Nanocomposites and nanomaterials

Properties of the nanocrystalline CuO films obtained by pyrolysis method at different temperatures.

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CuO is often used for production different sensors: gases, (H_2S, CO, H_2 etc.) [1-3], vapours organic solvents (ethanol, methanol, acetone etc. [4,5]), and glucose [6-7]. CuO films deposited on glass were obtained with the use of pyrolise method at four temperatures (300, 400, 500, 600^0C). The samples were measured by scanning electron microscopy, and electron diffraction (RHEED). The optical properties were measured too. The thickness of layers was between 120-180 nm. All of the layers reveal nanocrystalline structure, with grain size between 80-120 nm. Optical measurements show that the layers have wide band gap within the range 3,8-4,2 eV, in contrast to 1.2-1.5 eV for bulk CuO [8]. The experiments confirmed that layers are sensitive on temperature and ethanol vapour.

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