A Refined Process for Synthesis and Examination of the Photoelectrical Properties of Nanoparticles

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With the agreement reached by the Paris Climate Talks, a dire need for renewable energy collection with greater efficiency and lower cost has arisen. The goal of this research was to develop an improved method of solar energy collection. Cadmium selenide sodium 3-mercaptopropanesulfonate nanoparticles (CdSe-MPS), among other nanoparticles, hold enormous potential in yielding high efficiency solar energy collection for a much less expensive cost per square foot when compared to traditional solar panels. Previous work, presented by this author in 2015, synthesized a potential nanomaterial for improved efficiency. In this year's experimentation, the synthesis was streamlined and tested for robustness and compared to previous procedures. In addition, the potential novel nanomaterial was tested for its ability to create a photocurrent. Through experimentation and comparison of both liquid and solid samples exposed to light, it was determined that the CdSe-MPS nanoparticles hold enormous potential for successful collection of solar energy. Finally, due to concerns about the toxicity of cadmium, nanoparticles made of silicon were synthesized and characterized.

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