

Abstract Submitted  
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**Power conversion efficiency enhancement in OPV devices using spin 1/2 molecular additives**<sup>1</sup> TEK BASEL, VALY VARDENY, Department of Physics & Astronomy, University of Utah, 115 S 1400 E, Salt Lake City, Utah 84112, USA, LUPING YU, Department of Chemistry and James Franck Institute, The University of Chicago, Chicago, IL 60637, USA — We investigated the power conversion efficiency of bulk heterojunction OPV cells based on the low bandgap polymer PTB7, blend with C61-PCBM. We also employed the technique of photo-induced absorption, PA; electrical and magneto-PA (MPA) techniques to understand the details of the photocurrent generation process in this blend. We found that spin 1/2 molecular additives, such as Galvinoxyl (Gxl) radicals dramatically enhance the cell efficiency; we obtained 20% increase in photocurrent upon Gxl doping with 2% weight. We explain our finding by the ability of the spin 1/2 radicals to interfere with the known major loss mechanism in the cell due to recombination of charge transfer exciton at the D-A interface via triplet excitons in the polymer donors.

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