- Announcements
- Lab Quiz – last one!
- Pre-lab Lecture
  - Today in Lab: Workflow
  - Battery capacity

Announcements

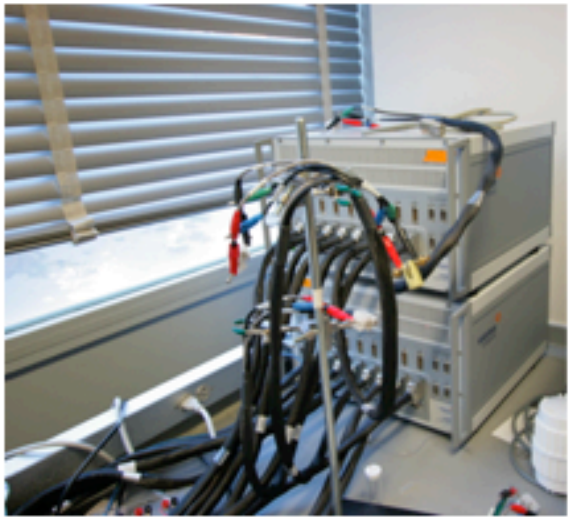
- Next time: oral proposals
  - Meet in lab to finish module
  - Move to 16-336
  - My OH by appointment for this assignment

- Thursday: discussion/evaluation, then lab party

Today in Lab: Workflow

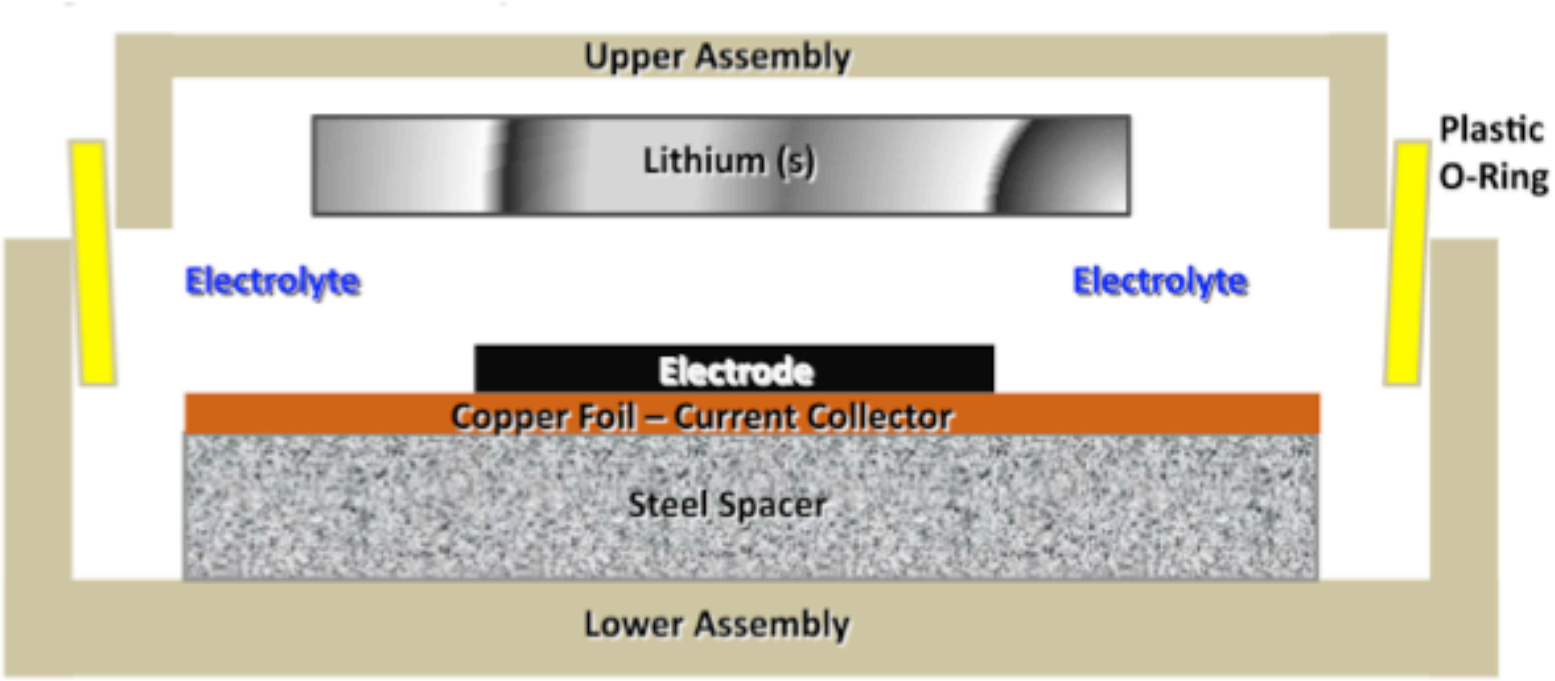
- Set up galvanostat to test batteries
  - Belcher lab 3rd floor
- Work on research proposals
  - Run idea by another group
  - Discuss with teaching faculty
- Next time
  - Analyze galvanostat data
  - Try using batteries to power a device

Image from Mark Allen



Recap battery components

Image from Lt. Col. John Burpo



How it works: Li ions reduced (at least partially), Li metal alloys with the gold, e.g., Au_4Li_{15}

Preparing for galvanostat run

- Calculate current needed
  - For a 10 hour run
  - For your grams of electrode
  - Assuming theoretical capacity, which is 510 mAh/g
- First, estimate yield of electrode that is *active* material
  - synthetic mtls. 70% active
  - less ∅ (15-20% off)
- Negative current to discharge

Tu/Th	
Pink/Red/Purple	4.00mg
Yellow/Green	1.45mg
Blue/Orange	4.03mg
W/F	
Red/Blue	1.42mg
"W/P"	0.53mg

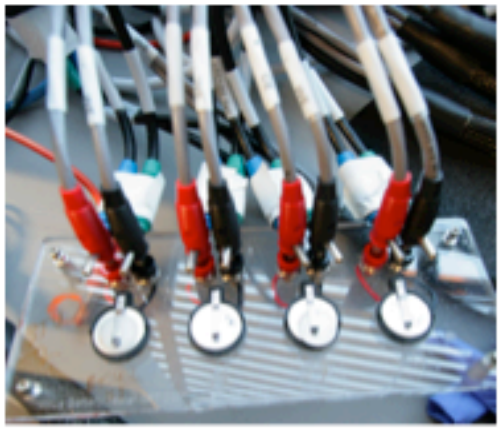


Image from Mark Allen, data from John Burpo

After galvanostat run

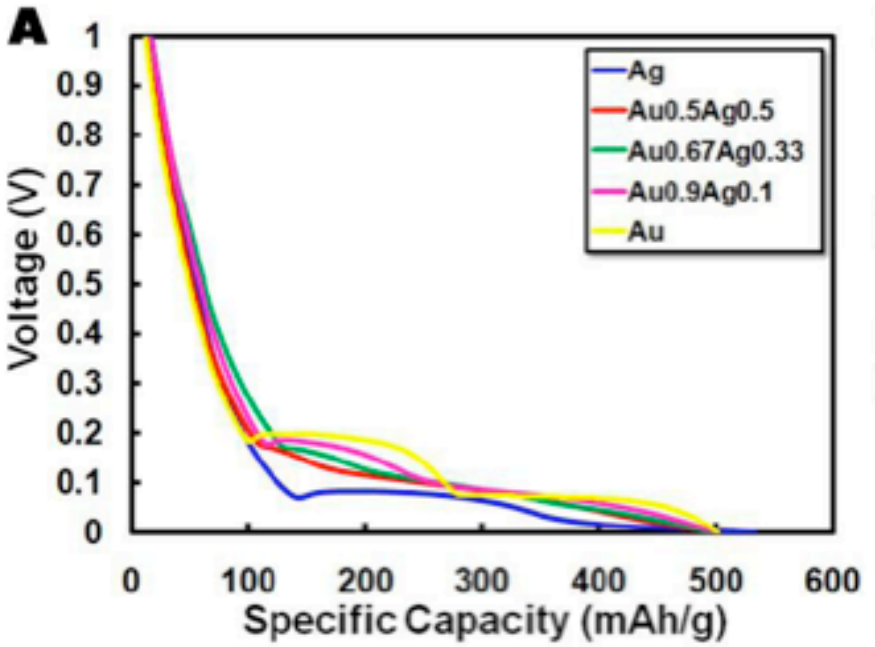


Image from 20.109 wiki

- Back-calculate true capacity
  - How long to discharge?
- Important parameters
  - C (1 C is 1 hr to discharge)
- Turn on a light
  - Batteries in series