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Masahiro Hiramoto

Institute for Molecular Science, Japan

Band gap science for organic solar cells

Conversion efficiency of organic thin-film solar cell reached 12%. In 1991, I proposed pin junction incorporating co-deposited i-interlayer consisting of two kinds of organic semiconductors (so-called bulk heterojunction), which is an indispensable for present organic solar cells. In this paper, band gap science for organic thin-film solar cells including: Seven-nines purification of organic semiconductors; p-n-control of organic semiconductors by impurity doping; doping mechanism investigated by Kelvin band-mapping; p-n-control of the photovoltaic co-deposited films; ionization sensitization of doping and; ppm-doping effects in the simplest n+p- homo junction organic photovoltaic cells will be presented.

Biography

Masahiro Hiramoto completed his PhD in Chemistry at Osaka University in 1986. He started research on Organic Semiconductors and Organic Solar Cells in 1988 at Graduate School of Engineering, Osaka University. He joined the Institute for Molecular Science in 2008 as Professor. He has published over 130 papers. He is an Inventor of Blended Junction and Tandem Junction for organic solar cells.

hiramoto@ims.ac.jp

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