

NUCLEAR CHEMISTRY (22)

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Universe:

.03% is you and me and the earth

more neutrinos than anything

.5% is stars (hydrogen)

4% is free hydrogen and helium

30% dark matter (no bb radiation)

65% dark energy (weird stuff), controls dark matter

1) Atoms are the smallest entity of chemically active matter

2) Electrons, protons, and neutrons make atoms.

a) electrons surround the nucleus

b) protons and neutrons gather in the nucleus

electrons and protons have an equal but opposite charge

neutron = proton + neutron

3) $n \rightarrow$ (beta) proton + neutron + antineutrino

4) Isotopes!!! top number is mass number, bottom number is charge

5) 4 Fundamental Forces:

-gravity

-electromagnetism (Coulomb's law)

-strong nuclear force (holds nucleus together)

-weak nuclear force (holds identity of particles, what binds electron and proton together for neutron)

-neutrons increase as we travel down the periodic table

-neutron = glue for the nucleus

-Alpha emission: subtract 4 from mass and 2 from atomic number (emits a helium atom)

-Beta emission: increase atomic number by 1