

Abstract Submitted
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Optical characterization of n-type conductive cuprous oxide photoanodes JACKSON HALPIN, ROHANA GARUTHARA, Physics Department, 102 Berliner Hall, Hofstra University, Hempstead, NY 11549 — Electrodeposition technique was used to deposit chlorine doped Cu_2O thin films on indium tin oxide (ITO) coated glass substrates. The deposited Cu_2O photoanodes were characterized by absorption, reflectance and photoluminescence spectroscopy. The effects of chlorine doped photoanodes grown in different solution pH and bath temperature on the magnitude of their photocurrent are studied. The low temperature photoluminescence spectra of chlorine doped Cu_2O films are found to depend on the solution pH in the range 10.0-7.5. We observed two photoluminescence peak positions at 1.45 eV and 1.65 eV for photoanodes made in pH 7.5 solution. At pH 9.6, we observed an additional photoluminescence peak around 1.8 eV. The results will be discussed with emphasis on the reflectance, absorption and photoluminescence observation.

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