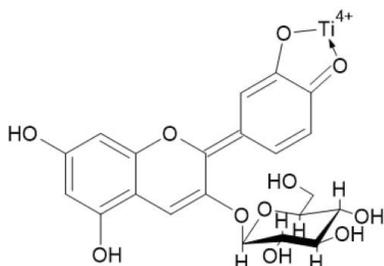


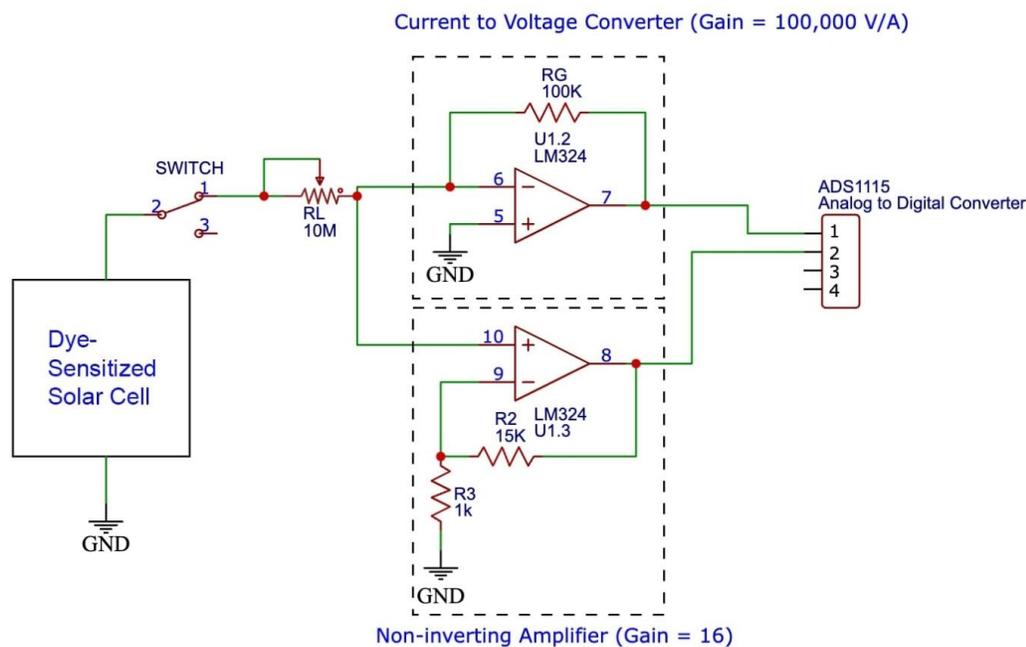
# Dye-Sensitized Solar Cells: Optimization of Parameters to Maximize Efficiency

## Supporting Information

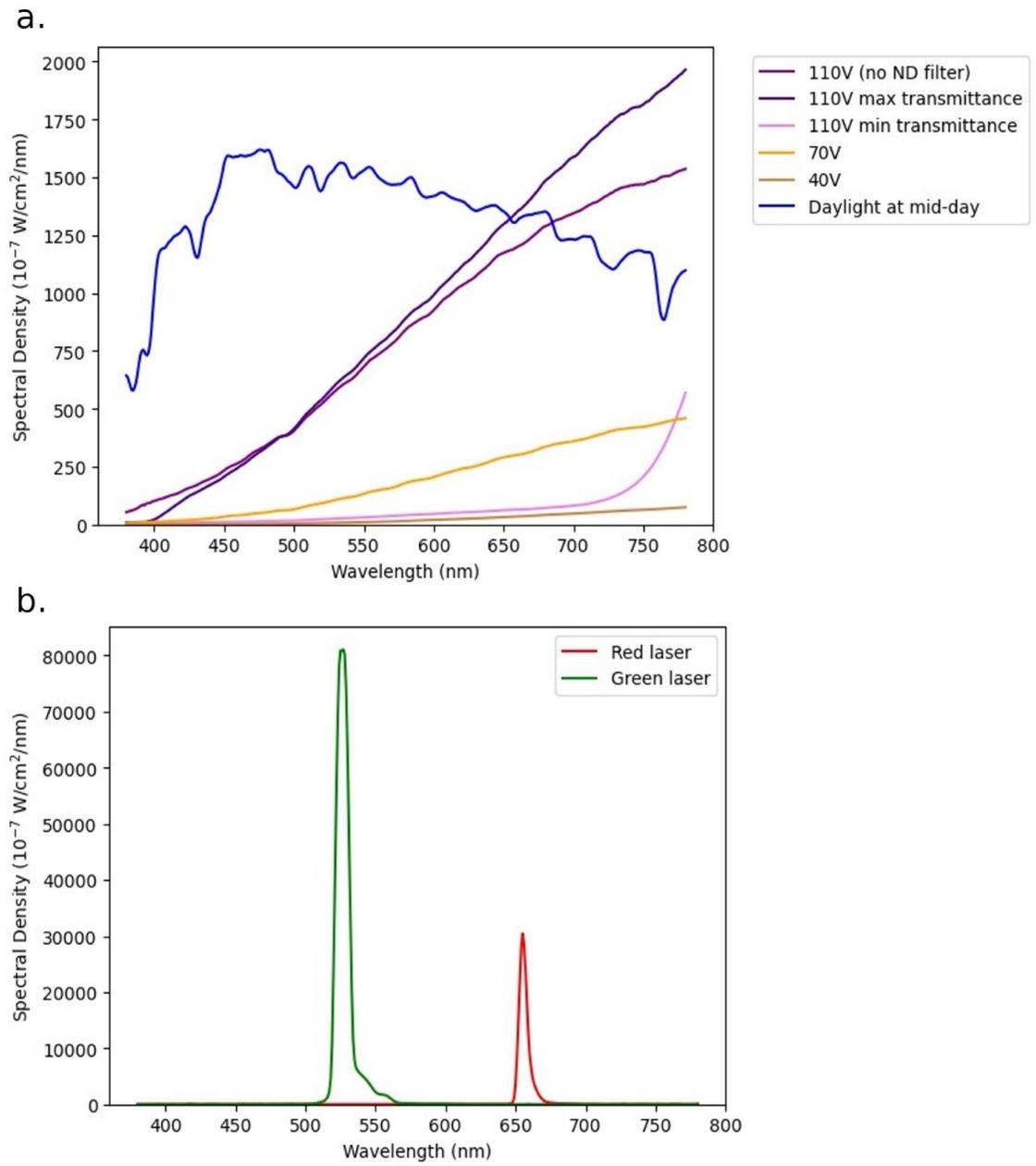
Ziqing Pang



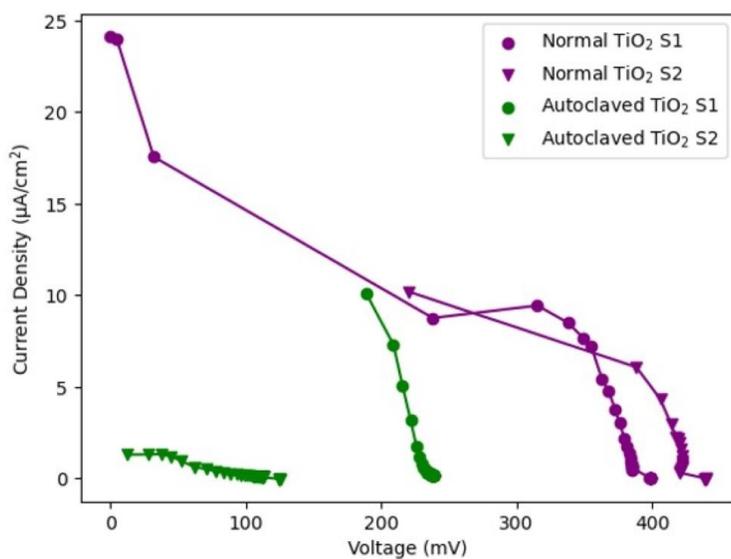
**Figure S1.** Cyanidin-3-glucoside molecule bonded to TiO<sub>2</sub>, forming a Cyanin-Ti<sup>4+</sup> complex.



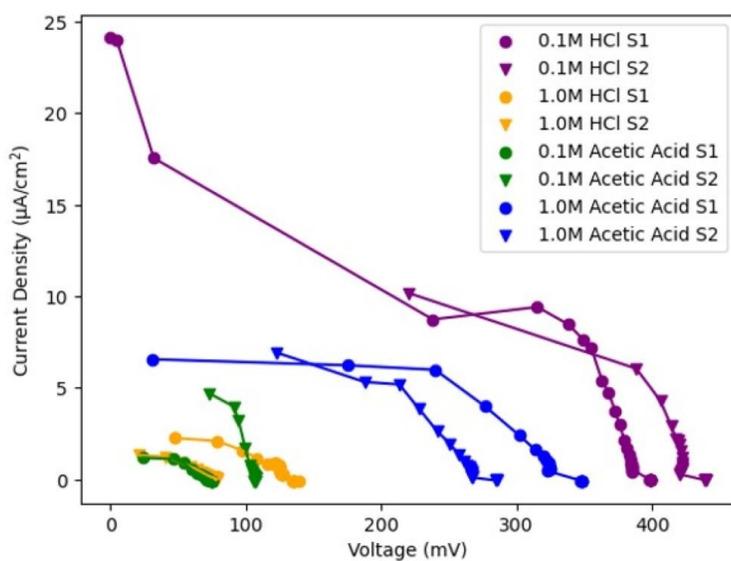
**Figure S2.** Circuitry containing the dye-sensitized solar cell, demonstrating its connection to resistors, the ADC, and the operational amplifier.



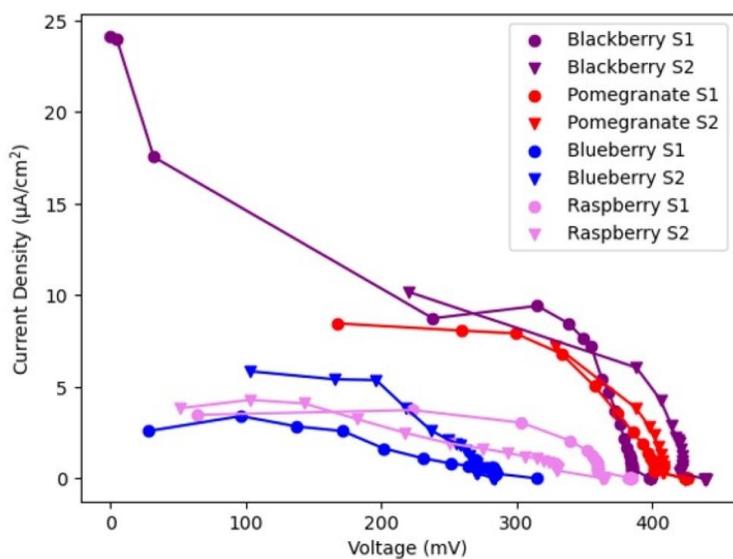
**Figure S3.** Spectral density spectra of A) different halogen lamp intensities and natural lighting and B) lasers. ND filtering with the halogen lamp at 110 V was also tested.



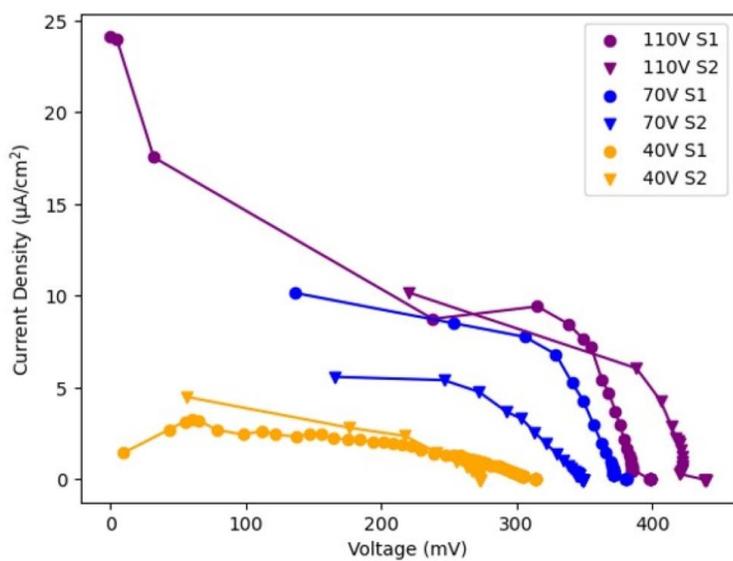
**Figure S4.** I-V curves of cells created from normal TiO<sub>2</sub> and TiO<sub>2</sub> subjected to a hydrothermal autoclaving method. DSSCs made from normal TiO<sub>2</sub> exhibited better performance.



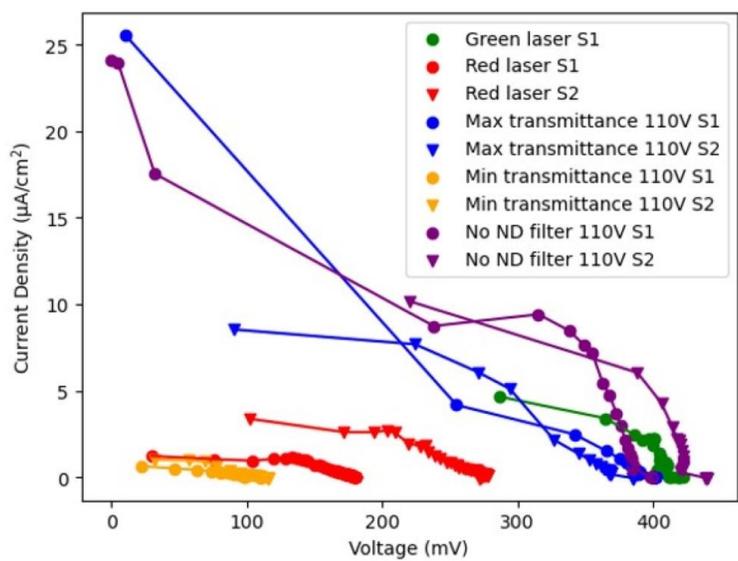
**Figure S5.** I-V curves of cells with TiO<sub>2</sub> treated with 0.1 M or 1.0 M concentrations of hydrochloric or acetic acid.



**Figure S6.** I-V curves of DSSCs stained with blackberry, pomegranate, blueberry, or raspberry dye.



**Figure S7.** I-V curves of cells under the halogen lamp at various voltages.



**Figure S8.** I-V curves of DSSCs under various types of lighting.