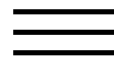


A review of recent results on electrochemical determination of the density of electronic states of nanostructured metal-oxide semiconductors and organic hole.

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A review of recent results on electrochemical determination of the density of electronic states of nanostructured metal-oxide semiconductors and organic hole conductors

Dedicated to Professor Michael Grätzel.

Juan Bisquert ^a ... Emilio Palomares ^b

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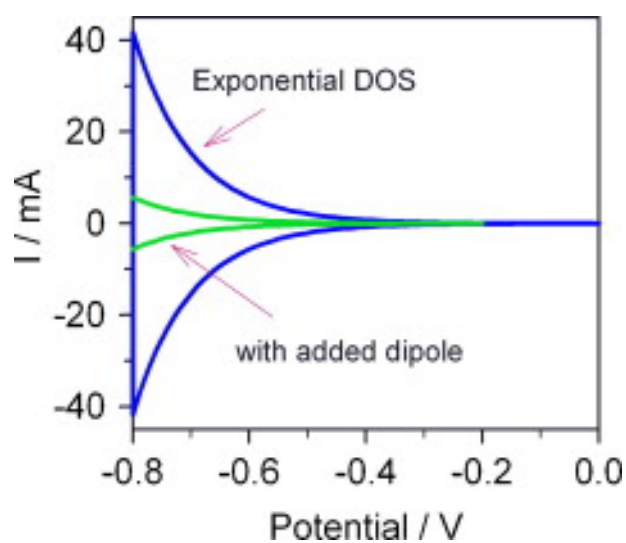
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Abstract

The paper reviews recent results on electrochemical methods applied to the determination of the density of electronic states in several components of advanced nanostructured devices such as the dye solar cell (Grätzel cell), switchable displays, and sensors. We discuss the application of cyclic voltammetry and impedance spectroscopy to determine the chemical capacitance of mesoporous metal-oxide semiconductors (mainly TiO₂), organic hole transport materials, and molecular functionalizing elements.

Graphical abstract

Linear voltammetry shows the shift of the density of electronic states in a nanostructured TiO₂ film by adsorption of dipolar molecules in the metal oxide surface.



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Keywords

Dye solar cell; Nanostructured semiconductor; Organic conductor; Impedance spectroscopy; Cyclic voltammetry

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