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Recombination modeling for GaAs solar cells[1] KEYUAN ZHOU, TIM GFROERER, Davidson College, YONG ZHANG, University of North Carolina at Charlotte — Solar cells convert sunlight into electricity, but defects in the device can inhibit the conversion efficiency. Defects allow for the recombination of charge carriers, so they fail to contribute to the electrical output. Prior measurements and preliminary analysis reveal illumination and temperature-dependent trends in GaAs that help clarify the role of defects in this material. The aim of this project is to develop a more complete and self-consistent way to analyze the data. In particular, we seek to improve the physical model describing the recombination process in the presence of defects in GaAs.

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