Today: Review — October 21st

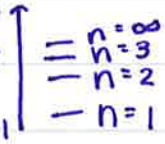
↳ Tuesday 10/22: Expt. 8 & Problem club w/ Kendall
↳ 7:30 (Eppley 211)

↳ Wednesday CK3: Doors open at 9:15

takes energy $\Delta E > 0$ ↑ release energy $\Delta E < 0$

$E \propto -\frac{1}{n^2}$

* think about marbles on stairs

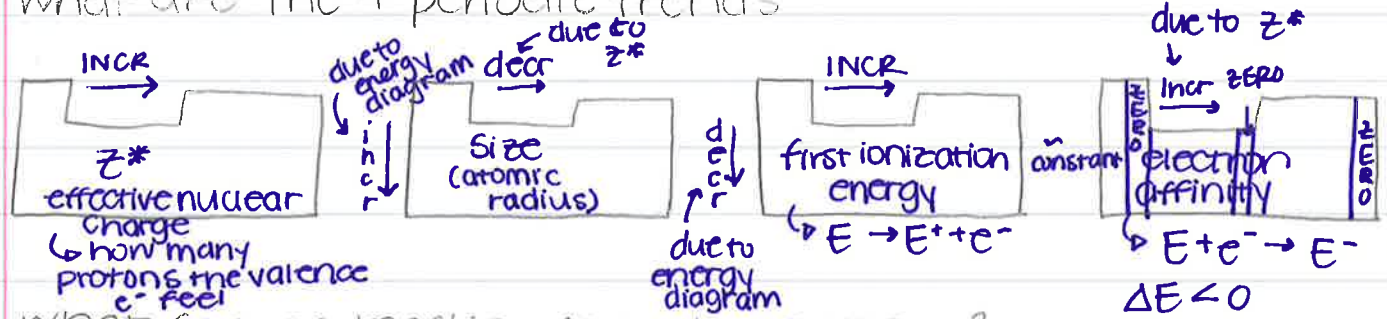


$E \rightarrow E^+ + e^-$ (takes energy)

Which of these release energy?

* 1st ionization energy → takes energy
* electron moving from $n=3 \rightarrow n=1$ → releases energy
* electron affinity → releases energy
* lattice energy for $NaCl(s) \rightarrow Na^+(g) + Cl^-(g) \rightarrow NaCl(s)$
  ↳ releases energy
* electron moving from $n=3 \rightarrow n=4$ → takes energy

What are the 4 periodic trends



What sort of reaction is each of these?

$3K_2S(aq) + 2Fe(NO_3)_3(aq) \rightarrow Fe_2S_3(s) + 6KNO_3(aq)$

* precipitation rxn ↳ Net ionic: $2Fe^{3+}(aq) + 3S^{2-}(aq) \rightarrow Fe_2S_3(s)$

$HF(aq) + RbOH(aq) \rightarrow H_2O(l) + RbF(aq)$

$HF(aq) + OH^-(aq) \rightarrow H_2O(l) + F^-(aq)$

* acid base rxn ↳ Net ionic:

$CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(l)$

* oxidation/reduction rxn (all combustion rxns are ox/red rxns)

-4 +1 0 +4 -2

$m_A \xrightarrow{e} n_A \xrightarrow{e} n_B \xrightarrow{e} m_B$

$m, v \updownarrow n = m \cdot v$

October 21st

Tiny wand $\xrightarrow[\div N_A]{* N_A}$ Big wand

$\upsilon \lambda$ KJ/mol

$E = h\upsilon = \frac{hc}{\lambda}$

$H_{\text{ground state}}$ $1s^1$ $H_{\text{excited state}}$ $2s^1$ $5p^1$ $7|2d^1$ $H_{\text{not possible}}$ $1p^1$

$P_{\text{ground state}}$ $1s^2 2s^2 2p^6 3s^2 3p^3$ $P_{\text{excited state}}$ $1s^2 2s^2 2p^6 3s^2 3p^2 4s^1$