

Abstract Submitted  
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**Development of High Efficient Flexible Dye-Sensitized Solar Cells**<sup>1</sup> XIAOJUAN FAN, Marshall University — We are developing a low cost and easy process to fabricate double-layer porous metal oxide thin films on flexible substrates for high performance dye-sensitized solar cells (DSSCs). The research addresses on the formulation of TiO<sub>2</sub> precursor to create smooth and continuous porous thin films on large size plastic or metal foil substrates enabling excellent adhesion, robust mechanics, and chemical stability. A second layer built on the underline porous nanocrystalline TiO<sub>2</sub> thin films are primarily used as bedding to receive more organic sensitizers. A variety of blending of polymer and Ti alkoxide precursors at different concentrations has been studied. After depositing the mixture on the substrates such as Al foils, samples are annealed to remove polymer residues leading to a porous nanocrystalline structure. Photo-electricity conversion efficiency of the fabricated solar cells will be tested under one sun illumination.

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Xiaojuan Fan  
Marshall University

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