

Accepted Manuscript

Title: An Automatic Algorithm for Determination of the Nanoparticles from TEM Images Using Circular Hough Transform

Authors: Mohsen Mirzaei, Hossein Khodabakhshi Rafsanjani



PII: S0968-4328(17)30043-4
DOI: <http://dx.doi.org/doi:10.1016/j.micron.2017.02.008>
Reference: JMIC 2398

To appear in: *Micron*

Received date: 1-2-2017
Revised date: 24-2-2017
Accepted date: 24-2-2017

Please cite this article as: Mirzaei, Mohsen, Rafsanjani, Hossein Khodabakhshi, An Automatic Algorithm for Determination of the Nanoparticles from TEM Images Using Circular Hough Transform. *Micron* <http://dx.doi.org/10.1016/j.micron.2017.02.008>

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.

An Automatic Algorithm for Determination of the Nanoparticles from TEM Images Using Circular Hough Transform

Mohsen mirzaei^{1*}, Hossein Khodabakhshi Rafsanjani²

¹Department of Engineering, Vali-e-Asr University of Rafsanjan, Rafsanjan, Iran

²Department of Electrical Engineering, Sahand University of Technology, Tabriz, Iran

*Correspondence author: Fax: +98 34 3131 2186, Email: m.mirzaei@vru.ac.ir

Highlights

- Automated measurement of the number and the average primary diameter of the nanoparticles from TEM images
- This method is based on the modified version of the hough transform with pre-processing modifications on TEM images.
- The method has been tested on several TEM images with different complexity in the images.
- It has less than 5% difference over 11 different TEM images, relative to manual sizing

• Abstract

Nanoparticles have a wide range of applications in science and technology, and the size distribution of nanoparticles is one of the most important statistical properties. Transmission electron microscopy (TEM) or X-ray diffraction is commonly used for the characterization and measuring particle size distributions, but manual analysis of the micrographs is extremely labor-intensive. Here, we have developed an image processing algorithm for measuring

Download English Version:

<https://daneshyari.com/en/article/5457004>

Download Persian Version:

<https://daneshyari.com/article/5457004>

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