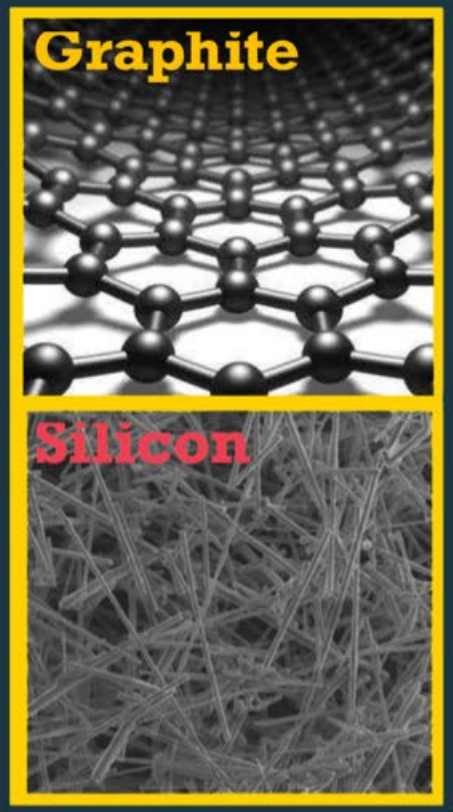
Nanotechnology

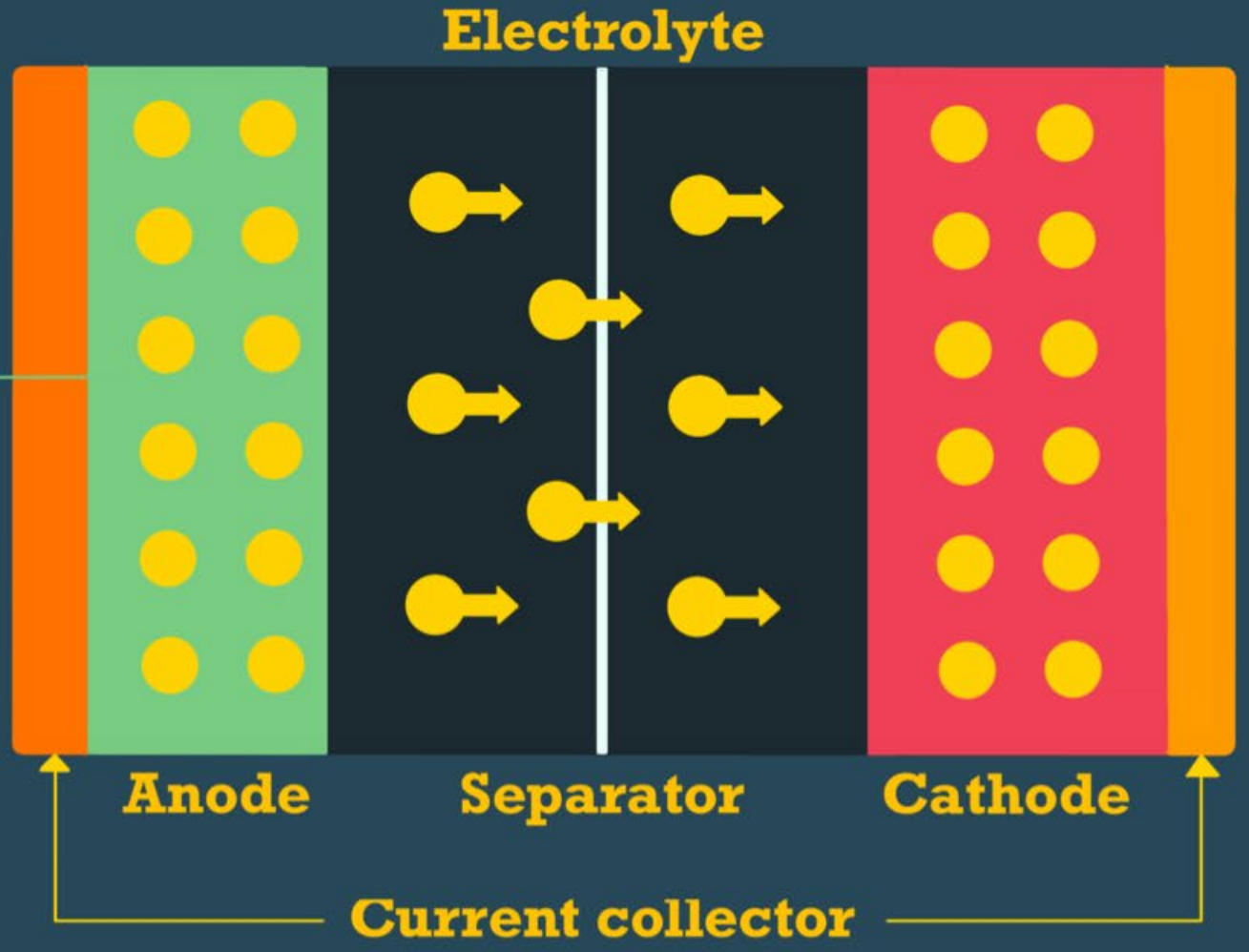
What does it have to offer the field of electric vehicles

materials & batteries

Challenges in the development of Si anodes for lithium-ion battery

Lithium-ion Cell

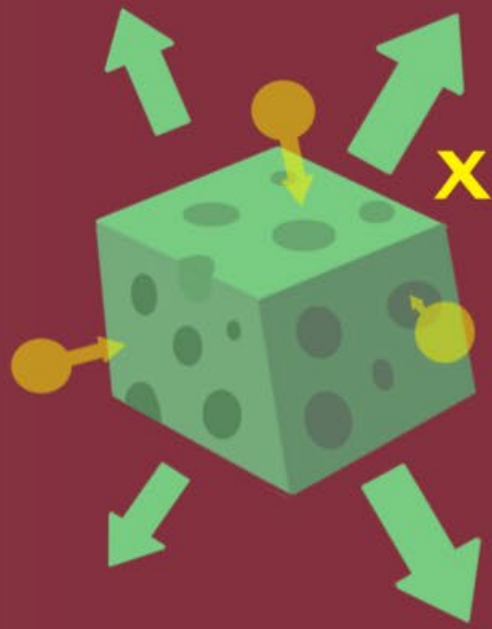




Silicon's promise

Each silicon atom can hold 4.4 lithium ion

1 Easy to inflate

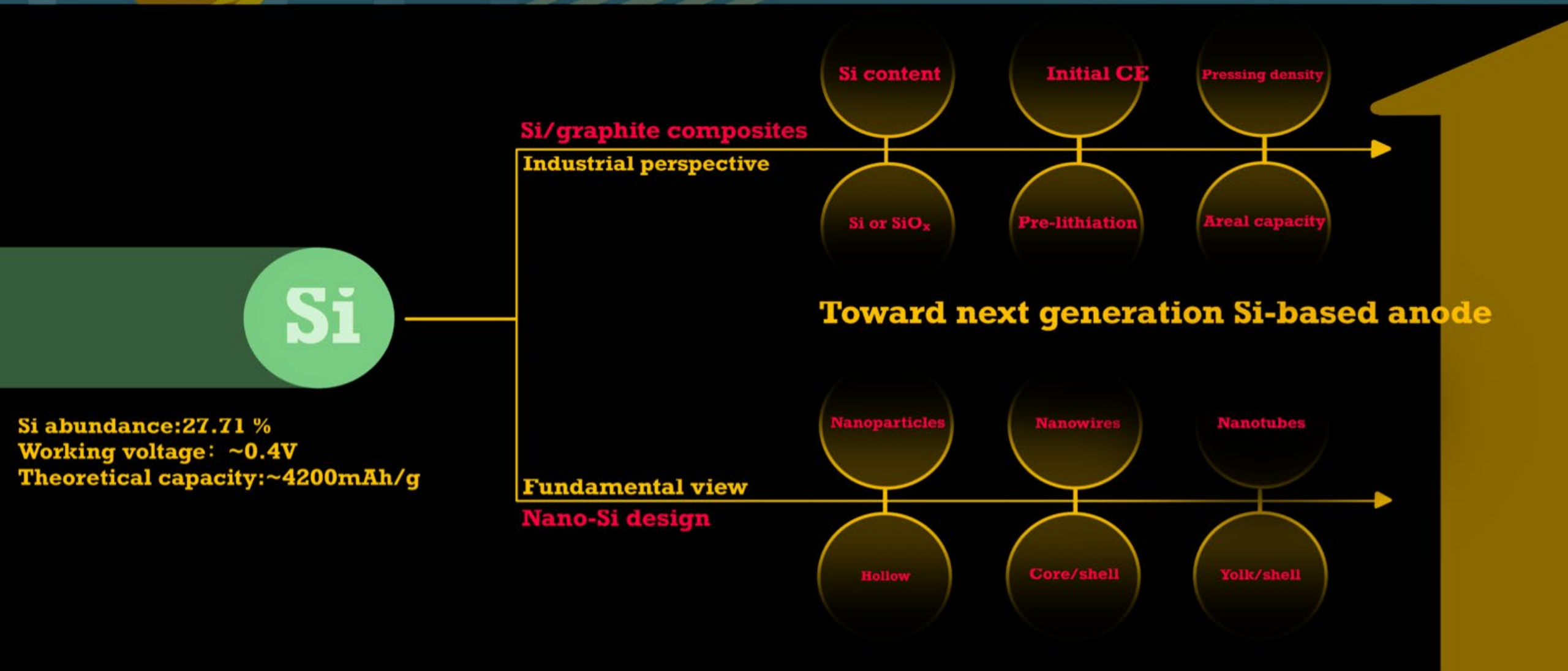


X270%

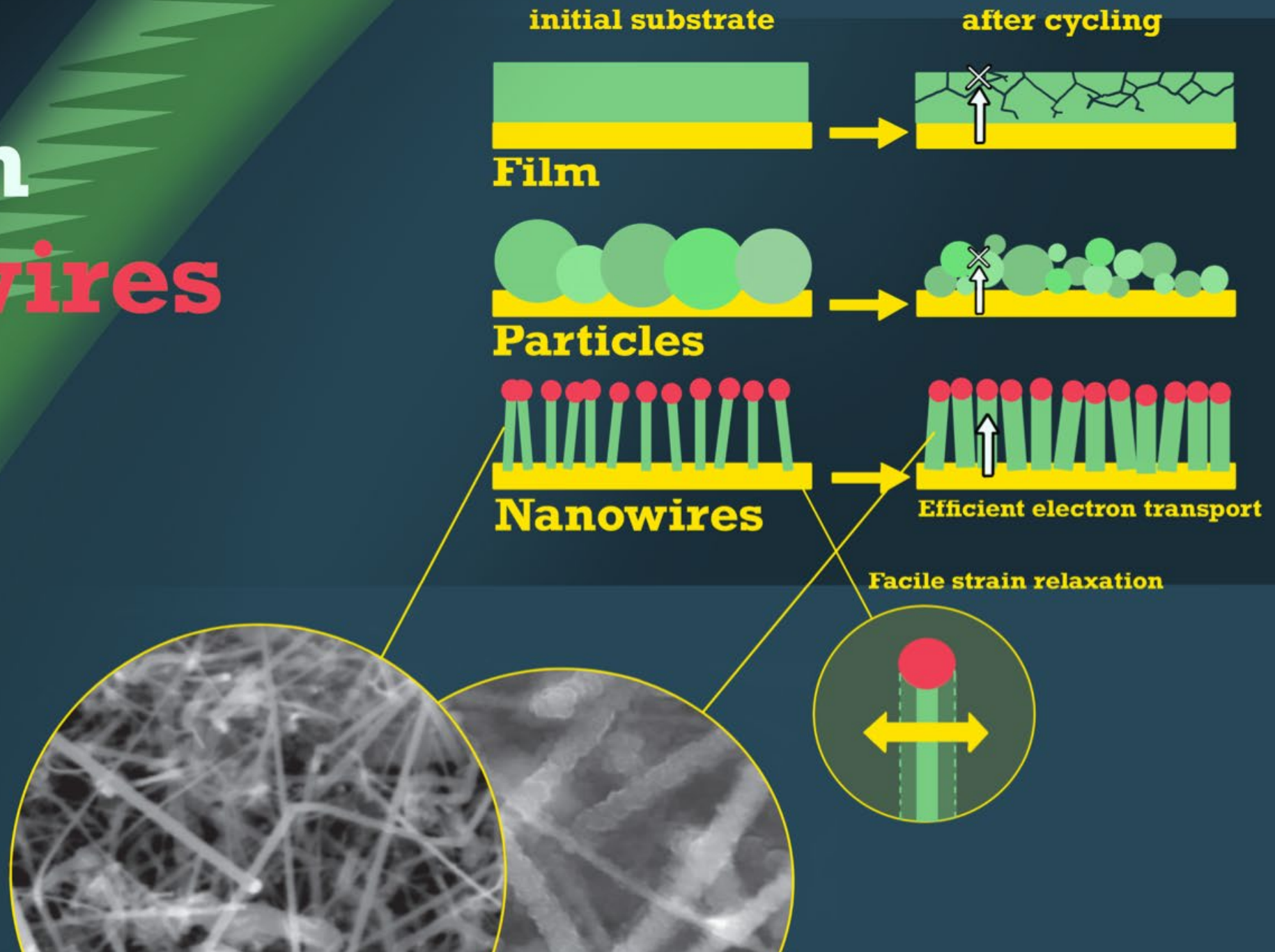
2 Easy to fracture

3 Growth of SEI films

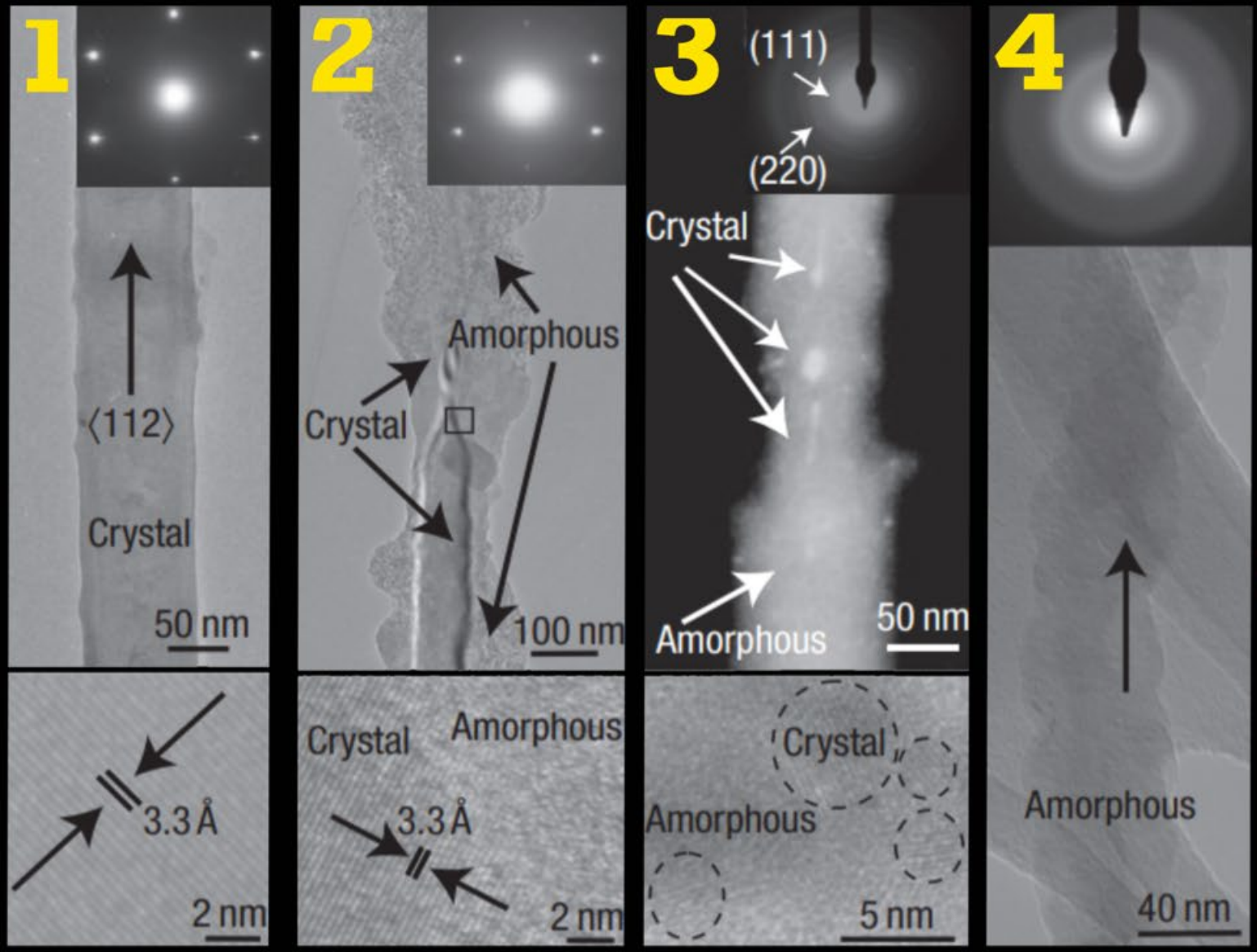
Progress on silicon-based anode materials for particle lithium-ion battery

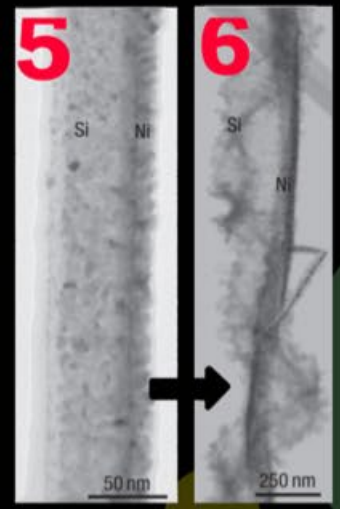


Why silicon nanowires



How silicon nanowires work

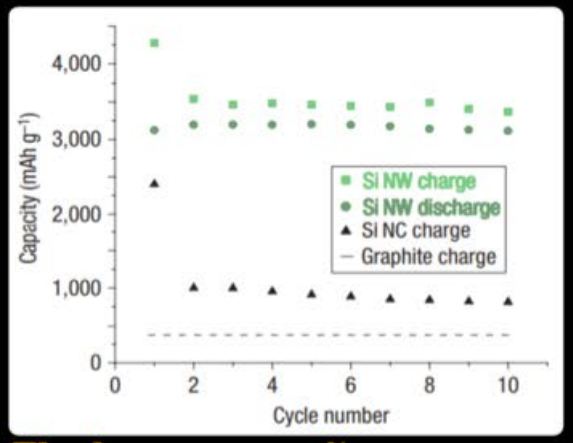




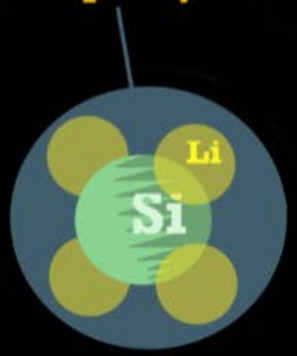
Structural evolution of Si NWs during lithiation

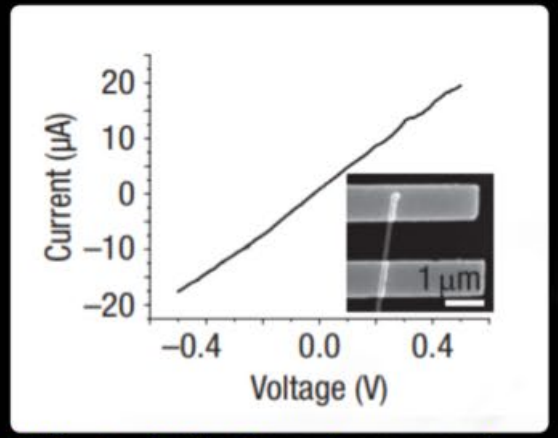
Silicon nanowires

advantage and disadvantage

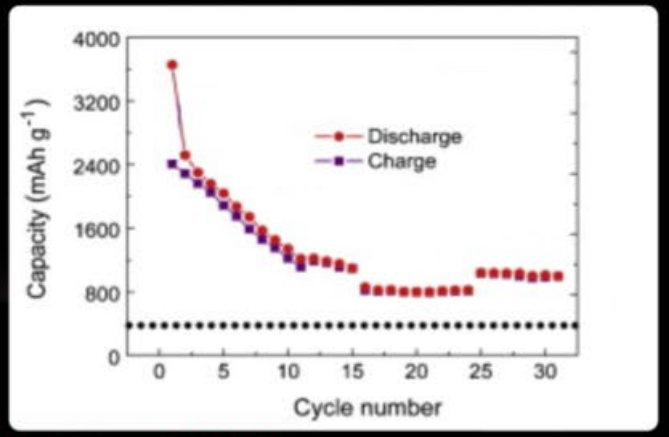


The larger capacity





Efficient electron transport



Less cycle life

Graphite(372mAh/kg)
75000/ton

Graphite + SiNWs(435mAh/kg)
120000/ton

Higher manufacturing costs

Improvement of silicon nanowires