Neutrons

The only interaction between neutrons and electrons is the weak force; essentially there is no interaction between them.

Fast: $K \sim \text{MeV}$
Slow: $K \sim \text{a few keV} \rightarrow 0$

Thermal energy at $T = 300\text{K}$
$Kn \sim \frac{1}{40}\text{eV}$

Neutron Capture: only happens with slow neutrons!!!

$\eta + p \rightarrow ^2\text{H}$

$\eta + ^{10}\text{B} \rightarrow \alpha + ^7\text{Li}$

$k_{ni} = k_{nf} + k_{\eta}$

$p_{ni} = p_{nf} + p_{\eta}$

A neutron will slow down more in Carbon than in aluminum, because in a collision Carbon will recoil more so the neutron must lose more energy.

Heavy Charged Particles (HCP)

Heavy ions

Pions

When pions slow down they can get captured, replacing an electron. But since you're adding an extra 140 MeV to the atom, the nucleus literally explodes, depositing a very high amount of energy.