

The Optical and Structural of the Synthesised Cu Nanostructure using Hydrothermal Microwave-Assisted Method

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Abstract

Cu nanostructure is a potential cost-saving conductive material that might be used in the development of nano-electronic devices. However, the development of Cu nanostructure as an alternative source for silver or gold is hampered not only by its stability in atmospheric surroundings in the nanometer range but also by the lack of a straightforward synthetic approach to create them in excellent yield as well as enhance their optical and structural properties. Therefore, a hydrothermal microwave-assisted method is used to synthesize Cu nanostructure using PVP as a structure-directing agent and PEG as a reducing agent. The absorbance range of Cu nanostructure is observed between 300 to 400 nm. The energy bandgap rises when the concentration increases. While, the average crystallite diameter of each sample is obtained less than 50nm.

Keywords: Cu nanostructure; Hydrothermal; Microwave; Optical properties; Structural properties.