



Phase Change Materials for Temperature Regulation in Solar Photovoltaic Cells

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Technical background

- Photovoltaic (PV) cells produce thermal energy along with electrical energy
- Excess of heat causes the PV cell to become less efficient
- Phase Change Materials (PCM) can regulate PV temperature, thereby maintaining efficiency
- Previous research includes:
 - Characterisation of PCMs
 - Computational and experimental investigation of PV/PCM systems
 - Research ongoing in Concentrated PV/PCM systems



Scope and Aims of Project

- Increase economic viability of the system
- Potential to use the heat absorbed by PCM in other applications
- What applications can the heat be used?
 - Heat water
 - Industrial applications
- Finally, how to increase the availability of heat in PCM?
 - CPV/PCM system



Approach and Future Plans

- Currently, researching various papers both computational and experimental investigations
- Choose a program in order to computationally analyse the system
- Design, build and analyse a PV/PCM system
- Presently, working toward the construction of a PV/PCM system designed by Dr. Luis Candenido (DIT), plan to complete experiments during the summer and analyse results