1056-65-1301 **Amelia McNamara*** (amcnamar@macalester.edu), **Jordan Seering** (seeri002@umn.edu) and **Yi Zeng** (yizeng2@illinois.edu). *Model and Optimization of Organic Photovoltaic Cells.*

This project focuses on optimizing the organic photovoltaic cell, an important topic in the energy industry which has not been well studied. We are especially interested in the optimization of the two active layers in the solar cell, the PEOPT polymer and the C_{60} (Fullerene) layer. Using a numerical scheme (the finite difference method) we solve the diffusion equation of excitons in the one dimensional case, and implement it with two different accepted models of energy dissipation. This allows us to compare the exciton density and flux across the heterojunction between active layers which each model produces. Using our preferred model, we optimize the layer thicknesses of the two active layers, PEOPT and C_{60}, and determine them to be 12 nm and 40 nm, respectively. We extend our analysis to a two-dimensional case including a curved boundary at the donor-acceptor heterojunction, using the simpler model, and study the effect of such a boundary on the conversion efficiency.

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