

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Synthesis and Analysis of MnTiO₃ Thin Films on ITO Coated Glass Substrates¹ EMERICK MARTIN, MEHMET-ALPER SAHINER, Seton Hall Univ — Perovskites like Manganese Titanium Oxide have interesting chemical properties that may be advantageous to the development of p-n junction photovoltaic cells. Due to the limited understanding behind the compound, it is essential to know the characteristics of it when it is deposited in thin film form. The cells were created using pulsed laser deposition method for two separate mediums (first layers after ITO). ZnO was deposited onto ITO glass for the first sample. For the second sample, a layer of pure Molybdenum was deposited onto the ITO glass. The MnTiO₃ was then deposited onto both samples. There was a target thickness of 1000 Angstroms, but ellipsometry shows that, for the Mo based sample, that film thickness was around 1500 Angstroms. There were inconclusive results for the ZnO based sample. The concentration of active carriers was measured using a Hall Effect apparatus for the Mo based sample. The XRD analyses were used to confirm the perovskite structure of the films. Measurements for photoelectric conversion efficiency were taken using a Keithley 2602 SourceMeter indicated low values for efficiency. The structural information that is correlated with the low electrical performance of this sample will be discussed.

¹SHU-NJSGC Summer 2015 Fellowship

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Date submitted: 30 Nov 2015

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