

## **FACULTY DEVELOPMENT ENDOWMENT FUNDS**

Eleanor Lane Endowment  
and  
Nathan Deutsch Development Fund

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**Proposal Title:** Streamlining Power Generation of Concentrating Solar Power Plants

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### **ABSTRACT**

Concentrating solar power (CSP) plants produce electricity using generators attached to turbines supplied with solar-generated steam. Solar rays are focused onto receiver tubes containing a heat transfer fluid (HTF) that transfers absorbed heat to a power block (PB) to be used to generate steam to drive its turbine. The intermittent nature of solar energy would normally result in an oscillating electrical output conforming to the varying intensities of solar radiation. However, integrating properly-sized thermal energy storage (TES) systems into the operation of solar thermal power plants can result in a continuous and smooth supply of electricity. TES systems are thermally charged during high radiation periods then are thermally discharged at night and during low radiation periods or clouds; hence, streamlining the electric output of the CSP plant by regulating its heat input.