

Web of Science

[Search](#) | [Search Results](#) | [My Tools](#) | [Search History](#) | [Marked List](#)
[Full Text from Publisher](#)
[Look Up Full Text](#)

[Save to EndNote online](#)
[Add to Marked List](#)

27 of 499

One-pot template-free synthesis of porous CdMoO₄ microspheres and their enhanced photocatalytic activity

By: [Madhusudan, P](#) (Madhusudan, Puttaswamy)^[1]; [Zhang, JF](#) (Zhang, Jinfeng)^[1]; [Yu, JG](#) (Yu, Jiaguo)^[1,2]; [Cheng, B](#) (Cheng, Bei)^[1]; [Xu, DF](#) (Xu, Difa)^[1,3]; [Zhang, J](#) (Zhang, Jun)^[1,3]

[View ResearcherID and ORCID](#)

APPLIED SURFACE SCIENCE

Volume: 387 Pages: 202-213

DOI: 10.1016/j.apsusc.2016.06.028

Published: NOV 30 2016

[View Journal Impact](#)

Abstract

The optical and catalytic performances of materials strongly depend on their size, morphology, dimensionality and structure. Herein, we demonstrate a facile one-pot template free synthesis of hierarchical CdMoO₄ porous microspheres via a simple low temperature oil bath method. The photoactivity of the as-prepared samples was evaluated by photocatalytic decolorization of Methyl Orange (MO) and Methylene Blue (MB) mixed dye aqueous solutions at ambient temperature under full solar spectrum. The results indicated that the concentration of ammonium molybdate and reaction time greatly influence the diameter, average crystallite size, specific surface area, pore structure and photocatalytic activity of the prepared samples. Especially, under the suitable conditions the prepared hierarchical CdMoO₄ porous microspheres exhibited enhanced photocatalytic activity and high stability. Furthermore, it is found that the photocatalytic activity and formation rate of hydroxyl radicals greatly depend on the particle sizes and morphology of as-prepared samples. This work not only demonstrates a simple way to fabricate the hierarchical CdMoO₄ porous microspheres but also shows a possibility for utilization of CdMoO₄ porous microspheres for the photocatalytic treatment of waste water pollutants. (C) 2016 Elsevier B.V. All rights reserved.

Keywords

Author Keywords: CdMoO₄; Porous microspheres; Photocatalysis; Mixed dye aqueous solutions

KeyWords Plus: ROOM-TEMPERATURE SYNTHESIS; LIGHT DRIVEN PHOTOCATALYSTS; VISIBLE-LIGHT; HYDROTHERMAL SYNTHESIS; HOLLOW MICROSPHERES; DOPED TiO₂; SOLVOTHERMAL SYNTHESIS; FUNCTIONAL MATERIALS; SELF-TRANSFORMATION; OPTICAL-PROPERTIES

Author Information

Reprint Address: Yu, JG; Zhang, J (reprint author)

+ Wuhan Univ Technol, State Key Lab Adv Technol Mat Synth & Proc, Wuhan 430070, Peoples R China.

Addresses:

+ [1] Wuhan Univ Technol, State Key Lab Adv Technol Mat Synth & Proc, Wuhan 430070, Peoples R China

+ [2] King Abdulaziz Univ, Dept Phys, Fac Sci, Jeddah 21589, Saudi Arabia

[3] Changsha Univ, Hunan Key Lab Appl Environm Photocatalysis, Changsha 410022, Hunan, Peoples R China

E-mail Addresses: jiaguoyu@yahoo.com; zj2011@whut.edu.cn

Funding

Funding Agency	Grant Number
973 program	2013CB632402

Citation Network

5 Times Cited
80 Cited References
[View Related Records](#)

[Create Citation Alert](#)

(data from Web of Science Core Collection)

All Times Cited Counts

5 in All Databases
5 in Web of Science Core Collection
0 in BIOSIS Citation Index
0 in Chinese Science Citation Database
0 in Data Citation Index
0 in Russian Science Citation Index
0 in SciELO Citation Index

Usage Count

Last 180 Days: 26
Since 2013: 62
[Learn more](#)

Most Recent Citation

Liu, Fangmeng. [Highly sensitive gas sensor based on stabilized zirconia and CdMoO₄ sensing electrode for detection of acetone](#). SENSORS AND ACTUATORS B-CHEMICAL, SEP 2017.

[View All](#)

This record is from:

Web of Science Core Collection
- Science Citation Index Expanded

Suggest a correction

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

NSFC	51320105001 51372190 21573170 51472193 21433007
Deanship of Scientific Research (DSR) of King Abdulaziz University	90-130-35-HiCi
Fundamental Research Funds for the Central Universities	WUT: 2015-111-034
Self-determined and Innovative Research Funds of SKLWUT	2015-ZD-1
Natural Science Foundation of Hubei Province of China	2015CFA001 2015CFB552

[View funding text](#)

Publisher

ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

Categories / Classification

Research Areas: Chemistry; Materials Science; Physics

Web of Science Categories: Chemistry, Physical; Materials Science, Coatings & Films; Physics, Applied; Physics, Condensed Matter

Document Information

Document Type: Article

Language: English

Accession Number: WOS:000381251100024

ISSN: 0169-4332

eISSN: 1873-5584

Journal Information

Table of Contents: [Current Contents Connect](#)

Impact Factor: [Journal Citation Reports](#)

Other Information

IDS Number: DT10D

Cited References in Web of Science Core Collection: **80**

Times Cited in Web of Science Core Collection: **5**