

Graphene GO-ing Green

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Graphene oxide (GO) is a highly defective chemically modified form of graphene containing many different types of oxygen functional groups [1-3]. Their presence imparts hydrophilicity allowing for the development of water dispersions and inks. This enables unique opportunities for the synthesis of water soluble advanced hybrid materials and the fabrication of functional interface structures in macroscopic device platforms using “green” solution processing technologies. In this presentation we will discuss our latest findings on the use of GO as unique inter-face layers. We show that GO dispersions, when processed in a controllable way into films can be effectively used to block charges or to facilitate charge transport across layered interface structures. This opens important pathways for improved thin film optoelectronic or photoelectrochemical device structures of relevance in sustainable energy and catalytic applications [4-10].

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Figures

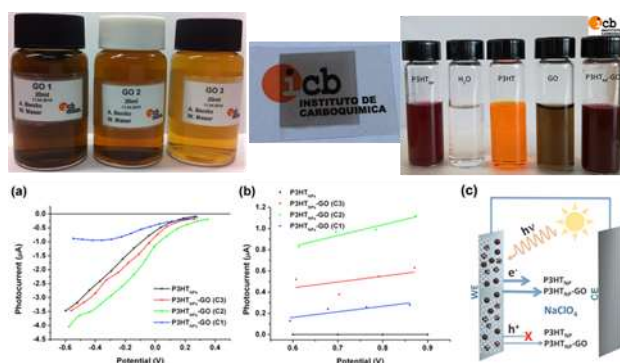


Figure 1: Aqueous dispersions of GO, a processed GO film, GO-P3HT aqueous dispersions, photocathodic and photoanodic currents of GO-P3HT thin films operating in a photoelectrochemical device.