

Entropy

- Energy distribution affected by molecular motion and volume
- gases have more entropy than solid
 - ↳ molecules less ordered

Mon
Apr 8

Entropy

Spontaneity

- Lg, negative ΔH favors spontaneity, doesn't guarantee it
- Direction of spontaneity depends on Temp.
- Dispersal of molecules favors spontaneity

Entropy = disorder $S = k \ln W$

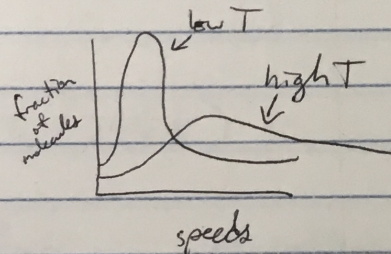
2nd Law of Thermodynamics $\Delta S_{universe} > 0$

Entropy and Volume

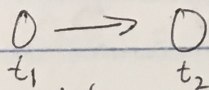
- Entropy increases as volume increases
 - ↳ more positions = more microstates

Entropy and Temperature

- Entropy increases as temperature increases
 - ↳ wider distribution of speeds
 - ↳ more microstates

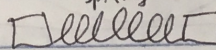
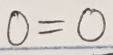


Types of motion molecules can have



① translational motion

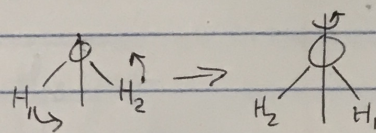
↳ any type of molecules



② vibrational motion

must have molecule ≥ 2 atoms

③ rotational motion



- molecules can have any or all 3 types of motion
- to $\uparrow$ motion, put energy in $\rightarrow \uparrow T \Rightarrow \uparrow$ motion