

Abstract Submitted  
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**Passive Tracking of a Solar Panel with Shape Memory Alloys** DILLON WESTER, KEELEY JOHNSON, ANGELA DOUGLASS, Ouachita Baptist University — This experiment seeks to achieve passive tracking of a solar panel through the use of unique metals called shape memory alloys (SMAs). SMAs were configured to rotate a solar panel without the consumption of energy from the solar system because of their ability to change shape when heated above their transformation temperature. The SMA can be activated by sunlight focused from a Fresnel lens. The advantages of SMA over other tracking methods include no maintenance, longevity, and two-way shape memory. The solar panel size, support stand, and electronics were optimized with the ultimate goal of powering an 11 W street light. Experiments were conducted to determine the pulling force and travel of various sizes of SMAs to determine optimal rotor design.

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