

Dye-sensitized solid state photovoltaic cell based on composite zinc oxide/tin (IV) oxide films

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Received 29 September 1998

Abstract. Dye-sensitized fully solid state cells having the structure of rough n-type semiconductor film comprising zinc and tin(IV) oxide/Ru-bipyridyl complex/p-CuI are found to generate high short-circuit photocurrents and open-circuit voltages in contrast to the cells of same type made with a single oxide (tin(IV) or zinc). The mechanism involved is explained as suppression recombinations of photogenerated carriers and dye ions resulting from interparticle charge transfer.