

# Accepted Manuscript

Growth of tungsten oxide nanostructures by chemical solution deposition

L.H. Jin, Y. Bai, C.S. Li, Y. Wang, J.Q. Feng, L. Lei, G.Y. Zhao, P.X. Zhang

PII: S0169-4332(18)30269-1  
DOI: <https://doi.org/10.1016/j.apsusc.2018.01.251>  
Reference: APSUSC 38390

To appear in: *Applied Surface Science*

Received Date: 16 November 2017  
Revised Date: 24 January 2018  
Accepted Date: 28 January 2018

Please cite this article as: L.H. Jin, Y. Bai, C.S. Li, Y. Wang, J.Q. Feng, L. Lei, G.Y. Zhao, P.X. Zhang, Growth of tungsten oxide nanostructures by chemical solution deposition, *Applied Surface Science* (2018), doi: <https://doi.org/10.1016/j.apsusc.2018.01.251>

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.



**Growth of tungsten oxide nanostructures by chemical solution deposition**

L.H. Jin<sup>1,\*</sup>, Y. Bai<sup>2</sup>, C.S. Li<sup>1</sup>, Y. Wang<sup>1</sup>, J.Q. Feng<sup>1</sup>, L. Lei<sup>2</sup>, G.Y. Zhao<sup>2</sup>, P.X. Zhang<sup>1</sup>

<sup>1</sup>Northwest Institute for Nonferrous Metal Research, Xi'an 710016, P. R. China

<sup>2</sup>Department of Material Physics and Chemistry, School of Materials Science and Engineering, Xi'an University of Technology, Xi'an 710048, P. R. China

**Abstract:** Tungsten oxide nanostructures were fabricated on  $\text{LaAlO}_3(001)$  substrates by a simple chemical solution deposition. The decomposition behavior and phase formation of ammonium tungstate precursor were characterized by thermal analysis and X-ray diffraction. Moreover, the morphology and chemical state of nanostructures were analyzed by scanning electron microscopy, atomic force microscopy and X-ray photoelectron spectra. The effects of crystallization temperature on the formation of nanodots and nanowires were investigated. The results indicated that the change of nanostructures had close relationship with the crystallization temperature during the chemical solution deposition process. Under higher crystallization temperature, the square-like dots transformed into the dome-like nanodots and nanowires. Moreover high density well-ordered nanodots could be obtained on the substrate with the further increase of crystallization temperature. It also suggested that this simple chemical solution process could be used to adjust the nanostructures of tungsten oxide compounds on substrate.

**Keywords:** chemical solution deposition; nanostructure; tungsten oxide

\* Corresponding author. Email: lhjin@c-nin.com.

Download English Version:

<https://daneshyari.com/en/article/7835426>

Download Persian Version:

<https://daneshyari.com/article/7835426>

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