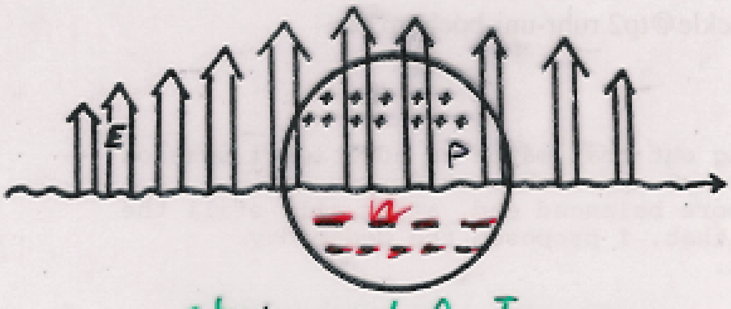
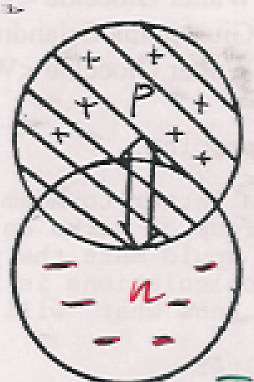
1). A photon is absorbed into the nucleus. The electric field E of the photon wave induces a coherent motion of the photons in the direction indicated in fig. 9 while, because of center-of-mass conservation, the neutrons move in the opposite direction. Since the wave length $\lambda \gg R$, the electric field $E(t)$ is nearly homogenous over the nucleus; it is of course time-dependent.



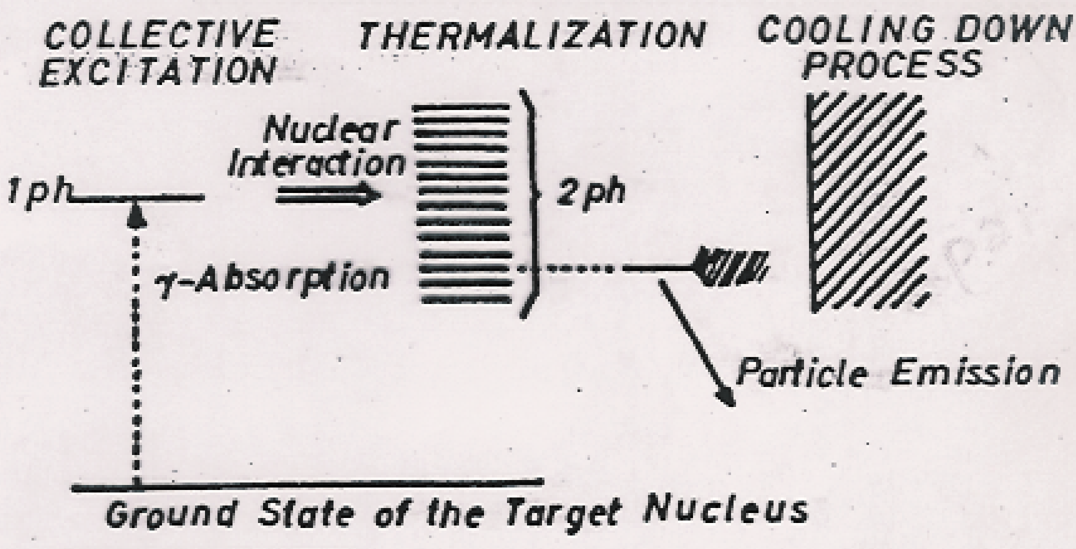
Steinwedel-Jensen



Gamow Teller

2). The energy of the coherent state is distributed among all nucleons because the nucleons scatter each other (friction).

One can also say that a thermalization of the energy occurs in the second step and thus leads to the disappearance of the coherent mode.



3). Neutrons and protons are evaporated from the now complex giant resonance configuration: the nucleus is cooling off. These evaporated nucleons have, because of their origin, a statistical energy distribution. When the photon energy is increased, one essentially continues to observe the same energy distribution for the nucleons. This is the typical indication of a thermalization process.

from Eisenberg-Greiner "Nuclear Collective Motion"