

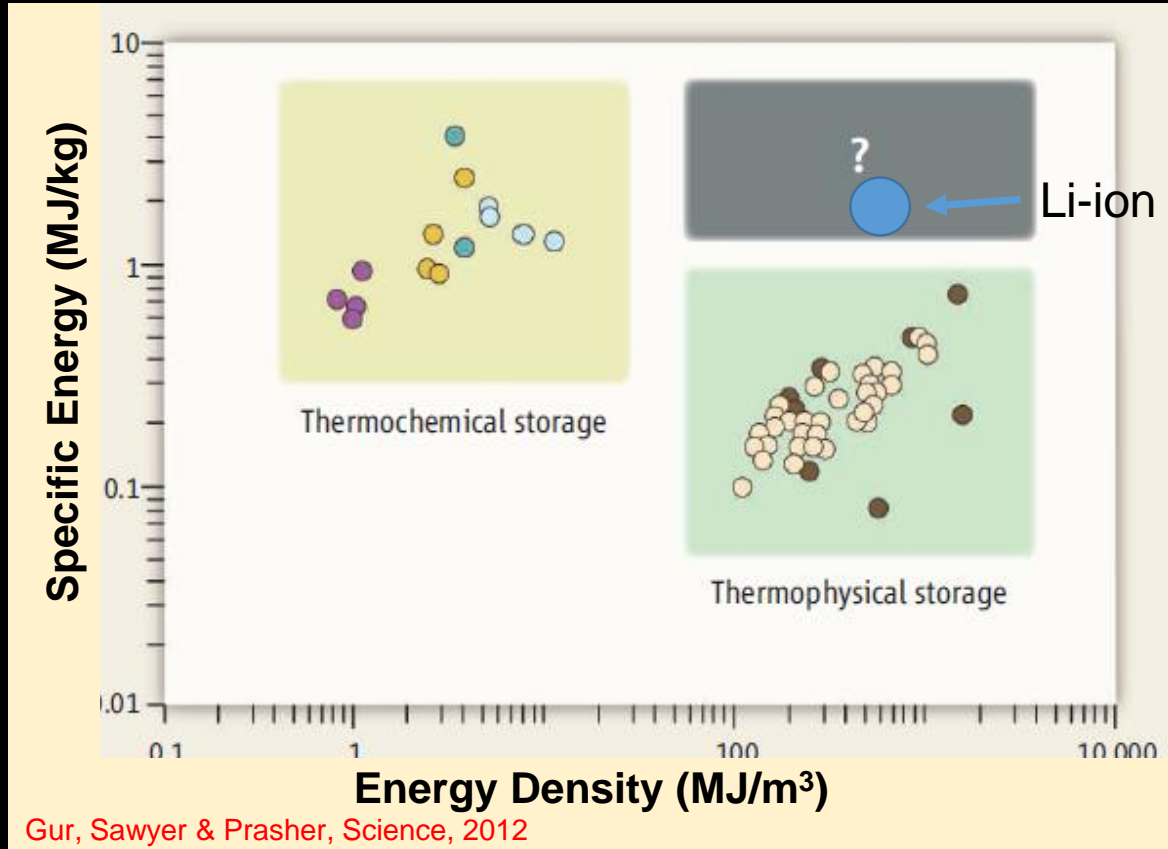
GRID Interactive Thermal Devices and Systems For Building Applications

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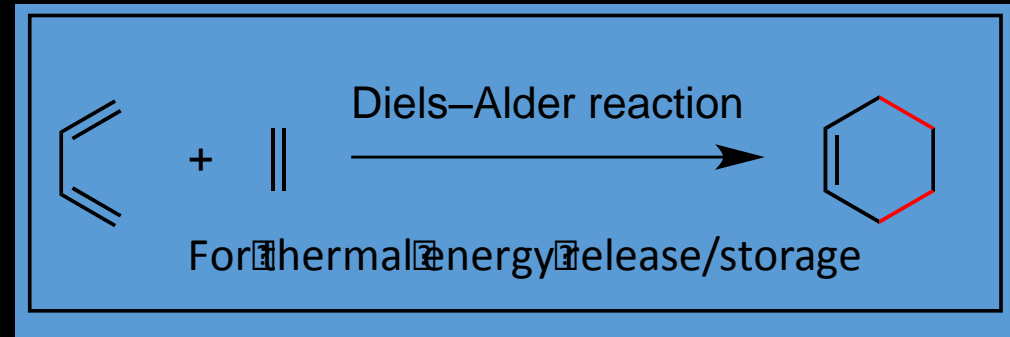
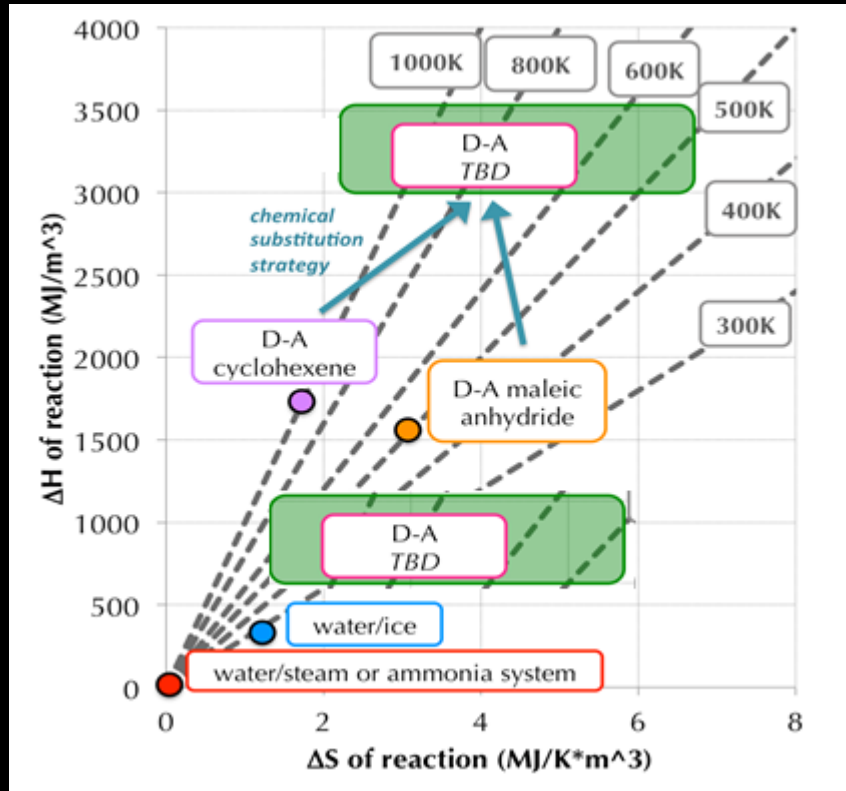
Thermal Storage: Materials and Chemistry Challenge



Chemistry/Materials Challenges

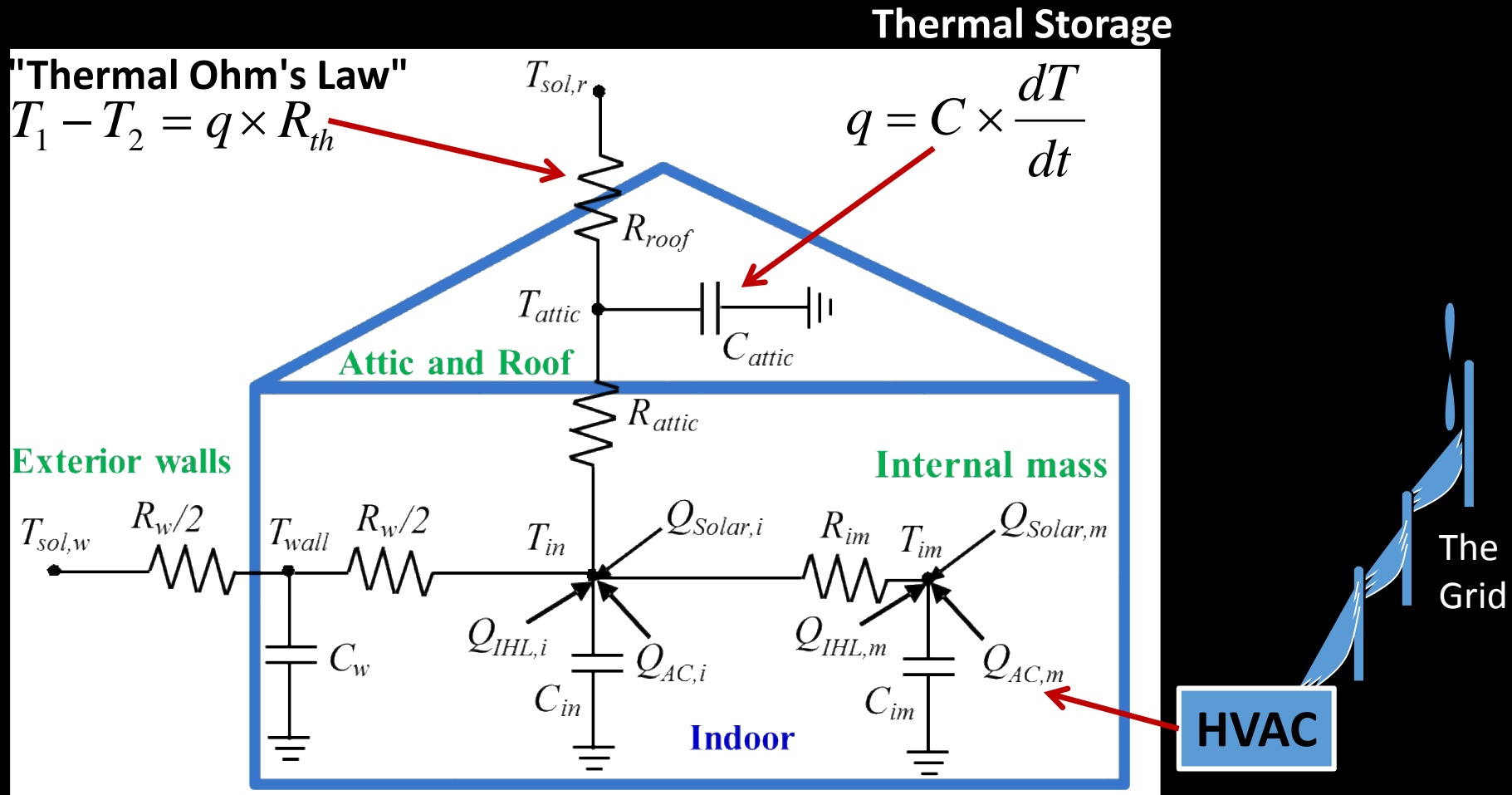
- Large entropy change in condensed state
- Tunable entropy change
- Tunable activation energy
- Large thermal effusivity

High Density Thermochemical Storage: Computational Chemistry



$$\Delta H = T\Delta S$$

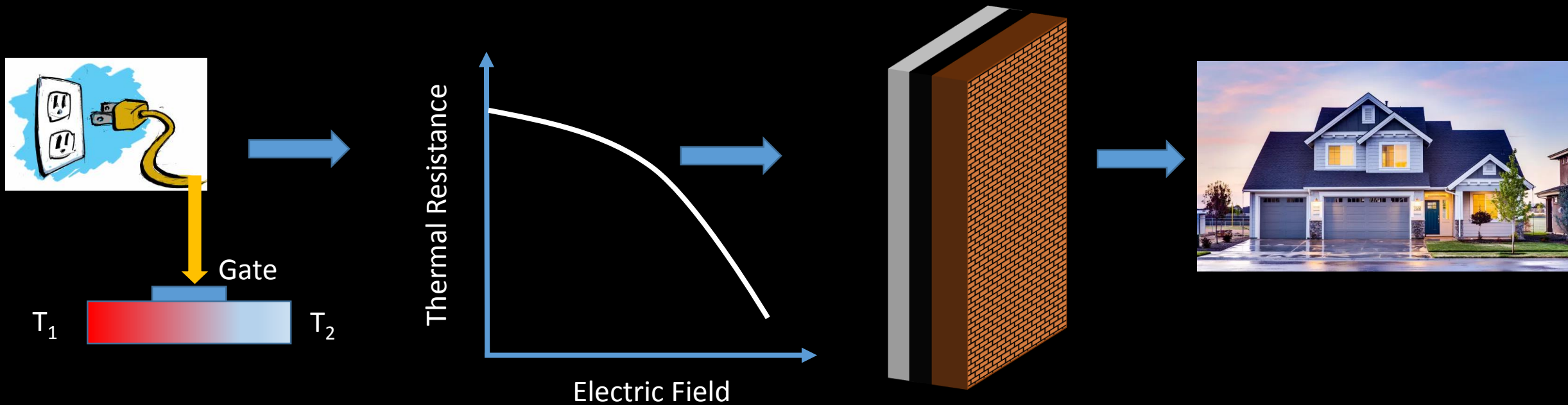
Building Thermal Management Still Relies on: *Linear* Thermal Concepts & Static Properties



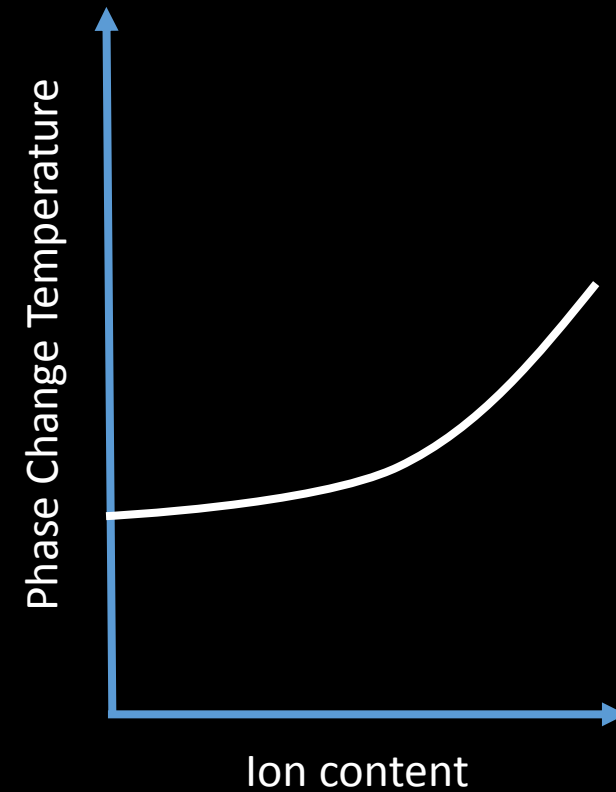
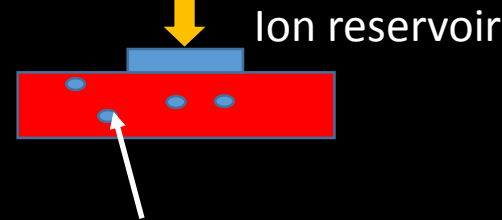
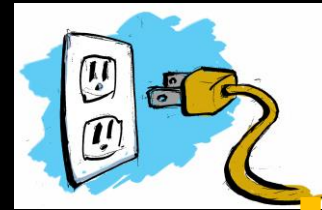
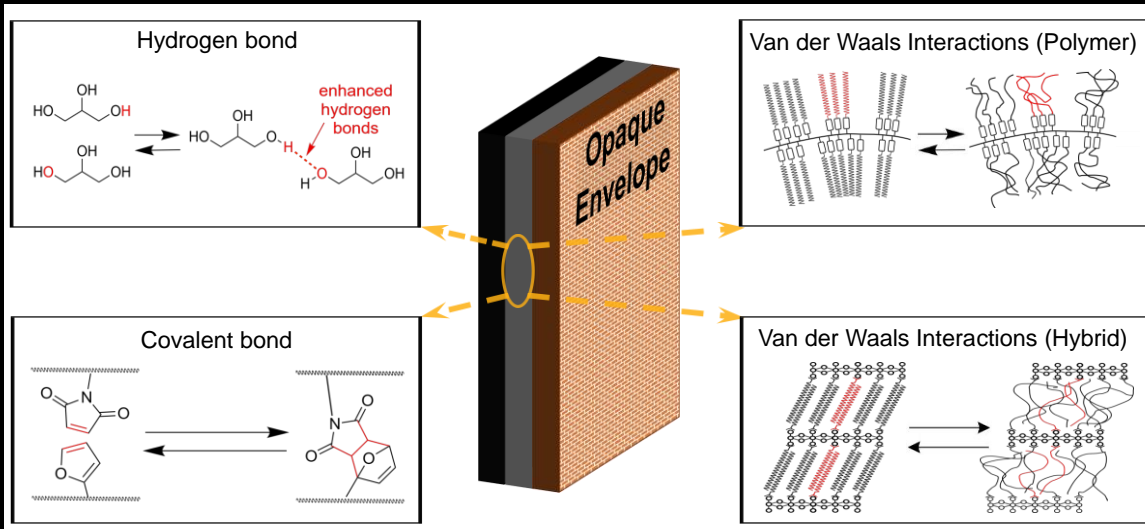
Harnessing Non-Linear Phenomena and Devices

Make building walls grid interactive: active control of thermal resistance and mass

GRID Interactive Thermo-Electric Transistor: Active Control of Thermal Resistance



Solid State Phase Change & Variable Thermal Mass



No Melting
Easier Integration