

# Plans for today:

1. Lab



2. Teams Purple, Green, Orange go to Belcher lab

3. Teams Blue, Yellow, Red go to Belcher lab

4. Work with your co-PI(s) to develop your proposal.

Reminders: Blog post due at Midnight. Summary blog post is due to Stellar on 12/11/12.

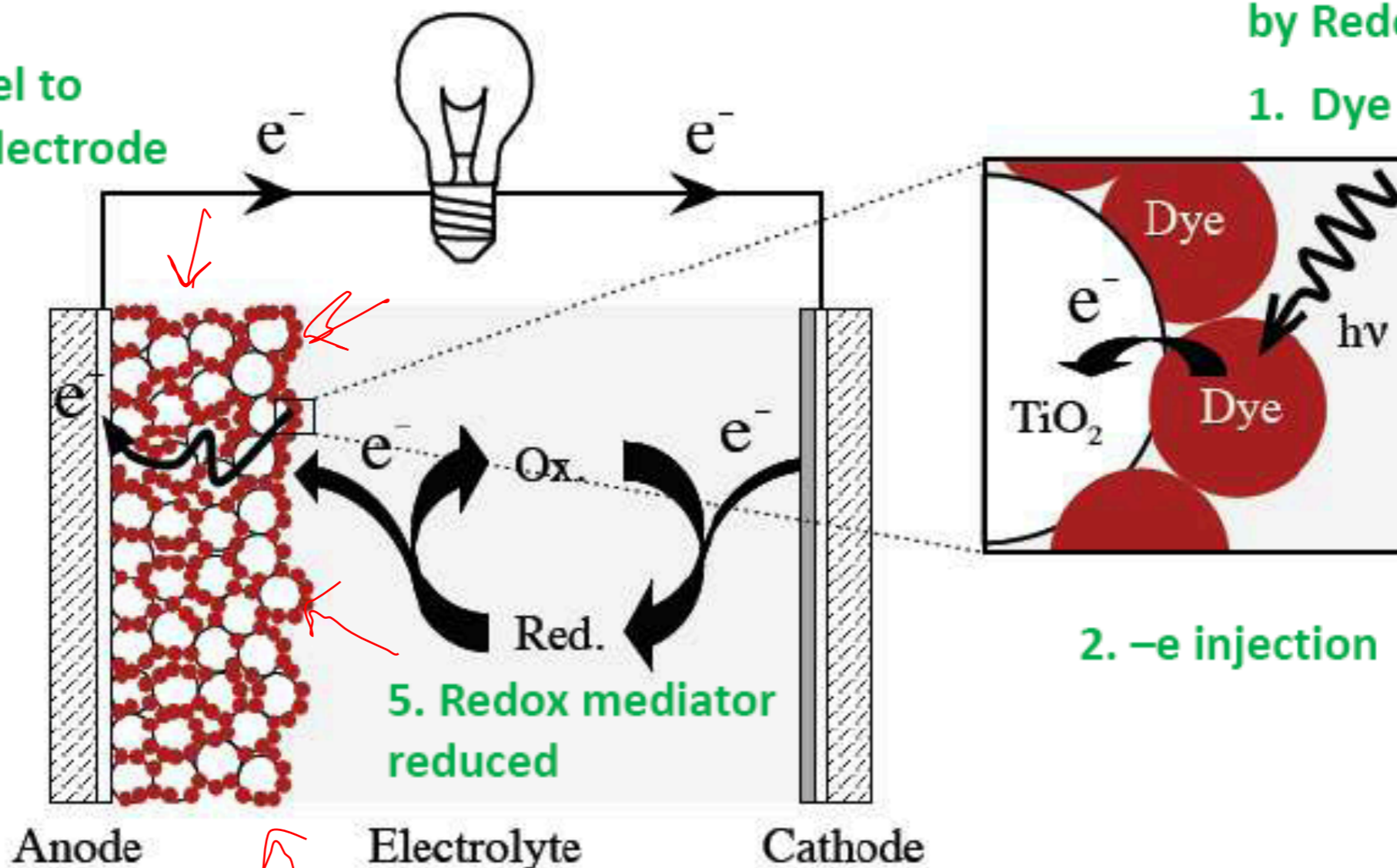
Oral research proposals are Thursday (Last Day!!!!) :-)

# DSSC function: -e flow diagram

4. -e travel to counter electrode

6. Dye replenished by Redox mediator

1. Dye excitation



2. -e injection

5. Redox mediator reduced

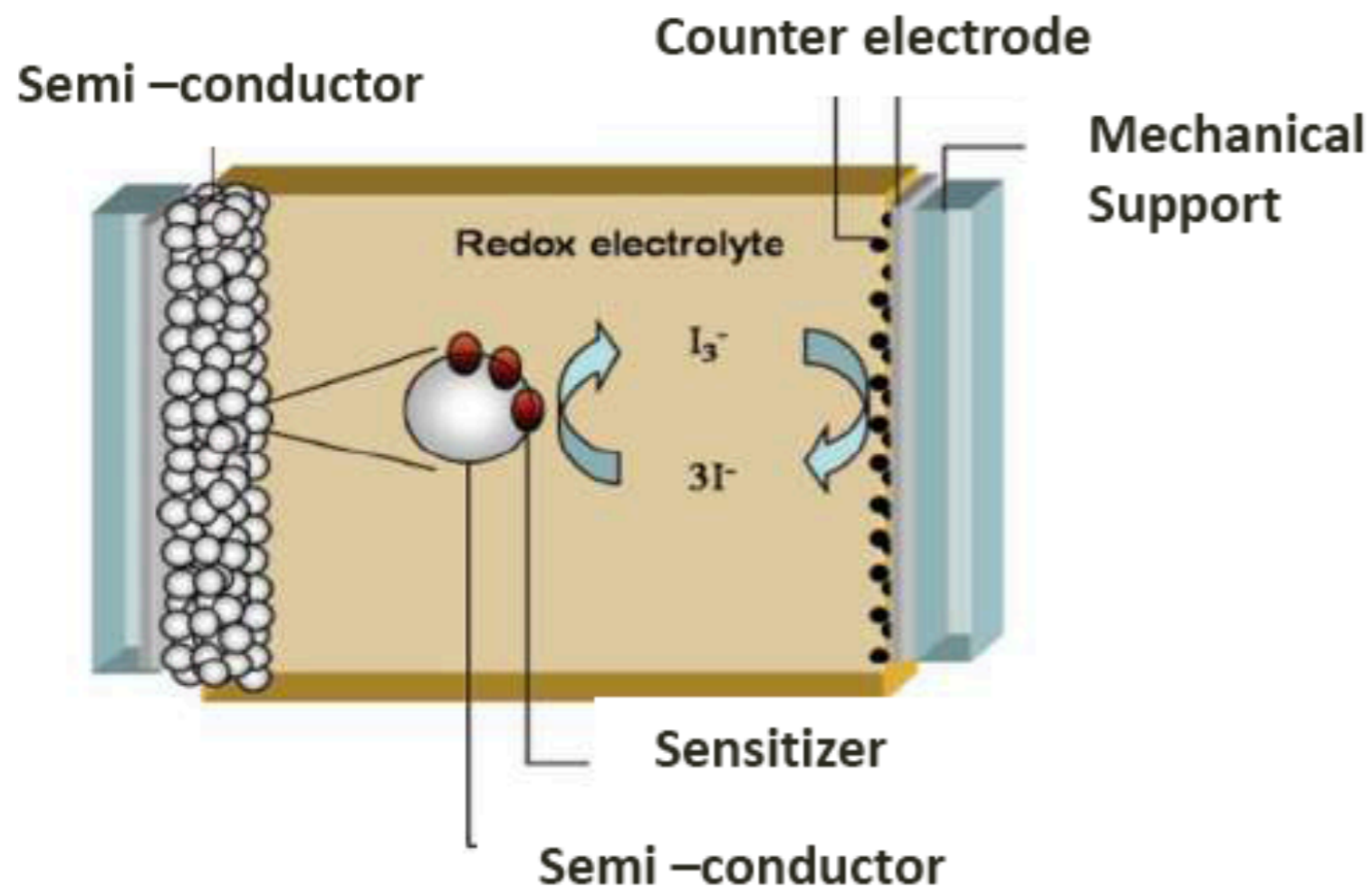
3. -e collection

Slide from Jackie O.

<http://www.solaronix.com>

# DSSC components

## General



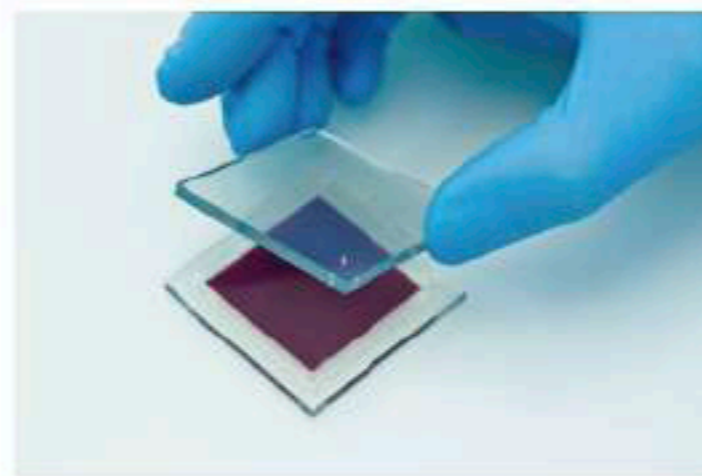
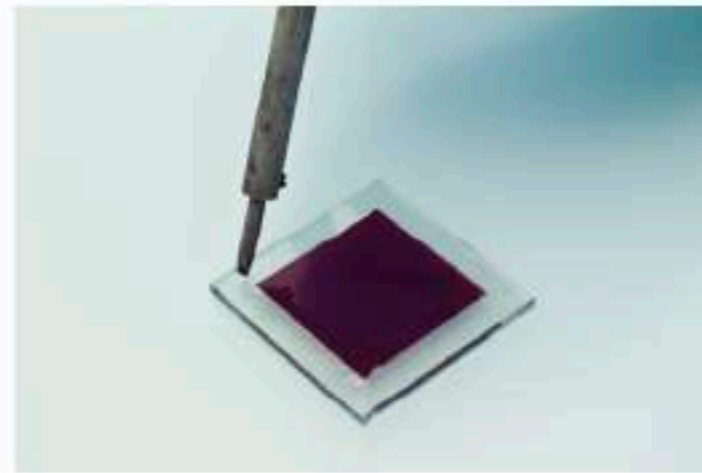
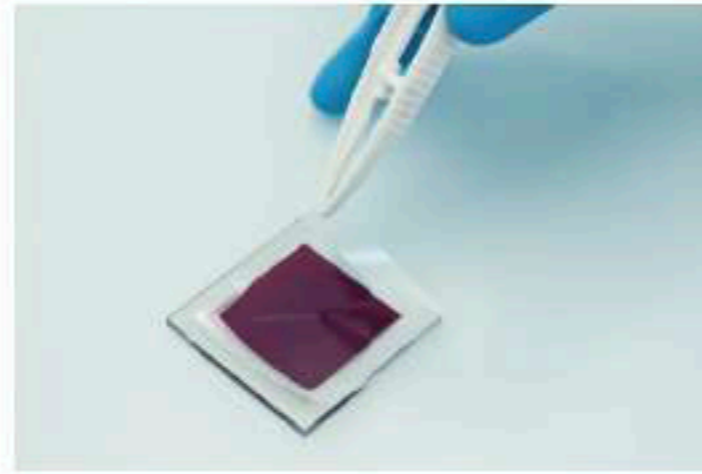
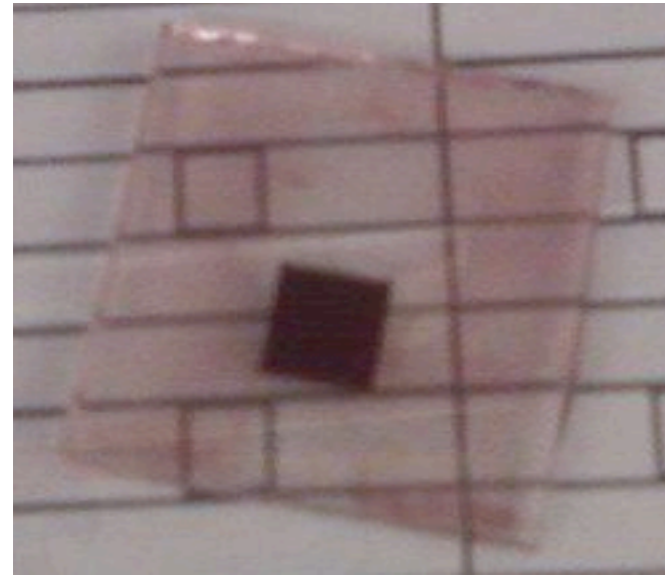
## Our DSSC's

- **Semi-conductor:** TiO<sub>2</sub>
- **Sensitizer (dye):** N719 dye
- **Electrolyte and redox mediator:**  $I_3^- / I^-$
- **Counter electrode:** Platinum
- **Mechanical support:** FTO glass with TiO<sub>2</sub> coating

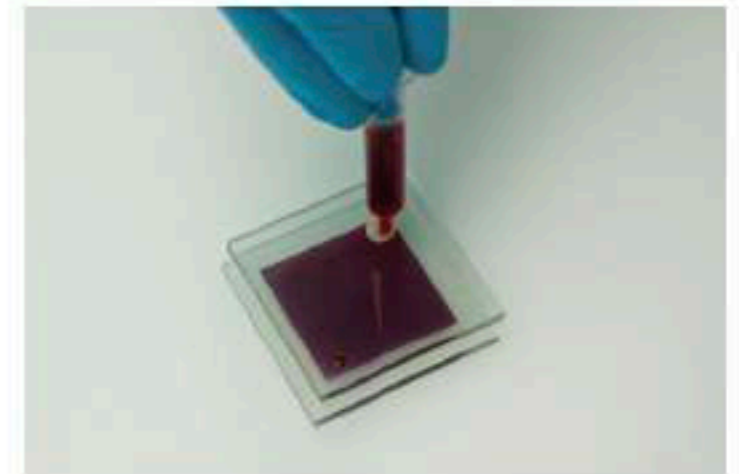
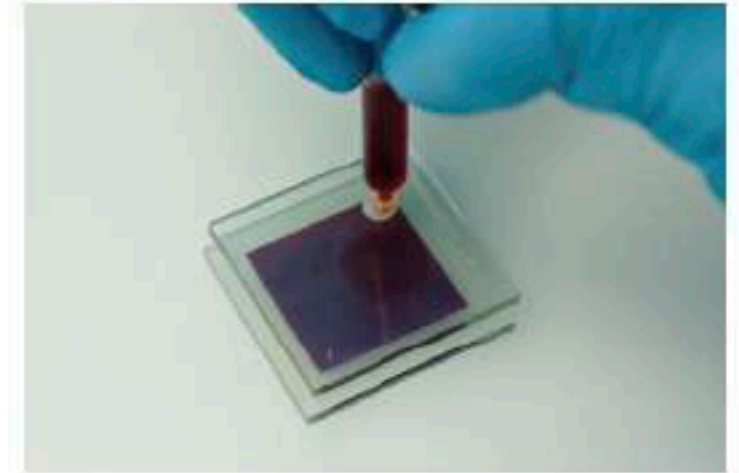
Slide from Jackie O.

# Example of a similar system

20.109 Anode



Assembling the device with another electrode

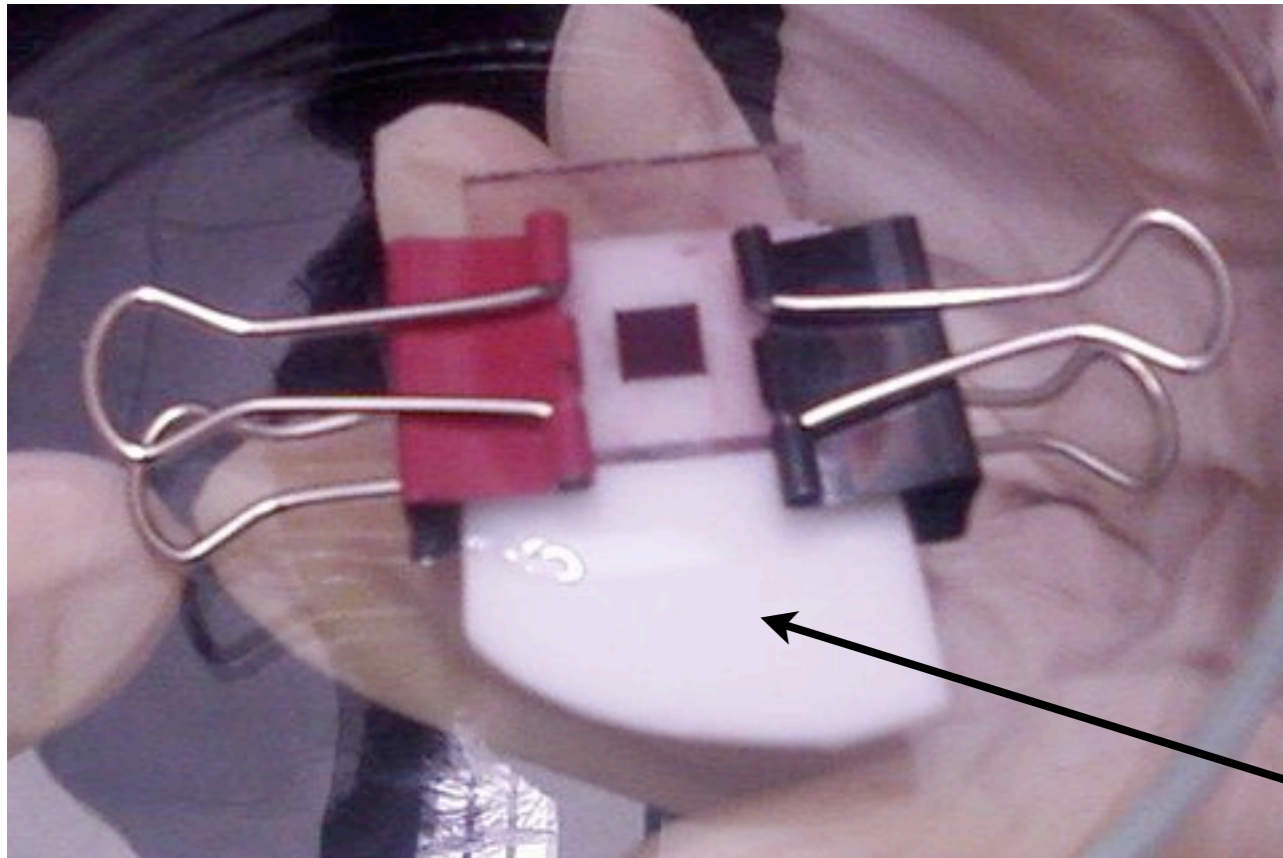


Filling the electrolyte

Slide from Jackie O.

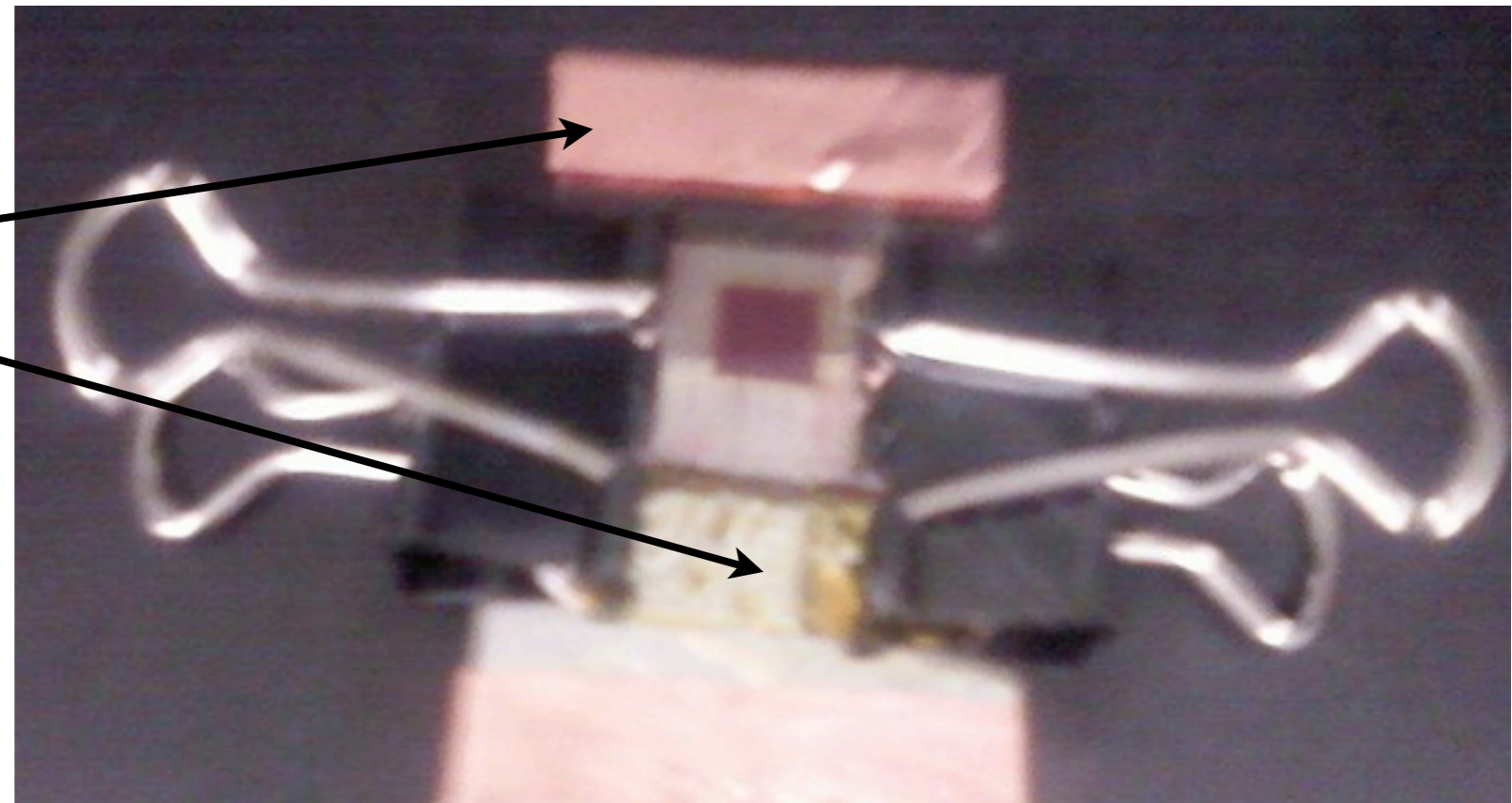
# How we will do it:

1. Add Surlyn®



2. Sandwich with teflon and bake.

3. Add copper tape and assemble.





Measure the area of your solar cell (in cm)!



How do we compare solar cells across the class?

$$P_{\max} = V_{oc}I_{sc}FF$$

$$\text{Efficiency} = P_{\max} / P_{in}$$

Post your data on the wiki Talk page for M3D5!