natural counts 35/10 h.

Sample + natural 31/10 h.

Based upon these results, we can conclude, taking the above mentioned estimation into consideration, that the β-γ coincidence does not exist.

Our result of measurement will be favourable, though indirectly, to the defence of the existence of K-capture which should be accompanied by γ-radiation. The more direct measurement of the correlation of K-capture and γ-rays remains yet unattempted. Its achievement is expected in near future.

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41. On the Properties of 2π-type β-Ray G-M Counter.

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In order to count effectively weak β-rays, we constructed 2π-type β-ray counter with a thin mica window. The diameter and length of the cathode of this counter are 25 mm and 30 mm respectively and its central wire of 0.2 mm diameter has a small glass ball of 1 mm diameter at the top. The filling gas used is alcohol-argon mixture. By means of this counter, we investigated to obtain an absolute number of β-particles of the sample.

By changing the distance between the window and a silver disc activated by slow neutrons, used as β-ray source, we ascertained that the number of counts varies as such

$$I = I_0 e^{-kx},$$

where I is the counts when the sample is placed at x mm apart from the window and I_0 is that at 1 mm. k is a constant concerning the dimension of counter. Disc sources of 22.6, 15.9 and 11.1 mm in diameter were used. Difference of counts due to these sources is considered as the counts due to ring zones. The above relation was also easily verified for each zone. Then each count was extrapolated to 2π-plane of the counter according to the relation, when the counts per unit area in each zone were found to be different. It is considered to be due to the difference of sensibility.

The correction for sensibility is calculated, by assuming the sensibility for the middle zone to be 100 % and by taking the absorption of the mica window into account. By these procedures, using 2π-type counters of different size, we obtained for the same sample the very agreeable value as the number of β-particles.