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Photoluminescence characterization of Cl – doped Cu_2O thin film photoelectrodes[1] WAQQAS KHAN, ROHANA GARUTHARA, Hofstra University — Electrodepostion was used to deposit Cl-doped Cu_2O thin films on ITO substrates. Photocurrent and the Photouminescence (PL) measurements were done on prepared electrodes. $CuCl_2$ and different pH values of the solution bath were used to control the doping level in Cu_2O. Photocurrent responses in photoelectrochemical cells clearly showed improved performance over the un-doped Cu_2O thin films as seen by the difference in the light and the dark current . A deconvoluted PL spectra assuming Gaussian spectral profile showed three underlying peaks. The temperature dependence of the peak energy position and intensity was analyzed. Furthermore, the electrodeposition and the nature of the conductivity of the films were also analyzed. These results of the Cl-doped Cu_2O films will be compared with those for the Cu_2O un-doped films and presented.

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