



## **Characterization of copper iodine thin films fabricate by spin coating from nanoparticles produced by exploding Cu wire in Iodine solution**

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**Abstract :** Explosive wire method is a simple and environmental friendly method that can be used in the preparation of chemical compounds. In this work copper iodine thin films were fabricate by spin coating from nanoparticles produced by exploding copper wires with different diameters in Iodine solution, on glass substrates. The produced thin films were examined by XRD, FTIR, Uv-Visible spectroscopy, SEM and TEM to characterize their properties. The XRD proved that the thin films have nanostructure belonged to CuI polycrystalline with cubic structure, the crystallinity and crystalline size decrease with increasing wire diameter. FTIR measurements show a peaks located at 638.92 for Cu-I stretch bond indicate on formation of copper iodide compound. It was found that the optical band gap, of CuI thin films decreases from 3.24 to 3.18 eV with increasing the Cu wire diameter from 0.18 to 0.3 mm as a result of increasing in particle size. The SEM and TEM measurements show that the thin films have nanostructures.

**Keywords :** exploding wire; Copper iodide; FTIR.

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