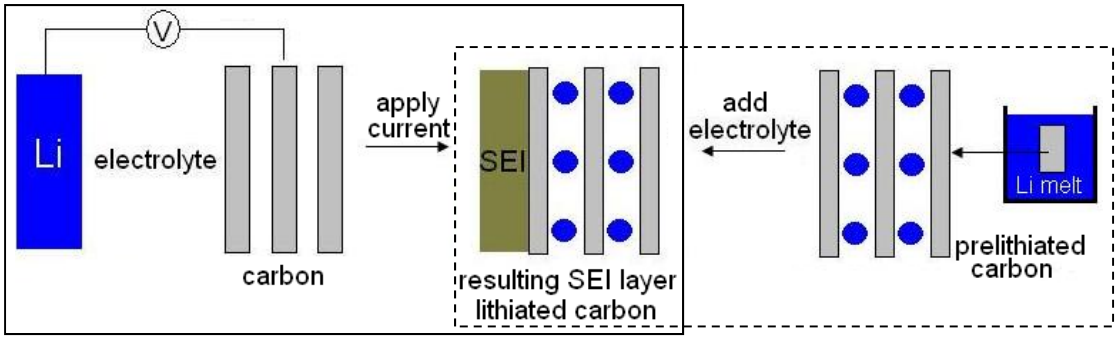
Electrochemical study of carbon - battery electrolyte interfaces

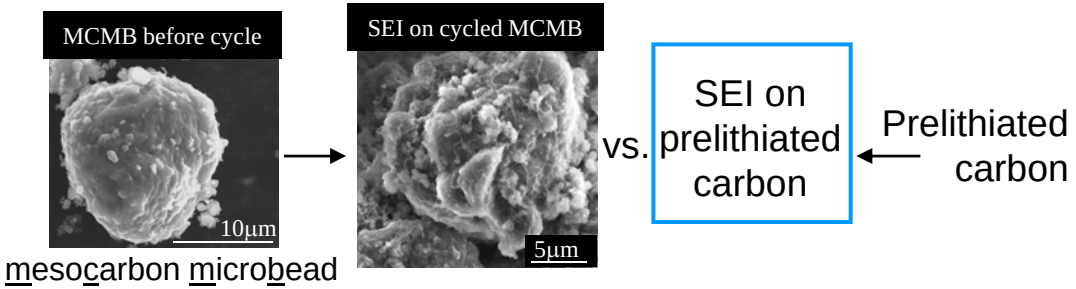
Scientific Challenge: How does the SEI form on carbon anode materials? Unknown whether SEI forms if the carbon is prelithiated.

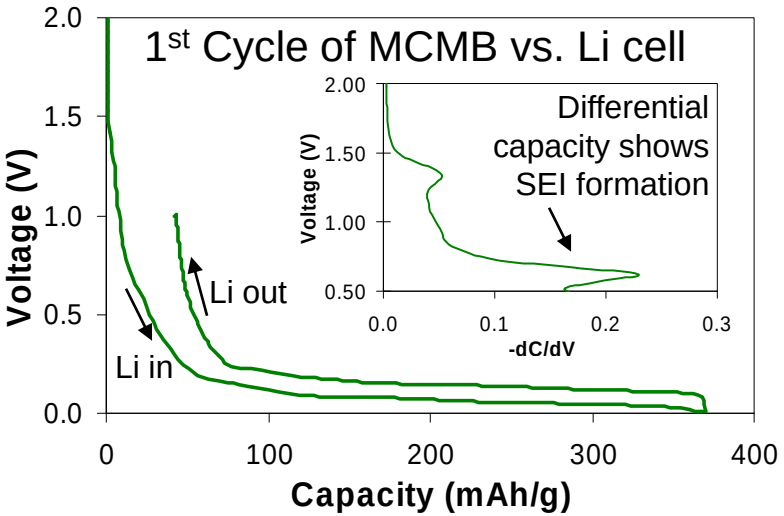
Goal: Distinguish between chemical and electrochemical processes of SEI formation.

Approach: "Dry" lithiate carbon substrates via thermal evaporation or lithium melt. Place substrate in electrolyte and probe interfacial species.

Current Efforts: Determine if SEI forms on prelithiated carbon in electrolyte. Distinguish between electrochemical and chemical interfacial processes that lead to SEI. Also, characterizing SEI formed on carbon during electrochemical cycling. Move towards model carbon substrates: HOPG, onions.







FIRST researchers: L.A. Adamczyk, N.J. Dudney

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