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Microstructure and Optical Properties of Perovskite Solar Materials NICHOLAS ALLEN, HEATHER BROWNING, ANDREW SANDOVAL, MEAGAN PARKER, CHARLES SMITH, COLIN INGLEFIELD, BRANDON BURNETT, KRISTIN RABOSKY, Weber State University — Traditional silicon solar cells are costly and require much energy to refine the silicon. A developing alternative technology which shows great promise are perovskite solar cells; the active layer being made of $CH_3NH_3PbI_3$. We created perovskite samples using a spin-coating technique. After the samples were created, they were examined under an SEM to verify that they had a homogeneous amorphous structure. The sample thickness was determined using an AFM and an ellipsometer. A UV-Vis setup was also built using a monochromator, a series of lenses, and a detector in order to test the bandgap of the samples. By varying our material deposition techniques, we were able to create an amorphous sample with a bandgap of about 1.6 eV, which closely matches the solar spectrum. We will discuss our perovskite deposition process at WSU.

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