

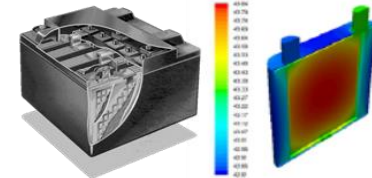
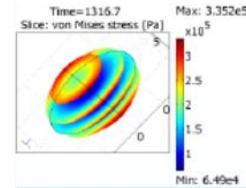
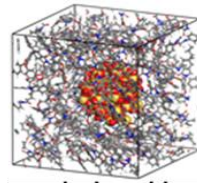
# Development of Web-based Multi-scale Simulation Platform for the Efficient Design of Li-ion Battery

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# Multi-scale Simulation Platform



Li diffusion in solid phase  
 Interface physics  
 Particle deformation & fatigue  
 Structural stability

Electronic potential & current distribution  
 Heat generation and transfer  
 Electrolyte wetting  
 pressure distribution

$10^{-10}$

$10^{-8}$

$10^{-6}$

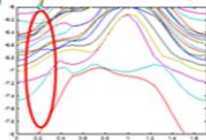
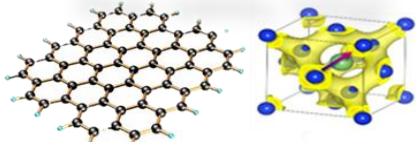
$10^{-4}$

$10^{-2}$

$10^0$  [m]

**Atomic scale**

Thermodynamic properties  
 Material-level kinetics  
 Phase stability, Voltage



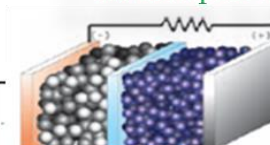
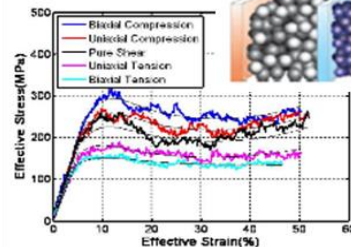
**Particle scale**

**Electrode scale**

**Cell scale**

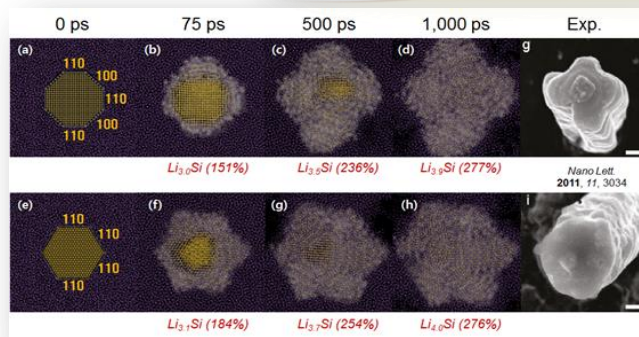
**System scale**

Change balance and transport  
 Electrical network in composite electrodes  
 Li transport in electrolyte phase

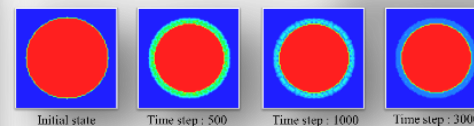


System operating conditions  
 Environmental conditions  
 Control strategy

# Overview of Our Platform



## Cathode Decomposition



## SEI Layer Generation

