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Nuclear Physics & Chemistry

Internal conversion of the 1277 keV transition in ^{22}Ne. Yasuyuki Nakayama and Haruyoshi Hirata. *Nuclear Physics*, **40**, 396 (1963).—See, this Bulletin, **41**, 220 (1963).

Decay of ^{150}Eu. Yasukazu Yoshizawa, Hideo Okamura, Shiro Iwata, Ichiro Fujiwara, Tsunenobu Shigematsu, Masayuki Tabushi, Tsunehiko Tarumoto and Koh Sakamoto. *Nuclear Physics*, **46**, 78 (1963).—Carrier free sources of ^{150}Eu were prepared from bombardment of enriched ^{150}Sm with 11 MeV deuterons and 9 MeV protons. The half-life was determined to be 12.79±0.08 h. The maximum energy of the negatons was 1.02±0.01 MeV and the Kurie plot showed almost an allowed shape. However, the experimental shape factor showed a slight deviation from the allowed one. This decay was estimated to be 0^- or 1^- to 0^+ transition. Positons with a maximum energy of 1.8±0.3 MeV and an intensity of about 0.3 % and the K X-ray following orbital electron capture with an intensity of 3.9 ± 0.2 % were found. In scintillation measurements 15 gamma rays were observed. Gamma gamma coincidence studies were performed at several gate windows for gamma rays and annihilation radiations. The decay scheme of ^{150}Eu was constructed on the basis of these results.

The half life of Tb^{157}. Shiro Iwata, Ichiro Fujiwara, Tomota Nishi, Shiro Goda, Masayuki Tabushi and Tsunenobu Shigematsu. *J. Phys. Soc. Japan*, **18**, 315 (1963).—A sample of Gd_2O_3 was bombarded for four hours with 38.5 MeV alpha particles and the activity of Dy^{157} produced by the $(\alpha, 3_n)$ reaction was separated from the target material. Terbium was separated from dysprosium by an ion-exchange method. The decay rate of Tb^{157} nuclei was determined from the counting rate of the K X-ray in a well type crystal, and a K and L electron capture ratio was measured using a NaI (Tl) crystal covered with Al, corrected for absorption by the Al cover, self-absorption, photopeak efficiency, and fluorescence yield. The half life of Tb^{157} was estimated at 160±40 years; a decay mode was proposed.

Analytical Chemistry

Solvent extraction of beryllium, copper, nickel, cobalt and zinc as dibenzoylmethane complexes. Tsunenobu Shigematsu, Masayuki Tabushi and Tsunehiko Tarumoto. *Nippon Kagaku Zasshi*, **84**, 131 (1963), in Japanese.—Besides the ferric chelate previously reported, dibenzoylmethane forms stable chelate as well with Be, Cu, Ni, Co and Zn, which are extracted with chloroform or butyl acetate in appropriate pH region. Complete extraction can be attained at pH 5 ~ 10 for Be- and Cu-chelate, at pH 8~10 for Ni-chelate, at pH 9~10 for Zn-chelate and near