



- \* A better understanding on the mechanisms of the phase transformations, stress-strain development, and chemical gradient development during Li-ion insertion/deinsertion is of prime interests for the battery research community.
- \* We have been successful in making a nanoscale battery made of LiCoO<sub>2</sub> powders as cathode, ionic liquid as electrolyte, and Si nanorod as anode.
- \* This nanobattery was subjected to charge-discharge cycle inside a transmission electron microscope allowing one to observe the inside of a Li-ion battery with resolutions better than a few angstroms.