

- Lab Quiz
- Announcements
- Pre-lab Lecture
 - ❖ Preview solar cell assembly
 - ❖ Today in lab (M3D4)

Announcements


- **Next week: Thanksgiving Break!**
 - We DO have lecture on Tuesday, 11/25, but NO lab
 - **Mod 2 revision** due on Wed 11/26 at 5 pm (up to 10 pts >)
 - OH: ~~T 3-5? W 1-3? Some combo?~~
Monday 2-4 pm
- **After that...things move fast**
 - M3D5: Final quiz, and testing your solar cells
 - M3D6: Mod 3 mini-report due (12/5 at 5pm)
**remember this is short and done with your partner*
 - M3D7: Research proposal presentations (12/10)

Opening the black box D3 → D4

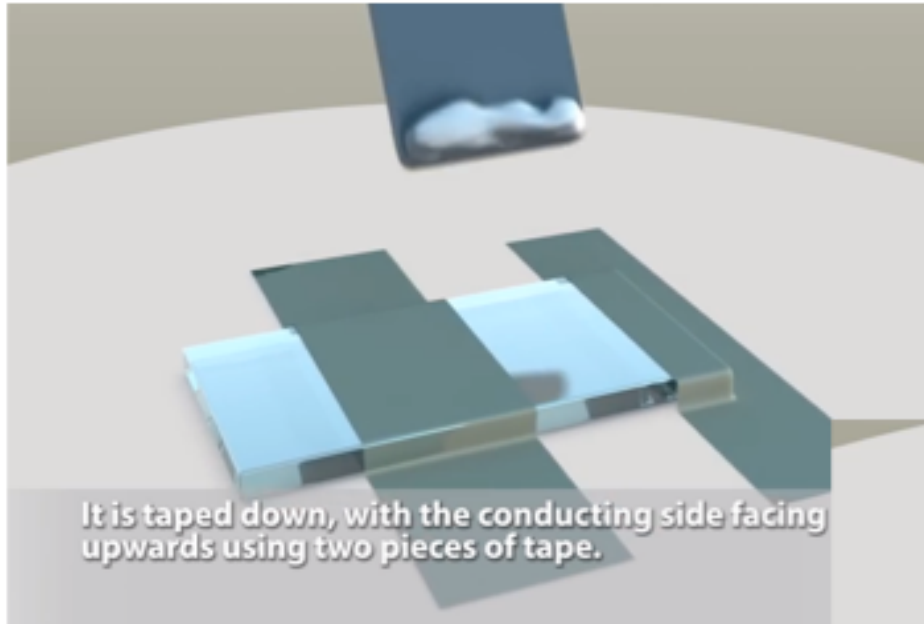
- Phage-nanomaterial complexes ground up and combined with additional TiO₂ paste, plus
 - ethyl cellulose = binder
 - terpineol = solvent
- You will prepare **anode**
- Base: glass coated with FTO – conductive and transparent – and then TiO₂ paste
- YOUR PART: PASTE ONTO BASE
- High-temperature setting process, then dye addition



Image from wiki

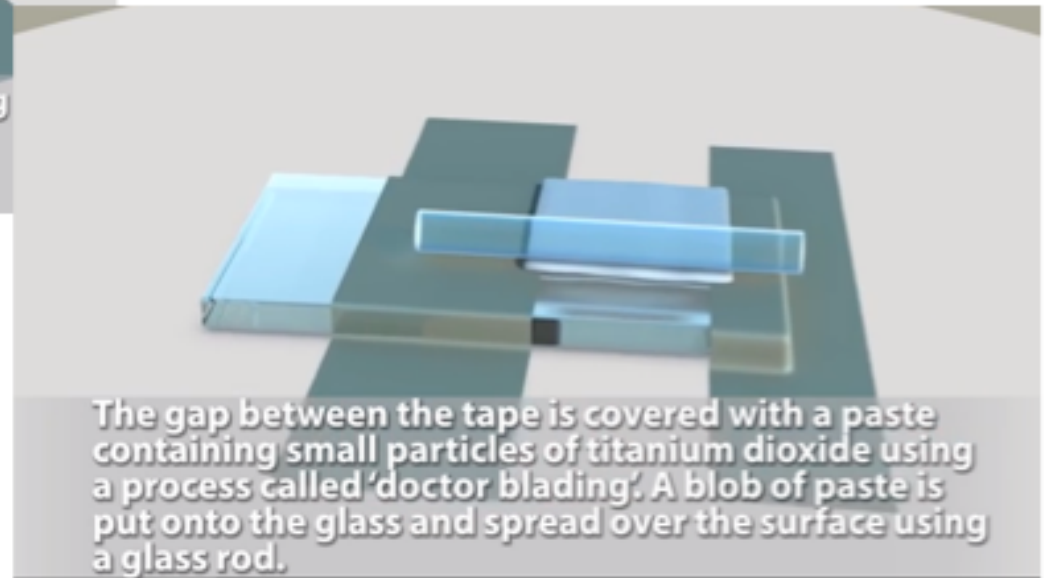
- 1) pores by selective ~~metting~~ burning off of polymer
- 2) sintering titania OO ⇒ 

Solar cell assembly



It is taped down, with the conducting side facing upwards using two pieces of tape.

Stills from
<http://youtu.be/3KRHJSOgzcw>

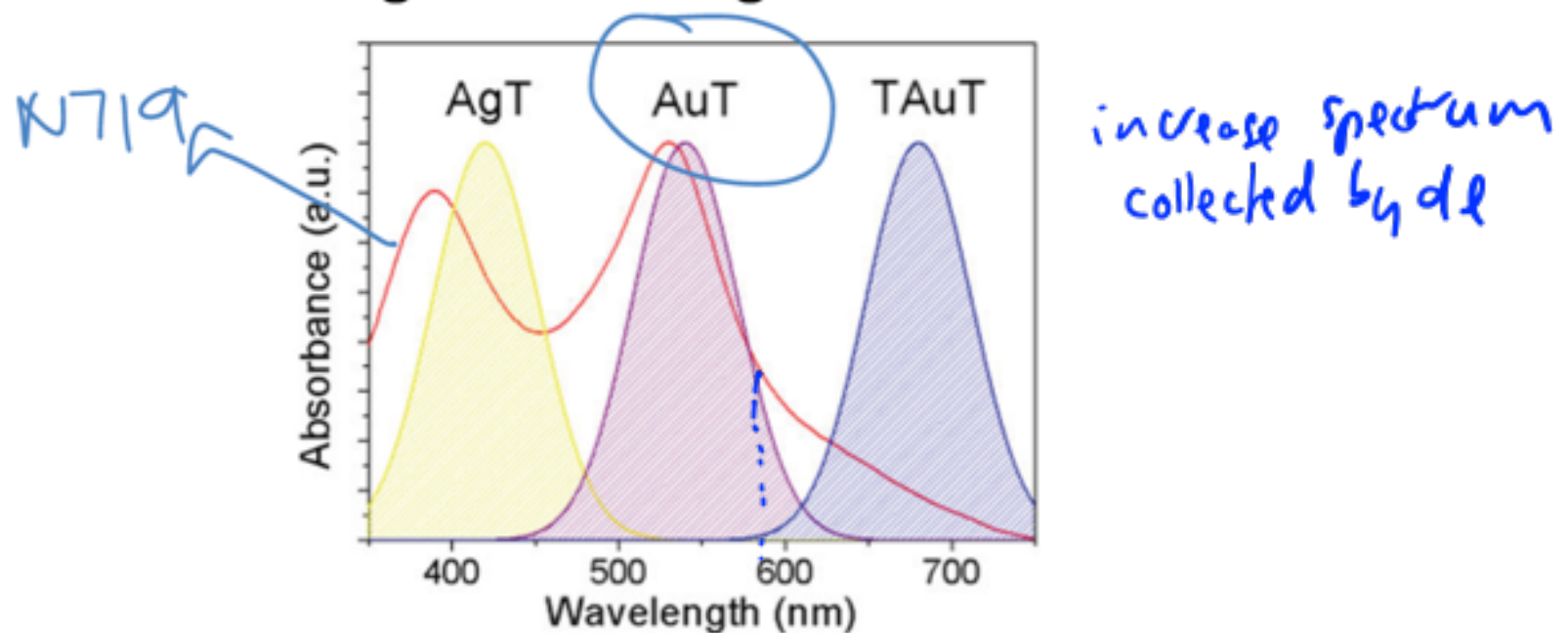


The gap between the tape is covered with a paste containing small particles of titanium dioxide using a process called 'doctor blading'. A blob of paste is put onto the glass and spread over the surface using a glass rod.

* some differences of M3
holes for dye by
drilling, not polymer
burning off

Review of light harvesting \uparrow w/Au

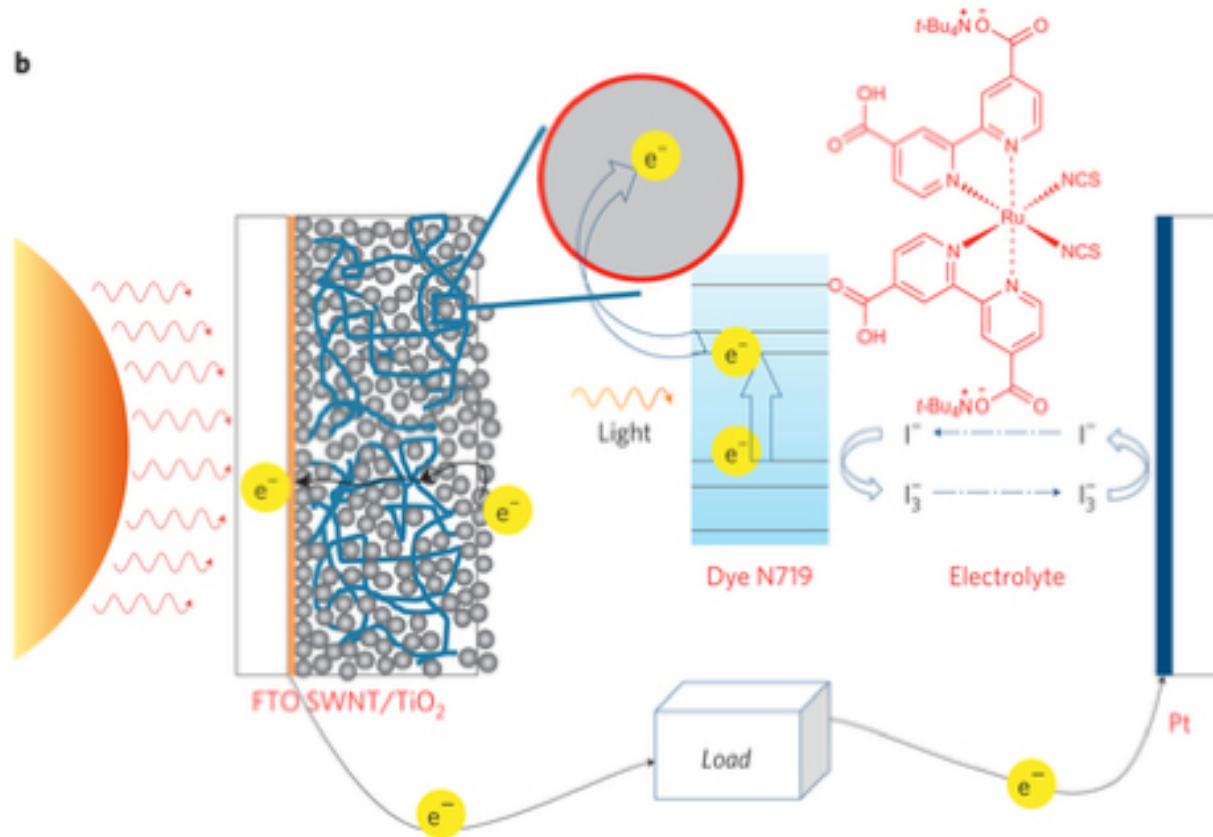
- Overlap maximizes the effect of plasmon-enhanced light harvesting



Dang et al., (2013) *Nano Lett.* 13:2

Slide from Noreen L

Review of e- collection \uparrow w/SWNT



Kinetic gains
lower losses
due to e⁻
recombination
events

Today in lab (M3D4)

- Practice doctor-blading with glue, etc.
- Head to Belcher lab for the real deal
- Otherwise working on proposal, including discussion with a peer according to below:

Camilo Ruiz	Bria Wallace	
Laila Shehata	Marco Suarez	Taibo Li
Ashley Santelises	Audrey Olshefsky	