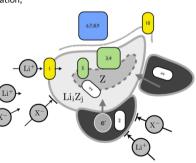Li-foil

Separator

Active-particles

Al-foil

Discretization

381,036 cells
1,284,033 DOFs

Cores partition

8 nodes
544 cores
Marconi @ CINECA

Processes

1. Intercalation reactions
2. Electronic conduction
3. Diffusion in active particles
4. Swelling, stress generation, failure
5. Phase segregation
6. Migration
7. Electrolysis
8. Ionic diffusion in the electrolyte
9. Ionization reaction / incomplete dissociation
10. SEI formation/disruption

Models

1. Butler-Volmer equation
   Gouy-Chapman theory
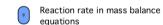2. Ohm's law
3. Mass balance equations
4. Principle of virtual power
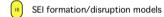   TD consistent constitutive models
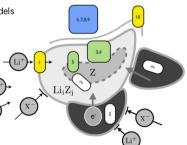5. Sharp interface modeling
   Cahn-Hilliard theory
6. Electroneutrality – Maxwell's equation in electro-quasi-statics
7. Faraday's law
8. Mass balance equations
9. Reaction rate in mass balance equations
10. SEI formation/disruption models

m4lab

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