

Accepted Manuscript

Full Length Article

In-situ growth of graphene decorated Ni₃S₂ pyramids on Ni foam for high-performance overall water splitting

Jing Yu, Yue Du, Qianqian Li, Liang Zhen, Vinayak P. Dravid, Jinsong Wu, Cheng-Yan Xu

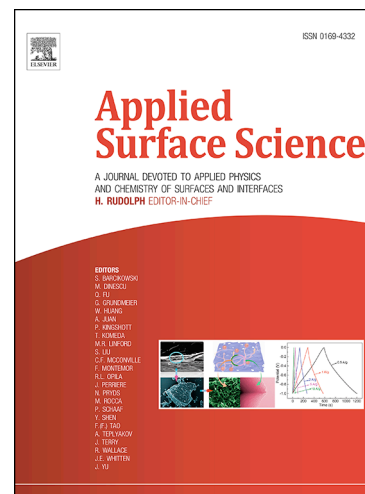
PII: S0169-4332(18)32603-5
DOI: <https://doi.org/10.1016/j.apsusc.2018.09.177>
Reference: APSUSC 40481

To appear in: *Applied Surface Science*

Received Date: 2 May 2018
Revised Date: 15 August 2018
Accepted Date: 22 September 2018

Please cite this article as: J. Yu, Y. Du, Q. Li, L. Zhen, V.P. Dravid, J. Wu, C-Y. Xu, *In-situ* growth of graphene decorated Ni₃S₂ pyramids on Ni foam for high-performance overall water splitting, *Applied Surface Science* (2018), doi: <https://doi.org/10.1016/j.apsusc.2018.09.177>

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.



***In-situ* growth of graphene decorated Ni₃S₂ pyramids on Ni foam
for high-performance overall water splitting**

Jing Yu^{#,a,b}, Yue Du^{#,c}, Qianqian Li^{b,e}, Liang Zhen^{a,c,d}, Vinayak P. Dravid^b, Jinsong Wu^{b,*}, and Cheng-Yan Xu^{a,d,*}

^a School of Materials Science and Engineering, Harbin Institute of Technology, Harbin 150001, China, E-mail: cy_xu@hit.edu.cn (C-Y. Xu)

^b Department of Materials Science and Engineering, NUANCE Center, Northwestern University, Evanston, IL 60208, USA, E-mail: jinsong-wu@northwestern.edu (J. Wu)

^c School of Materials Science and Engineering, Harbin Institute of Technology (Shenzhen), Shenzhen 518055, China

^d MOE Key Laboratory of Micro-Systems and Micro-Structures Manufacturing, Harbin Institute of Technology, Harbin 150080, China

^e Materials Genome Institute, Shanghai University, Shanghai 200444, China

Dr. J. Yu and Dr. Y. Du contributed equally.

Abstract: Rational design of high-performance electrocatalysts with low cost and large abundance is highly desirable for water splitting technology. Here we report the synthesis of Ni₃S₂ pyramids coated with crimped graphene (Ni₃S₂@G), the unique configuration of which endows Ni₃S₂@G with large roughness, creating much more active sites along the edges. Moreover, the coupling of graphene enhances the electrical conductivity of the nanocomposite, and thus improves the electrocatalytic activity due to synergistic effect between graphene and Ni₃S₂. Ni₃S₂@G hybrid shows

Download English Version:

<https://daneshyari.com/en/article/11027017>

Download Persian Version:

<https://daneshyari.com/article/11027017>

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