**Advantages of Parallel Connection in “OPV-Perovskite” Tandem Solar Cells**

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Tandem solar cells made of novel promising materials look very perspective keeping in mind the combination of perovskite photovoltaics with OPV. Since the perovskite photovoltaics efficiency exceeds 22%, while OPV got higher than 10 % the properly created tandem has a promise of PCE > 25-27%. In this situation of largely different Voc and Isc of sub-cells, the very tandem architecture itself can really give necessary advantage resulting in maximal PCE for certain specific optical and electrical connection of sub-cells. A lot of recent research work has been targeted on finding the best complementary optical absorbers and interlayer materials for interconnection of sub-cells. We have demonstrated that semitransparent carbon nanotube sheets can be used as perfect charge collectors in tandem interconnects and in our previous work, we focuse on parallel architecture of monolithic tandems, as beneficial for largely unbalanced photocurrents of sub-cells. While majority of research groups fabricate in series tandems, in order to obtain increased total Voc open circuit voltage of tandem, we analyze the more general task of obtaining maximal PCE at lowest Isc and Voc losses. In this talk we present experimental comparison of in-series and parallel connection in simple non-monolithic tandems, and compare with simple model predictions, using separate CH3NH3PBI3 perovskite sub-cell and PTB7:PCBM organic BHJ sub cell. Our results show, that parallel tandem system with optimal current and voltage balance have real advantage over in-series connection with a gain of over 2.5 % PCE for parallel connection. Experimental external I-V parameters for sub-cells were obtained with PCE of 7% and 5,72 % for perovskite CH3NH3PBI3 cell and PTB7 respectively. Parallel Tandem resulted in increased PCE of 9,62 % . Of course non-monolithic connection with 4 electrodes always may have better results as compared to potential monolithic prototype due to possible internal losses at interconnect layer in the last, we believe that this comparison clearly demonstrate the advantages of parallel tandems as compared to traditional in-series connection.