



Figure 3.4. Mirror reflection demonstrating of parity non-conserving property of neutrino.

3.3.3. Gamma emission (γ)

Gamma radiation is a high-energy electromagnetic radiation that originates in the nucleus. It is emitted in the form of photons, discrete bundles of energy that have both wavelike and particle properties. Often a daughter nuclide is left in an excited state after a radioactive parent nucleus undergoes a transformation by alpha decay, beta decay or electron capture. If the excited nucleus does not break apart or emit another particle, it can de-excite to the lower energy state or ground state by emitting a high-energy photon or γ ray. These transformations take place within the same nucleus ${}^A_Z X$ in contrast to the β decay or α -decay processes. They merely represent a re-ordering of the nucleons within the nucleus with lowering of mass from the excited ($M_0^*c^2$) to the lowest (M_0c^2) value.

This type of radiation does not have to occur as radioactive decay only, but may accompany random types of nuclear transmutations, including nuclear reactions, or even changes of elementary particles. In this general sense, we usually talk about nuclear radiation.