Contribution ID: **315** Type: **Poster report**

Measurement of the time dependence of the background of delayed neutrons on the 1-st channel of IBR-2.

Wednesday, 14 October 2020 18:50 (20 minutes)

Abstract. A new time-of-flight method for measuring the neutron lifetime τ_{n} was proposed in [1] The time-of-flight method for measuring the neutron lifetime τ_{n} is very sensitive to the background. It was found that the background should be less than 10^{-6}. According to [2] , between the power pulses of the IBR-2 reactor, about 7% of the reactor power is allocated. Since the number of neutrons is proportional to the power of the reactor, the background from the delayed neutrons will also be 7% in 200 milliseconds. Measurements of the background of delayed neutrons were made and a complex dependence of the background on time was established. The influence of the background of the delayed neutron on the accuracy of measuring the neutron lifetime by the time-of-flight method is estimated.

References

1. V.L.Kuznetsov, E.V.Kuznetsova, P.V.Sedyshev. Measuring Neutron Lifetime on an $IBR-2$ Pulsed Neutron Source. Physics of Particles and Nuclei Letters, 2018 . Vol. 15, No. 6, pp. $678-684$

2. E.A.Bondarchenko, Yu.N.Pepelyshev, A.K.Popov. An experimental and model study of the dynamics of a pulsed batch reactor $IBR-2$. ECHAYA, 2004, v. 35, issue 4, pp. 927 983

Primary authors: Dr KUZNETSOVA, Evgenia (JINR, INR); Dr KUZNETSOV, Valery (JINR, INR); Dr SEDYSHEV, Pavel; Dr KOPATCH, Jurii

Presenter: Dr KUZNETSOVA, Evgenia (JINR, INR)

Session Classification: Poster session 3 (part 2)

Track Classification: Section 7. Synchrotron and neutron studies and infrastructure for their implementation.