

Abstract Submitted  
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**Solution processed organic microarray with inverted structure<sup>1</sup>**

PATRICK TOGLIA, JASON LEWIS, EVAN LAFALCE, XIAOMEI JIANG, Department of Physics University of South Florida — We have fabricated inverted organic microarray using a novel solution-based technique. The array consists of 60 small (1 square mm) solar cells on a one inch by one inch glass substrate. The device utilizes photoactive materials such as a blend of poly(3-hexylthiophene) (P3HT) and [6,6]-phenyl-C61-butyric acid methyl ester (PCBM). Manipulation of active layer nanomorphology has been done by choice of solvents and annealing conditions. Detailed analysis of device physics including current voltage characteristics, external quantum efficiency and carrier recombinations will be presented and complimented by AFM images and glazing angle XRD of the active layer under different processing conditions. The procedure described here has the full potential for use in future fabrication of microarrays with single cell as small as 0.01 square mm for application in DC power supplies for electrostatic Microelectromechanical systems (MEMS) devices.

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