Summary of this week

- This week, you learned that cell static and dynamic characteristics change as the cells age
  - Generally, capacity is lost. . . “capacity fade”
  - Generally, resistance increases. . . “power fade”
- You learned, qualitatively, many of the specific degradation mechanisms in both the negative and positive electrodes
- You learned that cell voltage is very sensitive to changes in resistance, so resistance is relatively simple to estimate well
- You learned that cell voltage is very insensitive to changes in total capacity, so total capacity is very difficult to estimate well

Where from here?

- Next week, you will begin to learn ways to estimate cell total capacity
- First, as a baseline method, you will learn how to use ordinary and weighted least-squares methods
- You will learn that while these methods are very simple to implement, they produce biased estimates of total capacity
- You will learn improved total-least-squares methods that are unbiased, but impractical to implement in a BMS
- However, later in the course you will learn how to make practical unbiased estimators

Credits

Credits for photos in this lesson

- “Climbing upward” on slide 2: Pixabay license (`https://pixabay.com/en/service/license/`), from `https://pixabay.com/en/white-male-3d-man-isolated-3d-1871366/`