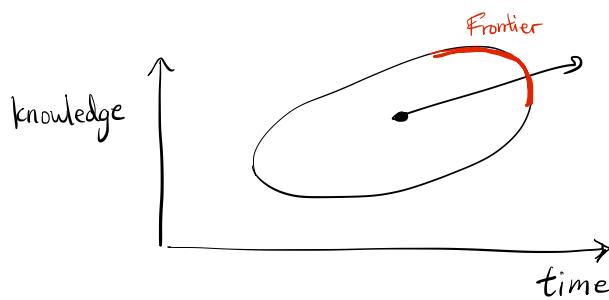


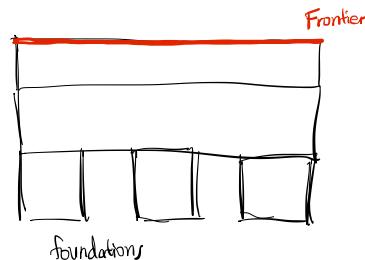
Topics

• Finding and reading papers

"Dynamical view of knowledge"
(Leaky Bucket)

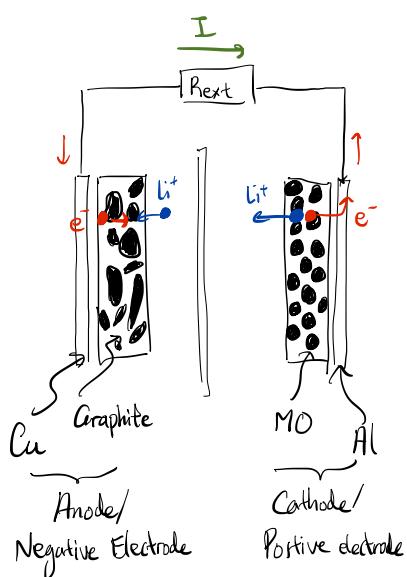


"Static view of knowledge"
(Pillars of Knowledge)



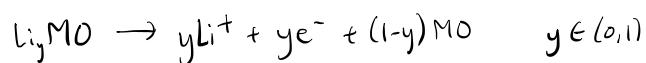
- "Good" → novel, relevant, clear
- For starting out:
 - google scholar /google search for review papers /high citation count papers
 - read in this order: abstract, intro, methods, results/discussion /figures
- If already acquainted : Google scholar alerts for authors
• read abstract, conclusions, figures, ...

• Battery Components (Reviews)



charging (with no side reactions)

Cathode:

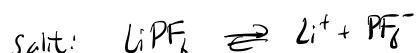


$$\text{MO} = \{\text{CoO}_2, \text{Ni}_{0.33}\text{Mn}_{0.17}\text{Co}_{0.5}, \\ \text{NiCoAl}, \text{FePO}_4\}$$

Anode:



Electrolyte:

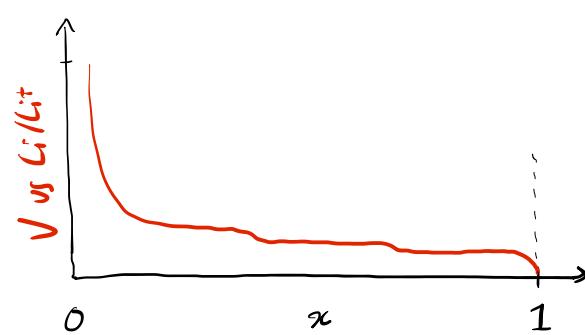
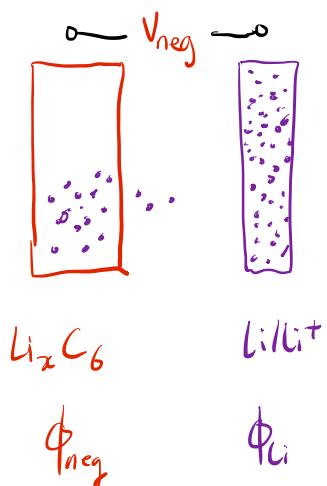
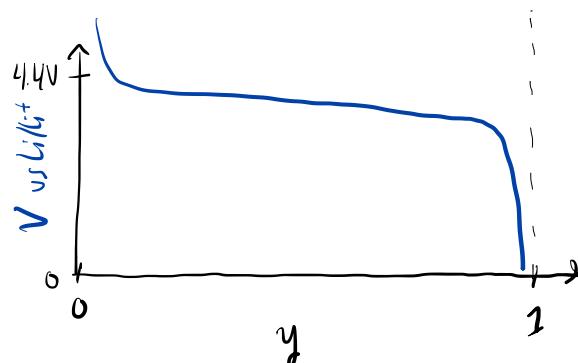
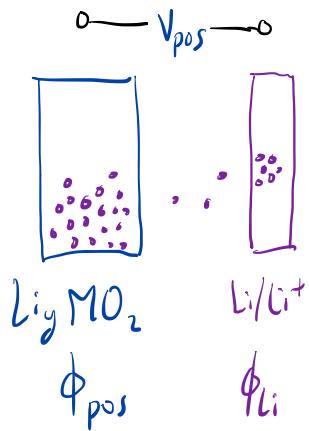


Solvent: EC, DEC, DMC, ...

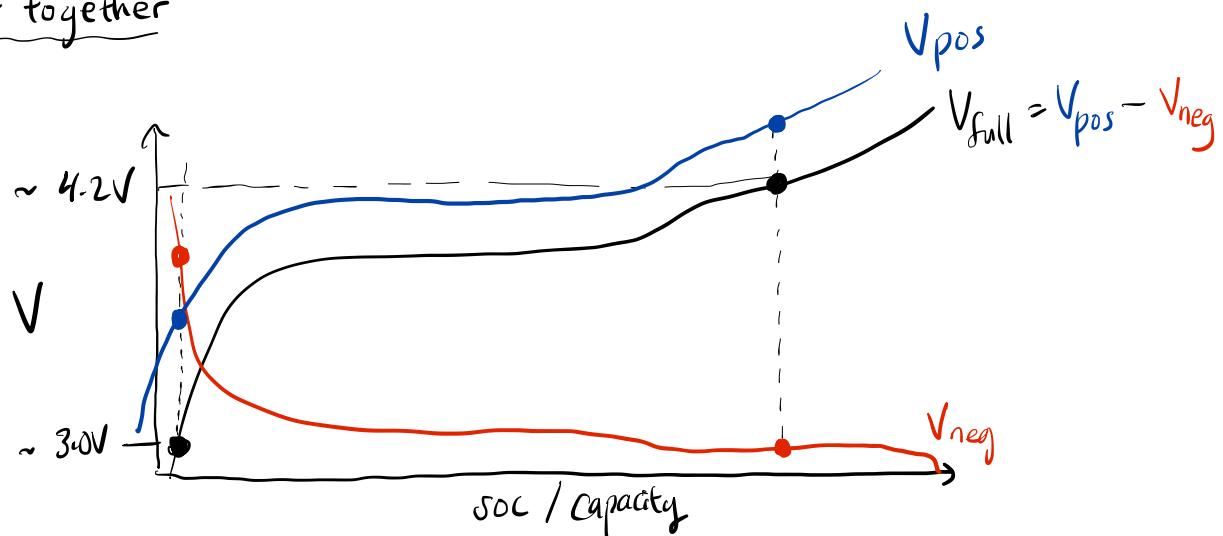
Additives: VC, FEC, ...

Voltage curves at the electrode level. \rightarrow Gateway to understanding \rightarrow Electrode-level Degradation \rightarrow Cell design

$$V_{\text{full}} = V_{\text{pos}} - V_{\text{neg}}$$



Putting it together



Preview:

Equivalent circuit models - gateway to battery simulation

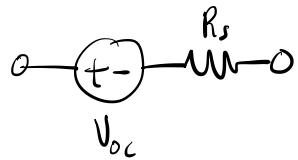
OCU model

$$\leftarrow V_t \rightarrow$$



OCU-R model

$$\leftarrow V_t \rightarrow$$



OCU-R-RC model

$$\leftarrow V_t \rightarrow R_i$$

