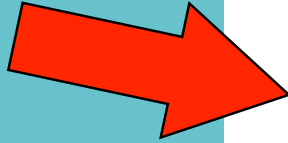


# SOLAR CELL (CAPSTONE) RESEARCH

Ally DiCarlo

# IAN SELLERS



Vincent Whiteside and Collin Brown



# HOW DO SOLAR CELLS WORK?

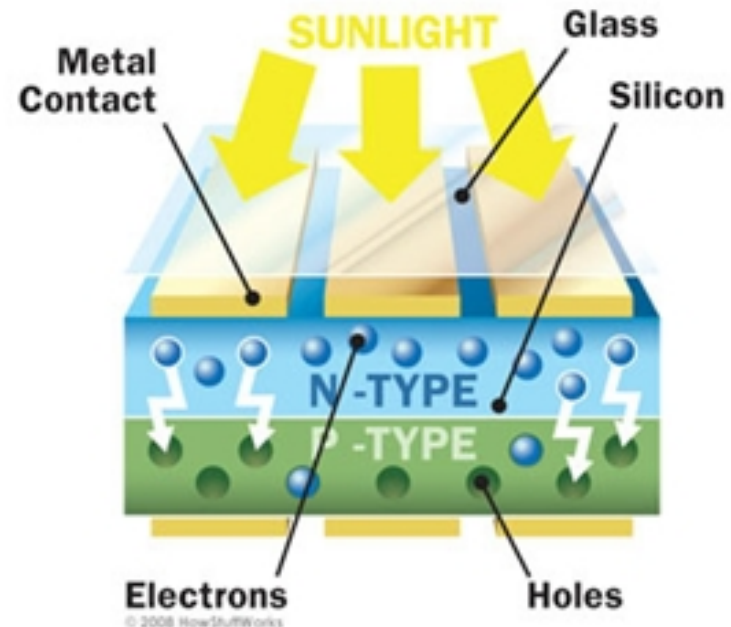
N-Type: excess of electrons and is a semiconductor layer

P-Type: lacking complete valence shell and is not as conductive

Sunlight enters and excites electrons out of their shells, creating a hole.

The extra electrons move to the top layer and the hole is filled in from the bottom.

There is an electric potential and the electrons can move from the top to the bottom by a wire (electricity).



# WHAT'S THE NEED?



# SOLAR CELL LIMITATIONS

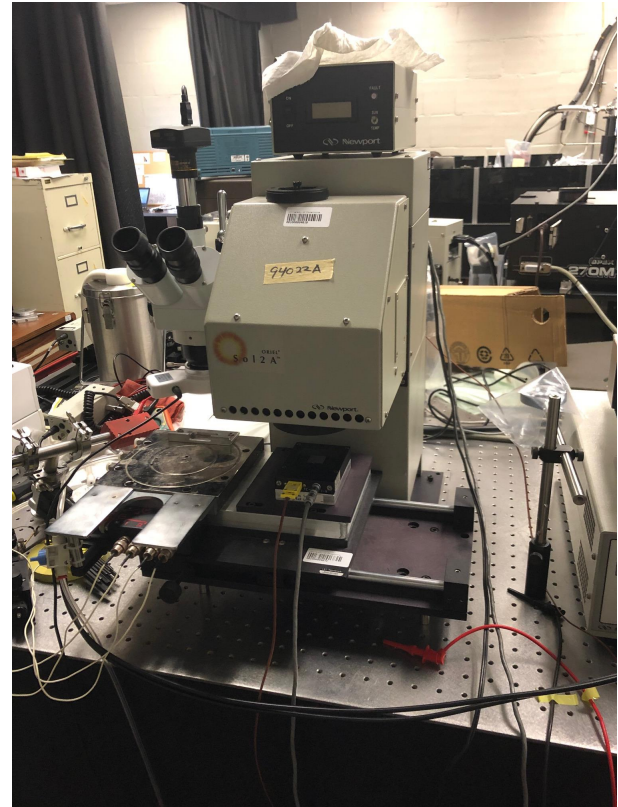
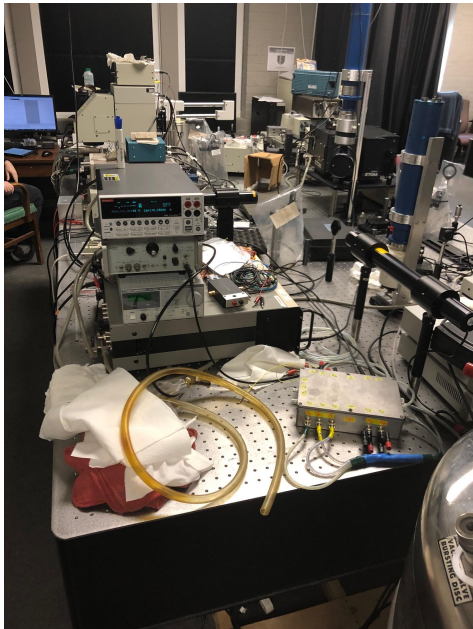
- Solar cell efficiency is not high.
- Space condition is Low Intensity Low Temperature.
- Cells are fragile.
- There's a limited amount of space to send these.
- Countless other things...



# EXPERIMENT QUESTIONS

- Can hydrogenating GaInNAs cells increase their efficiency?
- How should the cells be grown to have the best performance?
- Can this solar cell withstand space life?
- What happens to the sample after undergoing thermal cycling?
- How can we optimize the limited space?

# THE LAB



# QUESTIONS?

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Google for the images