Dye-sensitized solar cell with the hole collector p-CuSCN deposited from a solution in n-propyl sulphide

G.R.R.A. Kumara[a], A. Konno[a], G.K.R. Senadeera[b], P.V.V. Jayaweera[b], D.B.R.A. De Silva[b], K. Tennakone[b,*]

[a] *Department of Materials Science, Shizuoka University, Hamamatsu, 432-8561, Japan*
[b] *Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka*

Received 30 September 2000

Abstract

A method is devised for the deposition of CuSCN on ruthenium bipyridyl dye coated nanocrystalline TiO_2 films from a solution in n-propyl sulphide. The dye-sensitized solid state photovoltaic cell formed was found to yield higher short-circuit photocurrent, open-circuit voltage and efficiency compared to the cells made with CuSCN by other deposition techniques. Factors affecting the stability of the cell are investigated.

Keywords: Dye sensitization; Photovoltaic cells; Copper (I) thiocyanate; Nanocrystalline TiO_2; n-propyl sulpide