that this radiation is almost entirely absorbed in traversing a grain of AgBr ($<1\mu$). This seems unlikely. A recent alternative explanation due to Schönberg[16] is that most of the relativistic increase arises from ionization and excitation.

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The Decay of Kr^{87}

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THE decay of 78-min Kr^{87} has not previously been studied β-spectrometrically. By absorption measurements on electromagnetically separated Kr^{87}, formed in fission, Koch *et al.*[1] found a maximum energy of the β-particles of 3.2 Mev.

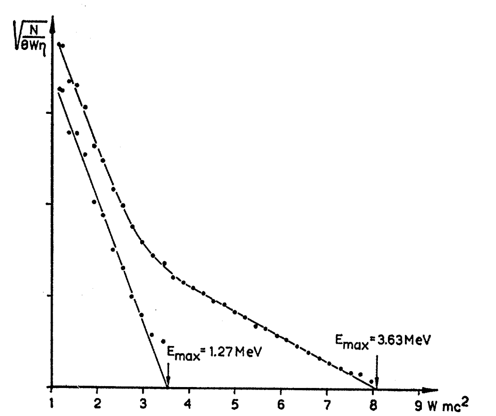

FIG. 1. Fermi plot of the β-continuum of Kr^{87}.

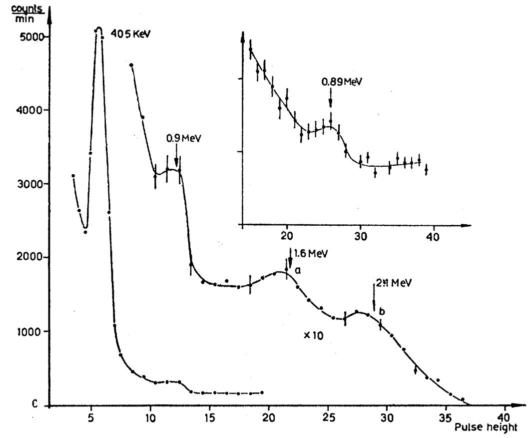

FIG. 2. Scintillation spectrum of Kr^{87}. The inset shows a separate measurement of the 0.89-Mev line.

In the present investigation Kr^{87} has been electromagnetically separated from other rare gas isotopes formed in uranium fission. The isotope of mass number 87 was collected on an Al foil of thickness 0.15 mg/cm². This foil was then used as a β-source in a magnetic lens spectrometer (resolution $\sim$6 percent).

The β-continuum appears to be complex. The Fermi plot (Fig. 1) shows the presence of two β-components of energies 3.63 ± 0.07 and 1.27 ± 0.1 Mev, with relative intensities 75 percent and 25 percent, respectively. The values of logft are found to be 7.3 (the Fermi plot having "not forbidden" form) and 5.9, respectively.

The scintillation spectrum of Kr^{87} (Fig. 2) shows the presence of a pronounced photopeak of a γ-ray of energy 405 ± 20 kev. The

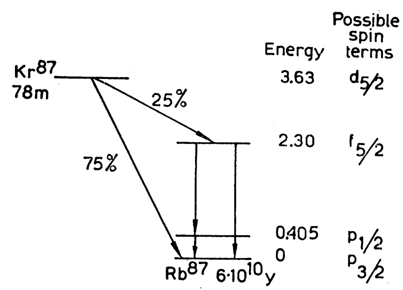

FIG. 3. Tentative decay scheme for Kr^{87}.

weak line at 0.89 Mev may be interpreted as the pair line of a γ-ray of energy 1.89 ± 0.07 Mev, the Compton peak of which appears at a (Fig. 2). The high energy peak b is most probably due to Compton quanta corresponding to a γ-ray of energy $\sim$2.3 Mev. The scintillation spectrum ends at 2.6 Mev.

The data thus obtained can be accounted for by the decay scheme of Fig. 3. [Spin terms are given according to the strong spin orbit coupling theory.[2]] If this interpretation (Fig. 3) is correct, it is worth noting that the $f_{5/2}$ level is so far above the already filled $f_{7/2}$ level.

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