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ABSTRACT

Fe-doped copper chromium oxide ($CuCr_{1-x}Fe_xO_2$) thin films were prepared on non-alkali glass substrates by chemical solution deposition. The effects of the ambient gas and temperature annealing conditions were investigated in order to produce pure $CuCrO_2$ phase thin films at a relatively lower process temperature. A single-phase delafossite $CuCrO_2$ structure was obtained by two-step annealing method. The transmittance of the $CuCrO_2$ thin films was above 65% in the visible region, and the bandgap was estimated as 3.1 eV. The electrical and magnetic properties are also reported.

Keywords: p-type semiconductors, $CuCrO_2$, Chemical solution deposition