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Photoelectrochemical characteristics of p-Cu_2O prepared by an easy fabrication method

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P-type Cu_2O nano-surfaces were obtained by heating well cleaned, commercially available copper plates (98.9% purity and 2cm x 4cm in size). Initially, a heating rate of $100^oC\ min^{-1}$ was provided with copper sheets inside the furnace, starting from the room temperature, until the temperature reached 500^oC, and then the temperature was kept constant for 30 minutes and allowed to cool back to room temperature. Three-electrode configuration was used to measure the generated photocurrent. I-V characteristics of the sample were investigated by using the sample as a photocathode in a Photo Electro Chemical (PEC) solar cell. From the investigation of I-V characteristics and optical absorption properties, a remarkable stability of the sample was observed. This observation was supported by the experimental data of XRD, FTIR and AFM surface analysis.

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