axial-vector current there are indications that the β and μ form factors are different.[7] This fact makes experiments with μ mesons even more interesting.

The writer is grateful to R. Ryndin and S. Bilen'kiĭ for a helpful discussion of the results.

*We note that the form factors describe "collective" transitions which, for example, can make an important contribution in transitions of extended nuclei with large quadrupole moments.

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Translated by W. H. Furry
333

ANGULAR ANISOTROPY AND ENERGY CHARACTERISTICS OF THE FISSION PROCESS

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Submitted to JETP editor February 27, 1959

J. Exptl. Theoret. Phys. (U.S.S.R.) **36**, 1608-1609 (May, 1959)

EXPERIMENTAL and theoretical investigations of the angular anisotropy of the fission of heavy nuclei, conducted so far, did not consider directly the problem of energy yield. Nevertheless, from the concepts developed up to now, one can expect that certain energy characteristics of the fission process will depend on the angle between the direction of incidence of the exciting particle and of the emitted fragments. For instance, it has been shown recently[1,2] that the degree of anisotropy in fission is strongly related to the effective temperature of the nucleus in the saddle point: the more electrons are evaporated up to the moment of attaining the critical deformation, the bigger is the anisotropy. We are, of course, considering fission of nuclei for sufficiently high excitation where the emission of nucleons before fission is energetically possible. One can then observe both cases of fission, with and without previous emission. The degree of anisotropy of the latter will be different. On the average, therefore, the number of neutrons in nuclei undergoing fission, as well as the energy of excitation, will be different for fission at an angle of 0° and 90° to the beam of incident particles. Consequently, one can expect certain differences in the kinetic energy of fragments emitted at different angles.

As an attempt to examine the relations mentioned above, the fission of U^{238} induced by neutrons with energy 14.9 Mev was studied. The energy of the additional fragments in fission along the direction of the neutron beam (0°) and in fission in the perpendicular direction to the beam (90°) was studied by means of a double ionization chamber. The angle of distribution was such that the emission direction of a fragment did not deviate by more than 26° from a given direction at 0° or 90°. Other conditions of the experiment were identical with those described earlier.[3] A total of 5000 fission events at the angle of 0° and 4000 events at the angle of 90° were recorded in alternating measurements.

It was found that, for a ratio of the fragment masses equal to 1.40 — 1.44 (close to the most probable value), the average kinetic energy of the fragments is equal to 170.8 ± 0.6 Mev at the angle of 0° and 169.4 ± 0.8 Mev at an angle of 90° (the indicated errors represent the average deviation of the results of separate series of measurements). The difference of the energy of fragments, if such exists, is therefore not bigger than 1.5%.

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Translated by H. Kasha
334