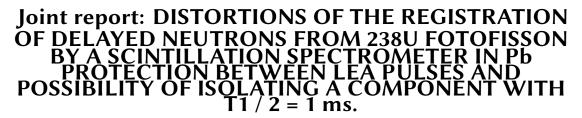
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In previous works [1-3], we measured spectra of delayed neutrons (DNs) from photofission of 238U and looked for short-lived components in these DNs (with half-life T1/2 down to 1 ms) in time intervals between pulses of the linear electron accelerator at the energy of incident on metal U-target electrons Ee = 10 MeV. Fast neutrons were registered by scintillation stilbene (thickness 50 mm, diameter 50 mm) spectrometer with discrimination of background g-quanta using differences in shapes of scintillation pulses. This spectrometer has Pb-shielding (thickness 5 cm). In order to avoid negative influence on the used scintillation detector from background of g-quanta and neutrons, produced by beam pulses, the controlled divider of power supply for the photomultiplier tube of the scintillation detector [4] was used (especially important for short-lived groups of DNs). For more details see [1–4] and references therein.

In the present work we considered distortions in registered spectra of DNs using Monte Carlo simulation for transport of DNs by codes LOENT and SHIELD [5–7] taking into account, first of all, interactions of DNs with atomic nuclei of Pb-shielding for stilbene spectrometer.

1. L.Z.Dzhilavyan, et al. Phys. Part. Nucl. 50, 626 (2019).

2. L.Z.Dzhilavyan, et al. Bull. Russ. Acad. Sci. Phys. 84, 356 (2020).

3. L.Z.Dzhilavyan, et al. Phys. Atom. Nucl. 84, (2021).

4. L.Z.Dzhilavyan, et al. Bull. Russ. Acad. Sci. Phys. 83, 474 (2019).

5. L.N.Latysheva, N.M.Sobolevsky. LOENT - the code for Monte Carlo simulation of neutron transport in complex g 6. https://www.inr.ru/shield/

7. A.V.Dementyev, N.M.Sobolevsky. SHIELD - Universal Monte Carlo Hadron Transport Code. Scope and Applications

Fission of actinide nuclei produces fast neutrons, mainly "prompt" neutrons (PNs), but also (2%) "delayed" neutrons (DNs with different half-lives T1/2). Usually, for the sake of convenience, DNs are divided into 6–8 groups according to their T1/2-values at approximately 0.2 s < T1/2 < 56 s (see, e.g., [1]). But there are some indications that it is necessary to search for short-lived DNs with T1/2 down to 1 ms (see, e.g., [2]). In previous works [3–5], we tried to find such short-lived DN-components in time intervals between pulses of the linear electron accelerator LUE-8-5 of the INR RAS [6] at the incident electron energy Ee = 10 MeV, the duration of each beam pulse 3 (10^-6)s, and their repetition rates (50–300)s(^-1). As we showed in [4], under such conditions, after about 7 min of irradiation with beam with stable parameters, flux of all DNs with 0.2 s < T1/2 < 56 s will be almost constant at an aggregated saturation level (except for some statistical fluctuations).

Under these conditions, the sought short-lived component of DNs will give an addition to this level which will decrease exponentially with increasing of t –time after beam pulse (from t = t0 –start of each measuring interval).

In the present work, we considered possibility for separating a short-lived component with T1/2 = 1 ms from total quantity of DNs at photofission of 238U in dependence on as characteristics of DNs (namely, ai –the relative part of the i-th group of delayed neutrons), as characteristics of used registration process (values of t0 and levels of accumulated "statistics").

1. V.M.Piksaikin, et al., Voprosy Atomnoy Nauki i Tekhniki. Seriya: Yaderno-reaktornye konstanty. Vypusk 1. P.

2. S.B.Borzakov, et al., Study of Delayed Neutron Decay Curves at Fission of 235U and 239Pu by Thermal Neutron

3. L.Z.Dzhilavyan, et al., Phys. Part. Nucl. 50, 626 (2019).

4. L.Z.Dzhilavyan, et al., Bull. Russ. Acad. Sci. Phys. 84, 356 (2020).

5. L.Z.Dzhilavyan, et al., Phys. Atom. Nucl. 84, (2021).

6. G.Nedorezov, et al., Bull. Russ. Acad. Sci. Phys. 83, 1161 (2019).

**Primary author:** DZHILAVYAN L.Z., 1 (Institute for Nuclear Research of the Russian Academy of Sciences, Moscow, Russia)

**Co-authors:** LAPIK A.M., 2 (Institute for Nuclear Research of the Russian Academy of Sciences, Moscow, Russia); LATYSHEVA L.N. 2 (Institute for Nuclear Research of the Russian Academy of Sciences, Moscow, Russia); PONOMAREV V.N. 2; RUSAKOV A.V. 2; SOBOLEVSKY N.M. 2

**Presenter:** DZHILAVYAN L.Z., 1 (Institute for Nuclear Research of the Russian Academy of Sciences, Moscow, Russia)

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