuhan, P.R. China

^f Swinburne University, John St, Hawthorn, Melbourne, VIC. 3122, Australia

Corresponding Author's Email: serge.zhuiykov@ugent.be

Highlights

- 4.9 nm 2D α -MoO₃ nano-films were developed by ALD technique.
- 2D α -MoO₃ nano-films were used for H₂O₂ electrochemical detection for the first time.
- Sensors based on 2D α -MoO₃ nano-films showed excellent sensitivity of 168.72 $\mu\text{A}\cdot\text{mM}^{-1}\cdot\text{cm}^{-2}$
- A wide linear range of 0.4 μM – 57.6 mM with low detection limit of 0.076 μM was obtained.

Abstract

Download English Version:

<https://daneshyari.com/en/article/7140533>

Download Persian Version:

<https://daneshyari.com/article/7140533>

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