

## Nuclear Particles and Rays

**Table 1** Characteristics of Nuclear Particles and Rays

Particle	Mass (amu)	Charge	Symbol	Stopped by
Proton	1.007 276 47	+1	$p, p^+, {}^1_1p, {}^1_1\text{H}$	a few sheets of paper
Neutron	1.008 664 90	0	$n, n^0, {}^1_0n$	a few centimeters of lead
$\beta$ particle (electron)	0.000 548 580	-1	$\beta, \beta^-, {}^0_{-1}e^*$	a few sheets of aluminum foil
Positron†	0.000 548 580	+1	$\beta^+, {}^0_{+1}e^*$	same as electron
$\alpha$ particle (He-4 nucleus)	4.001 474 92	+2	$\alpha, \alpha^{2+}, {}^4_2\text{He}$	skin or one sheet of paper
Gamma ray	0	0	$\gamma$	several centimeters of lead