

Abstract Submitted  
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**Synthesis and Characterization of ZnO/polyaniline planar heterojunction solar cells** LEANDRO GUTIERREZ, CHRISTOPHER REEHIL, ANNE ISAH, WILLIAM MANNERS, JIMMY BARRIENTOS, ARYA NABIZADEH, PATRICK ALBERS, MEHMET SAHINER, WEINING WANG, Seton Hall University, SAHINER COLLABORATION, WANG COLLABORATION — ZnO/polymer heterojunction has attracted much research attention because of its potential application in solar cell, LED, UV photodetection and other applications. However, there are few studies on ZnO/polymer heterojunction attempting to synthesize ZnO materials using pulsed laser deposition. Comparing with other methods, PLD has the advantage of congruent evaporation, and being able to grow high quality thin films at relatively low temperature. In our previous work in CdTe/Cds based thin films we have seen correlations between the pulsed laser deposition parameters and the electrical performance of the thin film solar cells. In this work, we report our studies on pulsed-laser-deposited (PLD) ZnO/Polyaniline (PANI) heterojunction and its potential application as solar cells. We studied how the performance of ZnO/PANI solar cells depends on the deposition condition of ZnO, such as deposition temperature, background pressure of oxygen, and ZnO film thickness. X-ray diffraction (XRD) and scanning electron microscopy were used to characterize the pulsed-laser-deposited (PLD) ZnO film. The correlation between the solar cell electrical performance and the pulsed laser deposition conditions will be discussed.

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