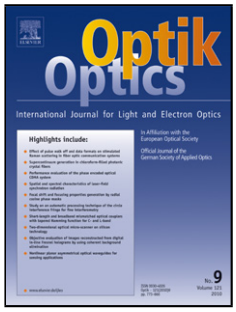

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Effect of oxidation time on structural, optical and electrical properties of mixed copper oxides nanocrystallites

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Abstract

Mixed nanocrystalline copper oxides were prepared from pre-sputtered copper films at 500°C for various oxidation times. Mixed orthorhombic $Cu_{64}O$ and monoclinic CuO phases with CuO phase ration varied from 57.8 to 90.8% were obtained upon varying the oxidation time from 1 to 3 h. SEM observations revealed the nanocrystallites morphologies for the oxidized films. The film oxidized for 1 h have sizes in the range 39 - 69 nm and more coalescent nanocrystallites, with diameters in the ranges 45 – 157 nm and 47 – 251 nm, were observed for the films oxidized for 2 h and 3 h, respectively.