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Structural and optical properties of CuO thin films and nanowires prepared by the sol–gel method

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Cuprous oxide thin films and nanowires were synthesized by sol–gel method on glass and Si substrates, with zinc acetate dehydrates, isopropyl alcohol and ethanolamine as starting a material, solvent and stabilizer respectively.
Nanowires with diameters of ~50 nm have been fabricated using a Porous Anodic Alumina templates produced by a two-step anodization in 0.3 M oxalic acid solutions and at a constant voltage of 40 V.
Structural and optical characterizations of the films were carried out using X-ray diffractometer; Fourier transform infrared spectrometer and UV-VIS-NIR spectrophotometer. Morphology of the samples was investigated by scanning electron microscopy (SEM).

Keywords: CuO, Sol–gel, Thin film, Porous Anodic Alumina template, Nanowire, Structural and optical properties.