

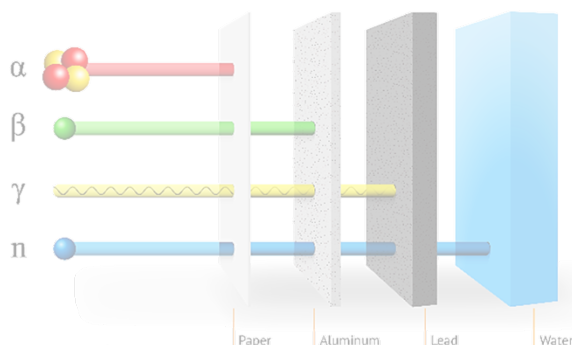
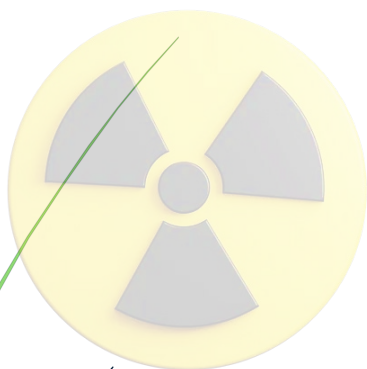
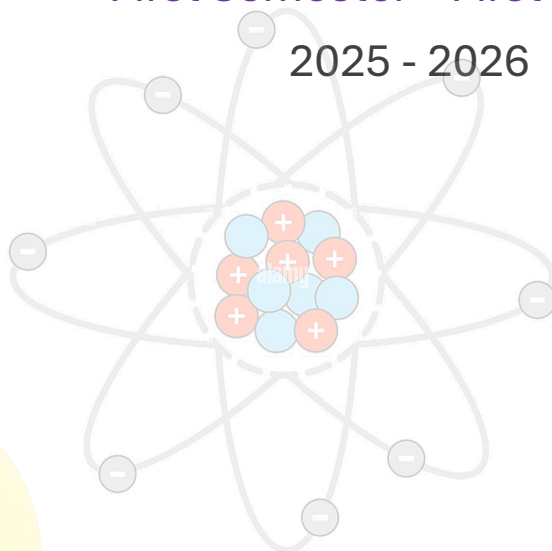


Radiation Protection

The Second Stage

First Semester – First Lecture

2025 - 2026



Asses. Prof.: Mahmoud Abdelhafez Kenawy

Introduction to the Radiation

OUTLINES:

- Atomic Theory.
- Structure of Atom.

N_A	Avogadro's number	$=6.022 \times 10^{23}$	Atom/mol	$=6.022 \times 10^{23}$	mol^{-1}
C	Speed of light in vacuum	$=3 \times 10^8$	m/s	$=300,000$	kilometers / second
e	Electron charge	$=1.6 \times 10^{19}$	Ampere. Second	$=1.6 \times 10^{-19}$	coulomb
m_e	Electron rest mass	$=0.511$	Mev/c ²	$=9.109 \times 10^{-31}$	kilograms
m_p	Proton rest mass	$=938.2$	Mev/c ²	$=1.67262 \times 10^{-27}$	kilograms
m_n	Neutron rest mass	$=939.3$	Mev/c ²	$=1.67262 \times 10^{-27}$	kilograms
u	Atomic mass unit	$=931.5$	Mev/c ²	$=931.5$	Mev/c ²

PROTON VERSUS POSITRON

Proton is a subatomic particle with a positive electrical charge of +1	Positron is the antiparticle or the antimatter counterpart of the electron
Mass is 1.6726×10^{-24} g	Mass is 9.1094×10^{-28} g
Atomic mass is 1.0073 amu	Atomic mass is 0.00054858 amu
Responsible for the atomic number of a chemical element	Antiparticles of electrons
Do not undergo annihilation	Undergo annihilation