

Figure 1. Electron-positron pair production. A high energy gamma-ray coming in from above scatters off an atomic electron, losing some of its energy and producing an energetic recoil electron and an electron-positron pair. The electron and positron paths curve because the chamber is placed in a strong magnetic field. The direction of the curves reveals the signs of the particles' charges.

(Frank Cuse, "Nothing"
P109, Oxford University
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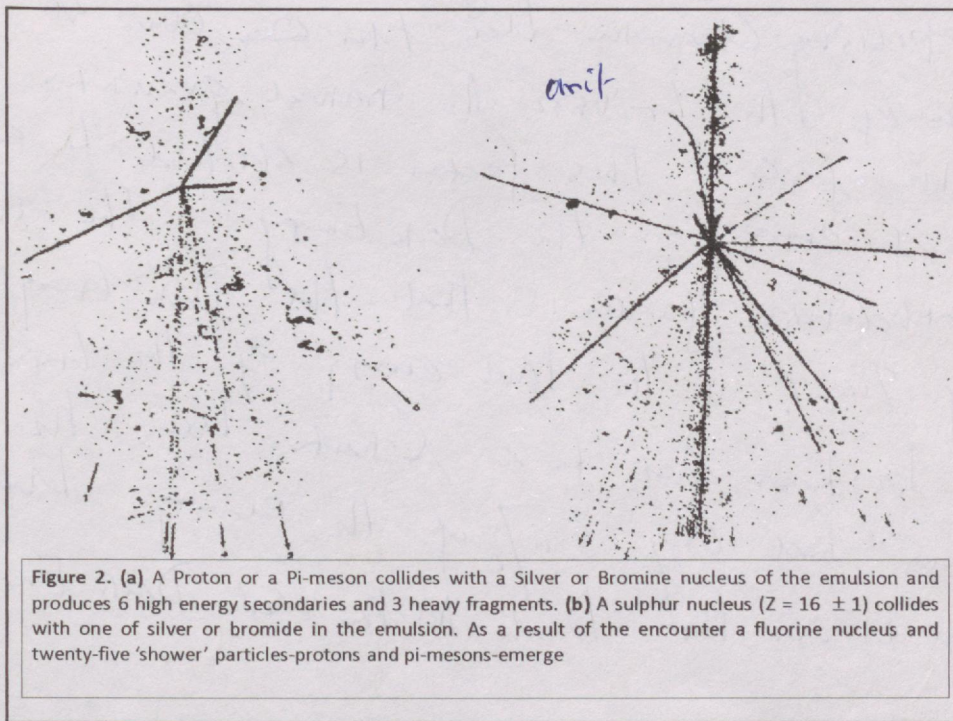


Figure 2. (a) A Proton or a Pi-meson collides with a Silver or Bromine nucleus of the emulsion and produces 6 high energy secondaries and 3 heavy fragments. (b) A sulphur nucleus ($Z = 16 \pm 1$) collides with one of silver or bromide in the emulsion. As a result of the encounter a fluorine nucleus and twenty-five 'shower' particles-protons and pi-mesons-emerge

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Another major discovery has been that there is not just visible matter but the galaxies to be held together by gravitational force between the constant stars. The together both components of the angular momentum both distance from the center of the galaxy, lead to the prediction of the existence of dark matter, for which there has been no direct evidence. This dark matter constitutes about 20% of the total energy of the universe and dominates over visible matter. Yet another discovery taken at the end of the 20th century was the discovery that not only the universe is expanding, but also it is accelerating. This acceleration is thought to indeed hold there is another ~~force~~ gravitational force that has the repelling character than takes over on a large distance of the universe the normal gravitational attractive force. This feature is attributed to a new form of energy - the Dark Energy. The contribution and imbalance factor is that the Dark Energy is nearly 70% of the total energy of the universe. Thus we have come to a situation where the visible universe has only 5% of the energy while the rest is in the Dark Matter and Dark Energy.