

Abstract Submitted
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Monolithic Tandem Organic Photovoltaic Cell Utilizing Transparent Carbon Nanotube Interlayer KAMIL MIELCZAREK, University of Texas at Dallas, Physics Department, Nanotech Institute, SENKU TANAKA, Shimane University, Center for Integrated Research in Science, RAQUEL OVALLE ROBLES, ALEXANDER KUZNETSOV, University of Texas at Dallas, Nanotech Institute, BRIAN WANG, University of Texas, DEAN HSU, University of Texas at Dallas, RAY BAUGHMAN, ANVAR ZAKHIDOV, University of Texas at Dallas, Nanotech Institute, ALAN G. MACDIARMID NANOTECH INSTITUTE TEAM — We demonstrate an organic photovoltaic multijunction cell in a monolithic parallel tandem structure in which transparent multi and single-walled nanotube sheets are used as an interlayer electrode connecting two cells; polymeric photovoltaic (PPV) cell or organic low molecular PV (OPV). Each cell is characterized independently and the short circuit current density of the tandem is shown to be larger than individual cells for the PPV-MWCNT-OPC tandem*. Overall efficiency is increased attributed to effective use of transparent CNTs and enhanced spectral sensitivity due to differing active layer materials. Computer model circuit simulation is used to analyze the parameters of cells in parallel and series configurations. Advantages of a parallel connection is shown for PV cells with differing photocurrents. The PPV-CNT-PPV and OPV-CNT-OPV cells are also created and described. *S.Tanaka, K Mielczarek, et.al., APL. (submitted 2008, October).

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