

# **PHOTOCURRENT GENERATION USING DIFFERENT ELECTRON DONORS AND ENEDIOL LIGANDS ON Fe<sub>2</sub>O<sub>3</sub> NANOPARTICULATE FILMS**

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Fe<sub>2</sub>O<sub>3</sub> nanoparticles were synthesized by hydrothermal method and the solution was characterized by UV-VIS spectroscopy. The nanoparticles solution was used to deposit Fe<sub>2</sub>O<sub>3</sub> films on indium tin oxide (ITO) electrodes by dip-coating. After annealing in oxygen at 450°C, the Fe<sub>2</sub>O<sub>3</sub> films are modified with enediol ligands such as 3,4-dihydroxyphenylacetic acid (DC). The enediol ligands block the trapping sites in the nanoparticulate films and increase photocurrent generation. To maintain high current production during illumination an electron donor is present in the electrolyte solution of the photo-electrochemical cell. Two different electron donors in solution, QH<sub>2</sub> (hydroquinone) and NADH (nicotinamide adenine dinucleotide), are compared.