## E2-29 p-$Cu_2O$ photocathodes with Langmuir - Blodgett films of merocyanine

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The absorption Langmuir-Blodgett (LB) technique is a promising method for fabricating ultra-thin films cotaining water functional molecules. This method based on intermolecular forces, such as a static charge force and a dipole-dipole interaction, is attractive for assembling functional molecules and controlling their orientations. In this work, LB films of merocyanine dye was deposited on p-$Cu_2O$ photoelectrodes. Photocurrent action spectra of p-$Cu_2O$ with LB films are different when compared to that of bare p-$Cu_2O$ action spectrum. In the case of bare p-Çu O spectrum, a photocurrent maximum appears. This photocurrent maximum gradually disappears with the number of monolayers deposited. It is interesting to report, that any sensitized photocurrent is not observed in the photocurrent action spectrum. Merocyanine dyes deposited by simple dipping techniques, also have the ability to make the photocurrent peak disappear. However, photocurrent cannot be enhanced considerably. Only LB films of merocyanine can enhance the photocurrent considerably and the photocurrent peak gradually diminished with number of monolayer. Here, photogenerated electrons are transfered from conduction band to merocyanine chromophore. Since the LB films minimize the aggregates of dyes, photogenerated electrons can travel to the electrolyte through a minimum potential barrier when compared to that of the potential barrier generated from simple dipping dye deposition techniques.

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