











**Nuclear Science** is the study of the structure, properties, and interactions of the atomic nuclei. Nuclear scientists calculate and measure the masses, shapes, sizes, and decays of nuclei at rest and in collisions. They ask questions, such as: Why do nucleons stay in the nucleus? What combinations of protons and neutrons are possible? What happens when nuclei are compressed or rapidly rotated? What is the origin of the nuclei found on Earth?

**Legend**

 <i>proton</i>	 <i>electron</i> ( $e^-$ )	 <i>quark</i>	$A_{\text{number}}^{mass}$ 14
 <i>neutron</i>	 <i>positron</i> ( $e^+$ )	 <i>gluon field</i>	$Z_{\text{number}}^{atomic}$ 6 <b>C</b>
	 <i>neutrino</i> ( $\nu$ )	 <i>gluon</i>	$N_{\text{number}}^{neutron} = A - Z$
	 <i>antineutrino</i> ( $\bar{\nu}$ )	 <i>photon</i> ( $\gamma$ )	