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# Synthesis of Nano Particles CuO by sol-gel process and studies their Characterizations Structural

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**Abstract :** The aim of this work is synthesis and characterization of the copper oxide powders “CuO” and its composite thin film of (CuO/PMMA), by (sol-gel) process (wet-chemistry route, using (Cu (CH<sub>3</sub>COO) <sub>2</sub>, H<sub>2</sub>O), as precursor and DMF (CH<sub>3</sub>) NC (OH), as solvent, the obtained powder has undergone a heat treatment annealing to 450°C. The structural analysis by X-Ray diffraction and the Fourier transform infrared (FTIR) reveal the single phase monoclinic structure of CuO, the average crystallite size of the powder annealed to 450 C° is 16,76nm.

**Keywords :** CuO, CuO/PMMA, thin film, powders, (sol-gel) process, structural analysis.