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Copper Oxide Thin Films Deposited by Radiofrequency Magnetron Sputtering: 1Photovoltaic Applications

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Abstract : An unbalanced radiofrequency magnetron sputtering, at low pressure argon-oxygen gas mixture, was used to elaborate copper oxide films. Analyses of the deposited layers by X-ray diffraction (XRD), spectrometry UV-VIS-NIR and electrical resistivity measurement were carried out to assist and optimize the method. The apparition of CuO and/or CuO phases is affected by the experimental plasma parameters. So it's important to find the best operating range ensuring the correct stoichiometry and giving the preferred phase. The results showed a changing films color with resistivity ranging from 10 to 570 Ω cm and film thickness from 0.24 to 2.2 μ m.

Keywords : solar cells, Copper oxide thin films, Magnetron sputtering