Accepted Manuscript

Title: Preparation of hierarchical rutile TiO₂ microspheres as scattering centers for efficient dye-sensitized solar cells

Authors: Xiong He, Jingyan Liu, Menghua Zhu, Yan Guo, Ziqiu Ren, Xin Li

PII: S0013-4686(17)32018-2

DOI: https://doi.org/10.1016/j.electacta.2017.09.158

Reference: EA 30357

To appear in: Electrochimica Acta

Received date: 13-8-2017 Revised date: 22-9-2017 Accepted date: 24-9-2017

Please cite this article as: Xiong He, Jingyan Liu, Menghua Zhu, Yan Guo, Ziqiu Ren, Xin Li, Preparation of hierarchical rutile TiO2 microspheres as scattering centers for efficient dye-sensitized solar cells, Electrochimica Acta https://doi.org/10.1016/j.electacta.2017.09.158

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.



Preparation of hierarchical rutile TiO2 microspheres as

scattering centers for efficient dye-sensitized solar cells

Xiong He¹, Jingyan Liu¹, Menghua Zhu¹, Yan Guo¹, Ziqiu Ren¹, Xin Li^{1, 2, *}

¹MIIT Key Laboratory of Critical Materials Technology for New Energy Conversion

and Storage, School of Chemistry and Chemical Engineering, Harbin Institute of

Technology, Harbin 150001, China

²State Key Lab of Urban Water Resource and Environment, Harbin Institute of

Technology, Harbin 150001, China

*Corresponding author: Tel.: +86-0451-86282153.

E-mail address: lixin@hit.edu.cn (X. Li)

Hightlights

The size-controlled hierarchical rutile TiO₂ microspheres were synthesized by a

simple hydrothermal self-assembly method.

The enhanced light scattering capability, improved electron transport and reduced

charge recombination were obtained with MS TiO₂ embedded.

The highest conversion efficiency of 9.3% has been achieved.

Abstract

Light scattering capability is a significant factor for high efficiency dye sensitized solar

cells (DSSCs), which is associated with the size and morphology of nanomaterials.

Here, we reported a simple hydrothermal self-assembly method to synthesize size-

1

Download English Version:

https://daneshyari.com/en/article/6605452

Download Persian Version:

https://daneshyari.com/article/6605452

<u>Daneshyari.com</u>