

EE / CprE / SE 491 - sddec24-21

CdSe Solar Cell

Week 5 Report

11/1 – 11/14

Client: Vikram Dalal

Faculty Advisor: Vikram Dalal

Team Members:

Payton Bills – Team Lead | Client Interaction

Anders Peterson – Client Interaction | Component design

Michael Thomas – Individual Component Design | Testing

Drew Jensen – Individual Component Design | Testing

Jacob Steffens – Simulation research | Research aid discovery and distribution

Jonathan Timm – Simulation research | Simulation testing

Past Week Accomplishments

- Developed and mostly debugged the Silicon fabrication process to a reasonable level for the tandem cell process to begin
- Completed the economic analysis that compares the potential costs of Si-CdSe tandem cell with that of CdTe and Si cell farms

Pending Issues

- Have yet to begin the tandem cell deposition, which may come with its own set of issues to debug in a short period of time
 - We are debating whether to use ITO or ZnO as ITO may have an issue post annealment during the fabrication process since there is a high chance it does not respond well to the high temperatures we plan to use
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Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Payton Bills	Worked on fabricating testing and troubleshooting silicon solar cells.	35	60
Anders Peterson	Worked on fabricating new sets of Si cells and troubleshooting the issue with the fabrication process and the devices. Developed a device model to explain the poor device performance. Made plans to fabricate a new batch of Si devices.	35	93
Michael Thomas	Fabrication - IV measurements/device characterization, etching	4	29
Drew Jensen	Helped with fabricating the new Si cell and testing the old cells. IV curve measurement, photoresist spin coating, oxide etching, boron and phosphorous deposition, and drive in.	10	35
Jacob Steffens	Looking into sustainability of CdSe cells. A lot of this has been going through US geological survey data. The research has been focused on determining the sources of Cd and Se in the US. This has included total reserve and production estimates. Currently trying to compile this research into a easily digestible document.	12	15
Jonathan Timm	Aided with oxide etching using BOE and subsequent device characterization, oxide measurement and IV curve generation.	4	26

Plans for Coming Week

Meet with professor Fila on 11/20 for lightning talk progress update.

Gitlab Activity Summary
