

# M3D4: Solar cell assembly

5/1/15

# Lab business

- Schedule updates
  - Today: Solar cell assembly
    - Homework: see M3D4 wiki page (due M3D5)
  - Wednesday: TEM
    - Homework: TEM assignment has been incorporated into the Mod 3 summary
  - Friday: Data summary
    - In class: Data summary preparation (with partner) describing TEM and solar cell efficiency

# Mod 3 assignment due dates

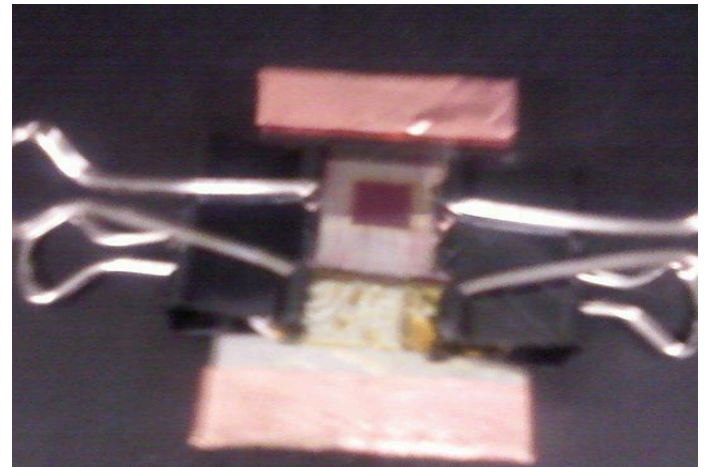
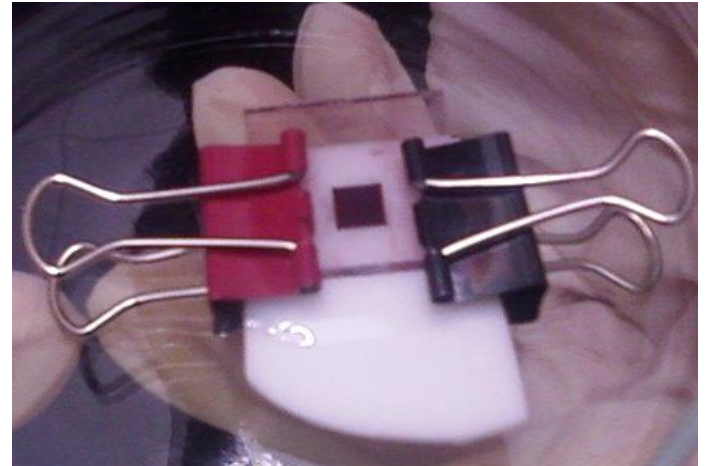
- Mod 3 summary
  - Due at end of class on May 8 at 5pm
- Mod 3 notebook entry
  - Due on May 9 at 5pm
- Research proposal
  - Due on May 13 at 1pm (uploaded to Stellar)
- Blog posts
  - Due May 14 at 5pm
- **Party** (and feedback)! on May 14 at 11am

Required 4  
Option 3

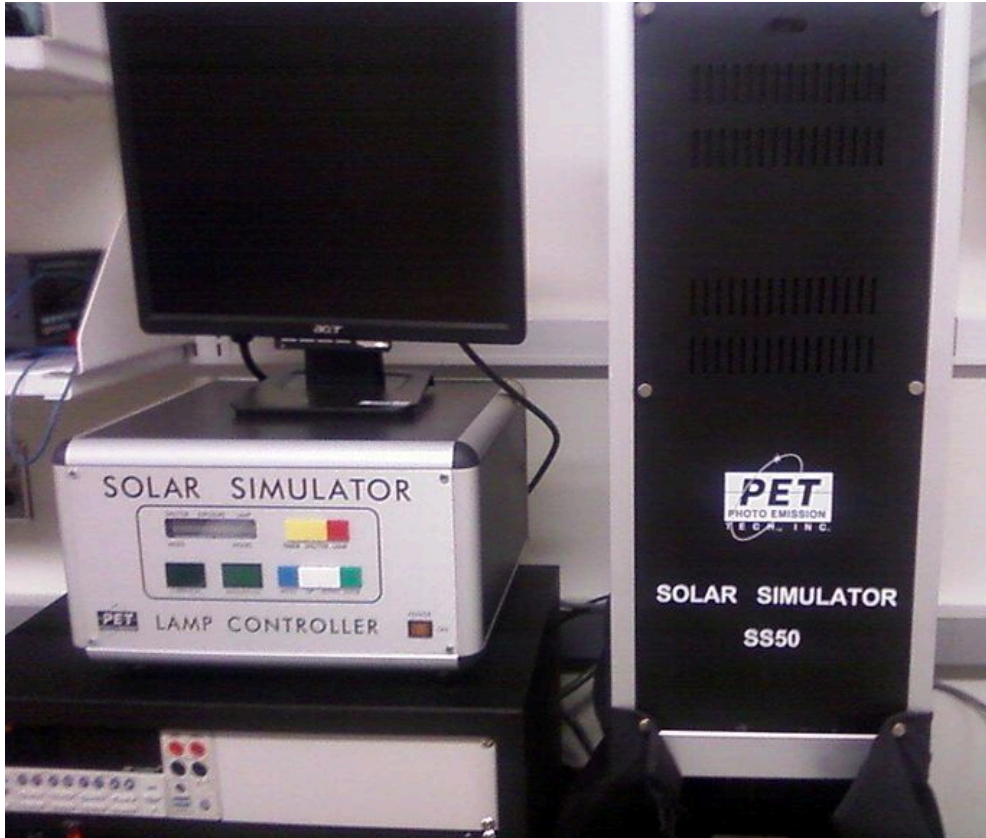
14-220

# Completing your solar cell

1. Add surlyn
2. Sandwich with teflon and bake
3. Add copper tape
4. Add iodide redox mediator
5. Assemble with Pt coated glass



# Testing DSSC efficiency



- Measure the area of your solar cell (cm)
- Record all values and post on M3D5 Talk page

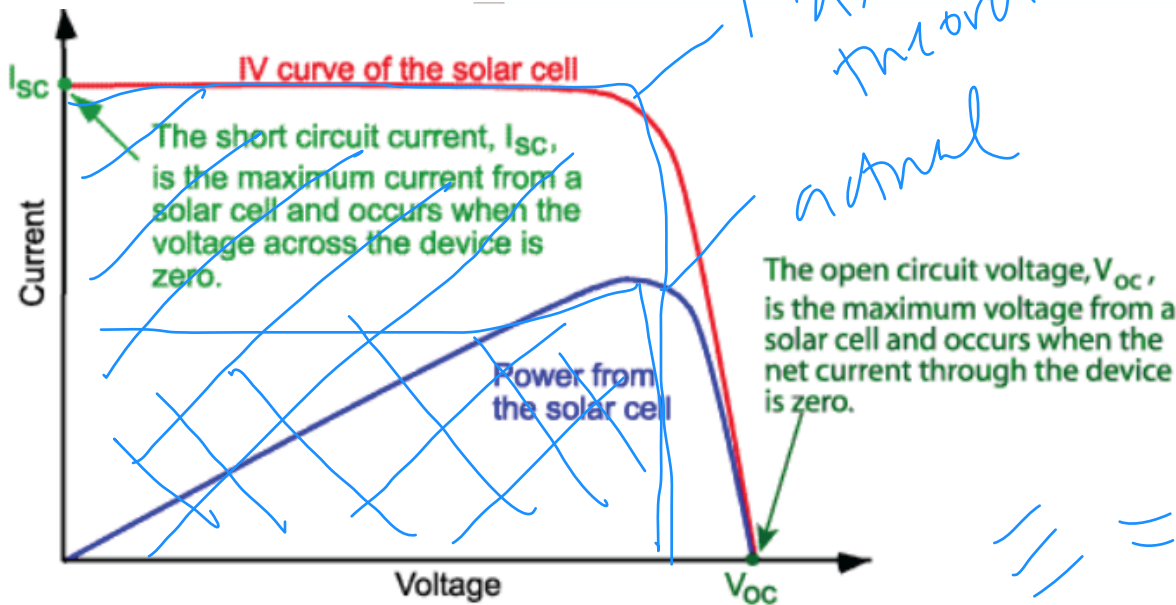
$$P_{\max} = V_{oc} I_{sc} FF$$

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

# Evaluating DSSC efficiency

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

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



$$FF = \frac{\text{actual}}{\text{theor}}$$

$$\frac{|||}{|||} = \frac{\text{theoretical}}{\text{actual}}$$

# Today

M 2-4p  
T 2-4p  
R 2-4p 54-322

- Assemble solar cells in Belcher laboratory
  - Round 1: Platinum, Pink, Purple, Green
  - Round 2: Blue, Yellow, Orange, Red
- Develop your proposal with your co-PI
- Address grading rumor...
- Be on the lookout for extended office hours...

Norm M 2-4p