

Wed Apr 10

Free Energy

big difference in $T \Rightarrow$ irreversible
microscopic difference in $T \Rightarrow$ reversible

Entropy increases with:

• $\uparrow$ volume

• $\uparrow$ Temp

• Phase: solid $\leq$ liquid $\leq$ gas $\rightarrow$ liquid $\rightarrow$ gas $\rightarrow$ solid $\rightarrow$ liquid

• $\uparrow$ molecules

• molecular complexity

Entropy Change

Third Law: Entropy of pure, perfect crystalline substance @ abs. zero = 0
 $S(0K) = 0$

$$\Delta S_{rxn} = \Delta S_{sys} = S_{final} - S_{initial}$$

$$\Delta S^{\circ}_{rxn} = \sum \nu_{products} S^{\circ}_{products} - \sum \nu_{reactants} S^{\circ}_{reactants}$$

Reversible processes - changes that occur but can be returned to initial state
irreversible processes - can't be undone by reversing change