



Matthew Yen

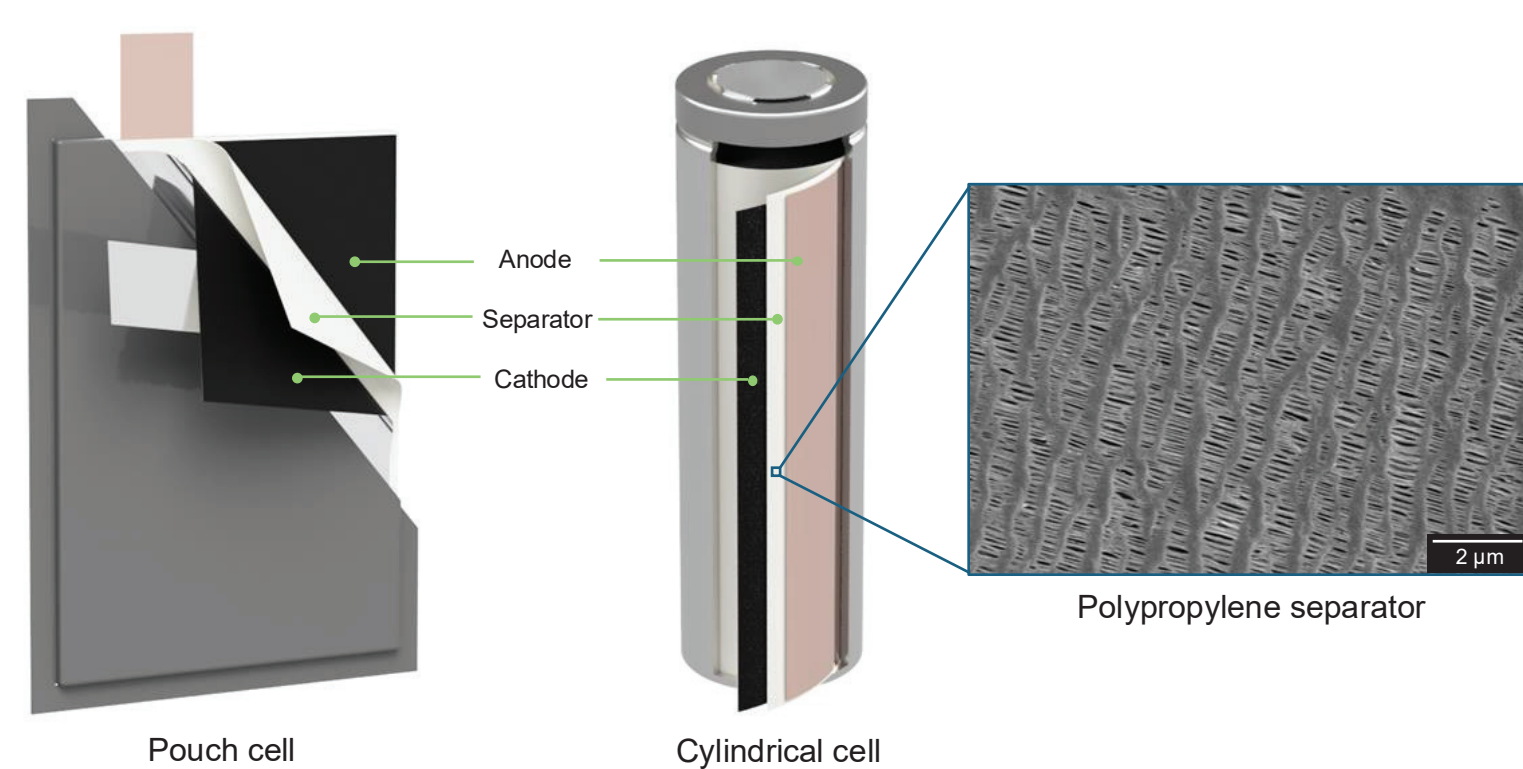
Van Leuvan Award
Ph.D. Student, Mechanical Engineering
First Year ARCS Scholar



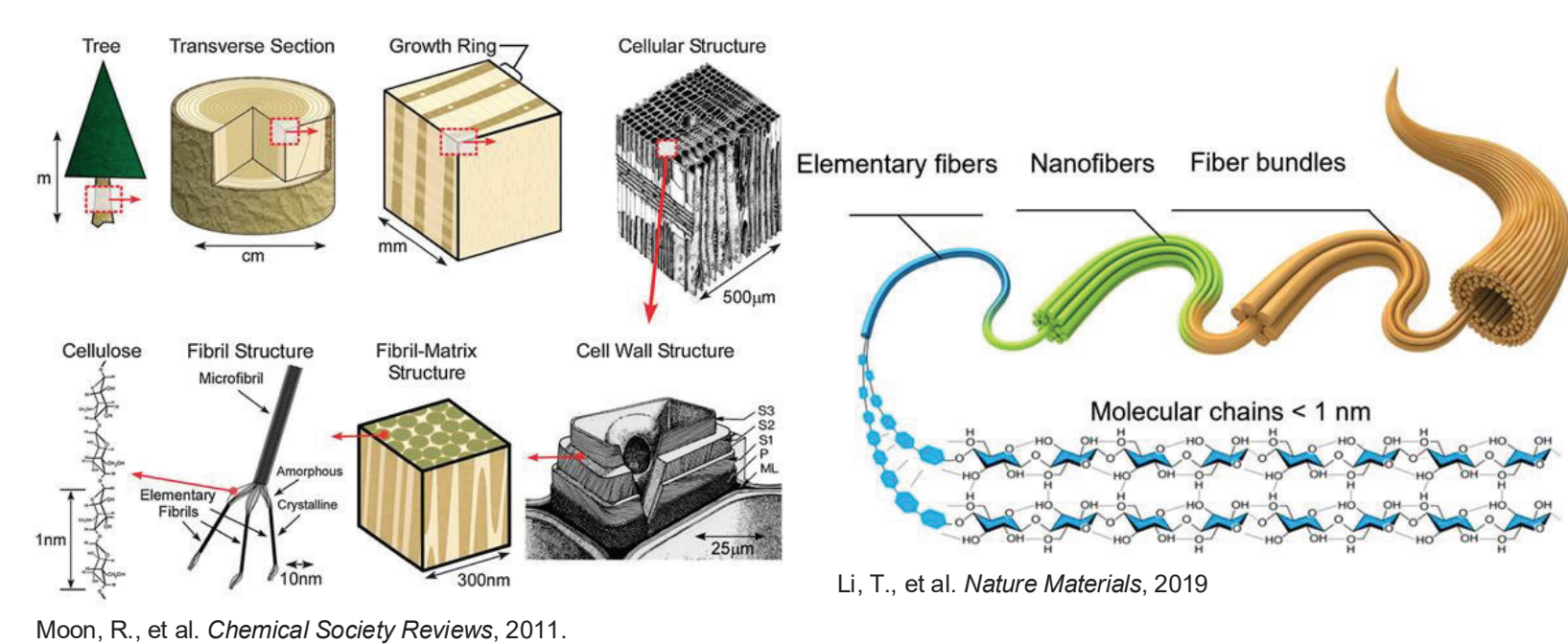
Cellulose Nanofibril-based Separators for Li-ion and Na-ion Batteries

Engineering non-woven membranes from nanoscale cellulose to replace conventional plastic separators, enhancing battery performance, safety, and sustainability.

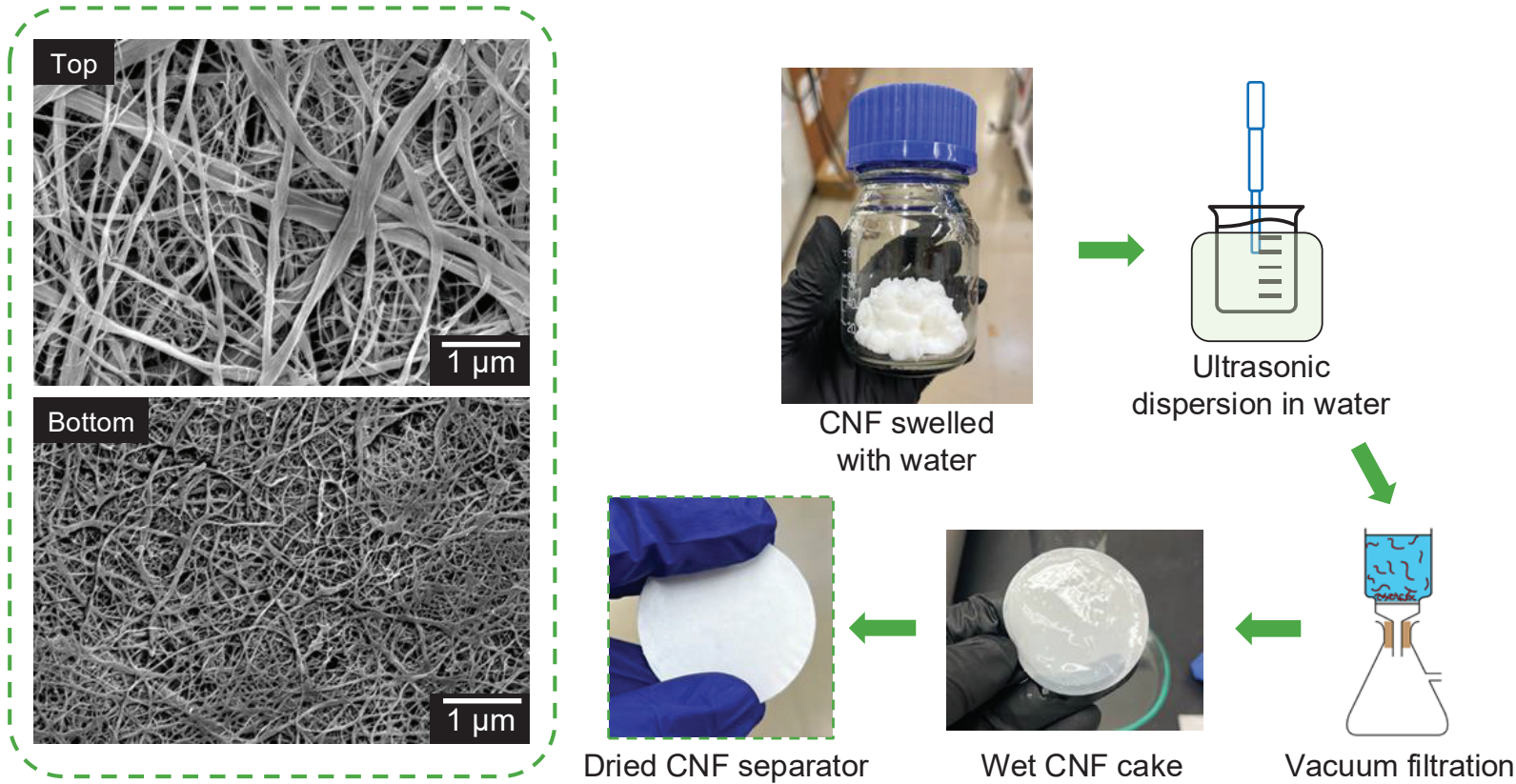
Components of a battery



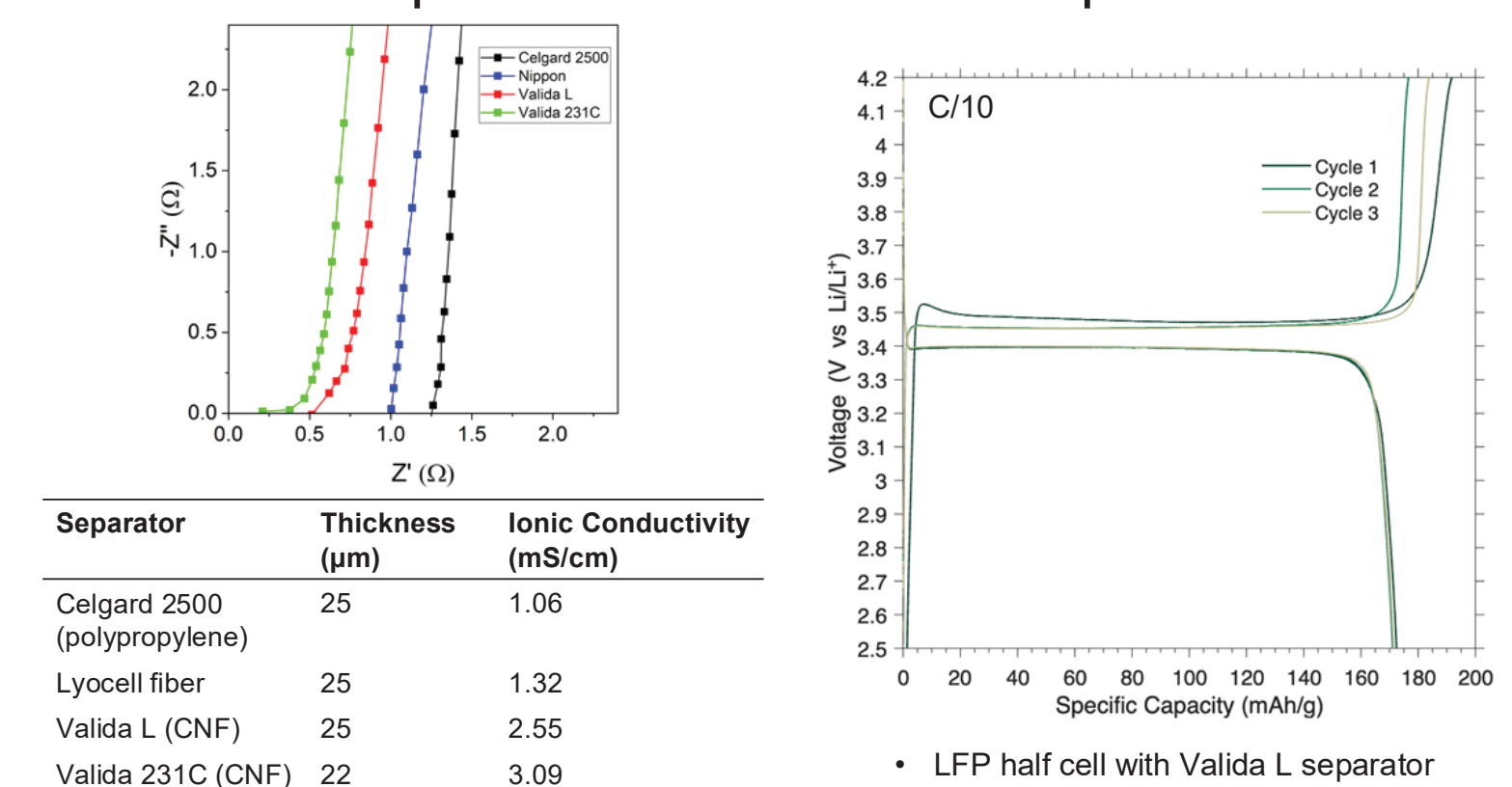
Structure of cellulose nanofibrils (CNFs)



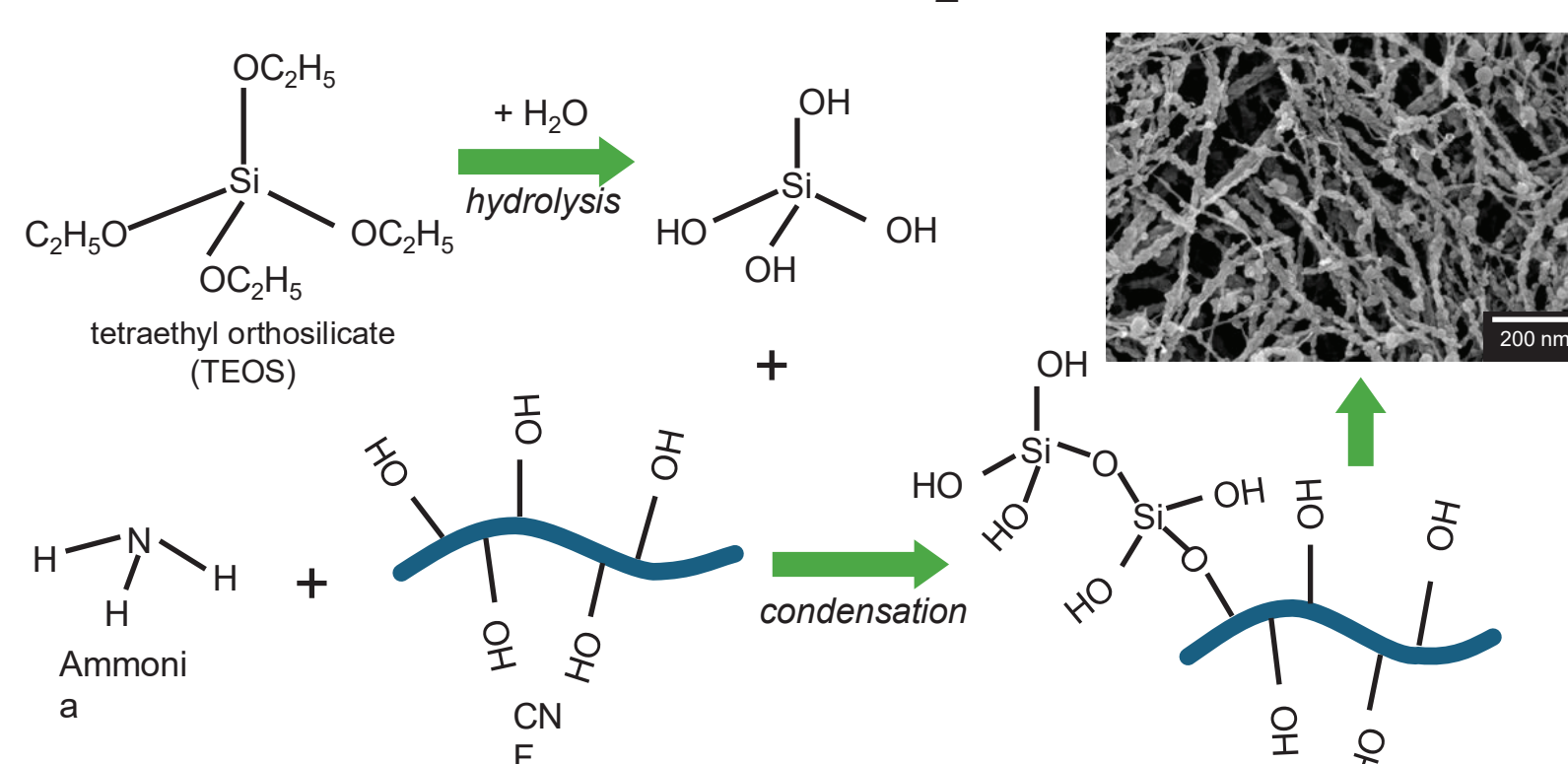
Synthesizing CNF separators



Neat CNF separator electrochemical performance



Modifying CNFs with a SiO₂ ceramic coating



CNF/SiO₂ separator characterization

