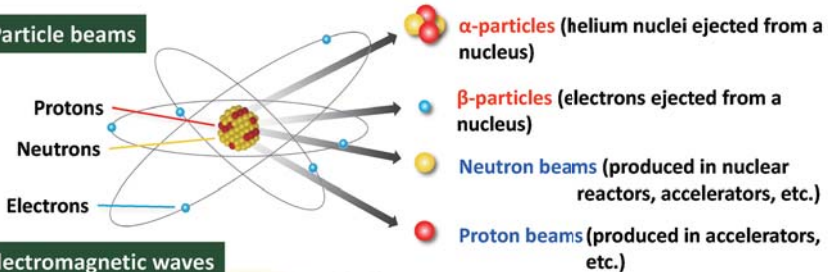


# Types of Ionizing Radiation

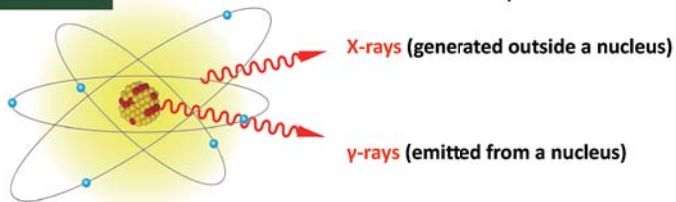
## Ionizing radiation

Radiation that causes ionization

### Particle beams



### Electromagnetic waves



Particle beams include  $\alpha$  (alpha)-particles,  $\beta$  (beta)-particles, neutron beams, etc.

$\alpha$ -particles are helium nuclei consisting of two protons and two neutrons that have been ejected at high speed, while  $\beta$ -particles are electrons ejected from a nucleus. Particle beams also include neutron beams and proton beams.

$\gamma$ -rays and X-rays are types of electromagnetic waves. While  $\alpha$ -particles,  $\beta$ -particles, and  $\gamma$ -rays are emitted from a nucleus, X-rays used in X-ray examination for medical checkups and the like are electromagnetic waves generated outside a nucleus. X-rays generated in X-ray tubes are used in X-ray examination. X-rays include braking X-rays and characteristic X-rays (p.16 of Vol. 1, "X-rays for Medical Use and Generators").

(Related to p.13 of Vol. 1, "Where does Radiation Come from?," and p.14 of Vol. 1, "Types of Radiation")

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