

ATOMS

Atoms are the smallest particles of an element

that are still the element

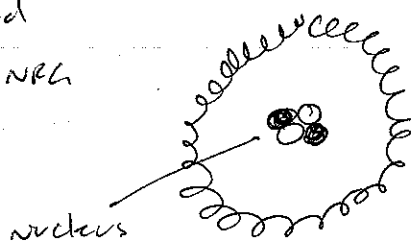
Atoms are made of 3 particles

Protons (p^+) loc: nucleus; +1 charge; 1 amu

Neutrons (n^0) loc: nucleus; 0 charge; 1 amu

Electrons (e^-) loc: electron clouds; -1 charge; 0 amu

Each e^- cloud
has a certain NGL



● proton
○ neutron
●●●●● electron cloud

*Most of the atom is empty space

"Ground state" lowest NGL level possible

ISOTOPES: atoms of the same element w/
different mass #'s

$$A = \#p^+ + \#n^0$$

ISOTOPES
of
Hydrogen

\Rightarrow	H-1	H-2	H-3
$\#p^+ =$	1	1	1
$\#n^0 =$	0	1	2

atomic #

\downarrow
 $\#p^+$ \rightarrow determines
identity
of
element

Strong Force: keep p^+ together in nucleus

Electromagnetic Force = opposites attract / like charges repel
(p^+ repel other p^+)

Weak Force = holds n^0 together

\therefore if weak force fails $n^0 \rightarrow p^+ + e^-$

Gravity

= All things are attracted to all
OTHER THINGS THAT have mass

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forces