

Extended Abstract

Synthesis and Morphological Investigation of Flower-Like ZnO Nanostructures [†]

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[†] Presented at the 16th International Symposium “Priorities of Chemistry for a Sustainable Development” PRIOCHEM, Bucharest, Romania, 28–30 October 2020.

Published: 11 November 2020

Keywords: flower like; ZnO nanoparticles

In recent years, ZnO nanostructures have attracted great interest due to their significant potential applications. The important role of morphology-related properties of nanostructures has stimulated tremendous efforts in the design and synthesis of ZnO nanoparticles with special morphology [1]. They are widely used in several industrial areas such as UV light-emitting devices, ethanol gas sensors, photo-catalysts, anticorrosive coatings, pharmaceutical, and cosmetic industries. ZnO is a bio-safe material, with distinctive abilities such as structure-dependent electrical and thermal transport properties, that might vary according to the particle size, shape, morphology, orientation and ratio [2].

Flower-like ZnO nanostructures were synthesized through simple and environmentally-benign hydrothermal and solvothermal processes at 70 °C. The size and shape of the resultant ZnO nanoparticles have been characterized by Dynamic Light Scattering (DLS) analysis and Transmission Electron Microscopy (TEM).

Variation of shape and size with the two different preparation methods was investigated in this study. It was observed that the flower-like structures are connected with each other through contacts between the rods [3]. Figure 1 is the TEM image of a single flower-like ZnO microstructure which indicates that the entire structure is build from ZnO nanorods and they are radiated through the center to form flower-like structures.

Flower-like ZnO nanoparticles have been prepared by both hydrothermal and solvothermal processes. Their size and morphology have been studied using DLS and SEM analyses.

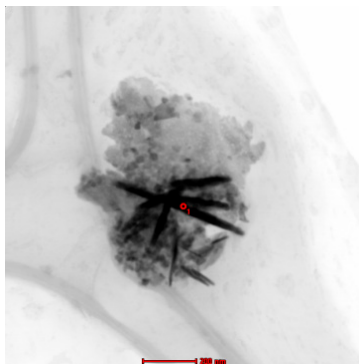


Figure 1. Transmission Electron Microscopy (TEM) image of flower-like ZnO nanoparticles.

Acknowledgments: This work was supported by a grant of the Romanian Ministry of Research and Innovation, CCCDI—UEFISCDI, project number PN-III-P1-1.2-PCCDI-2017-0428, contract 40PCCDI/2018, within PNCDI III, by a grant of the Romanian Ministry of Education and Research, CCCDI—UEFISCDI, project number PN-III-P2-2.1-PED-2019-4657, contract 318 PED/2020, within PNCDI III and by a grant of the Romanian Ministry of Education and Research, CNCS—UEFISCDI, project number PN-III-P1-1.1-TE-2019-2053, contract TE 85/2020, within PNCDI III.

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