

## Study of fission fragment's brake-up at passing through solid-state foils using Timepix3 pixel detectors (investigation project)

Friday, 24 September 2021 17:30 (5 minutes)

The goal of the project is to investigate the new effect consisting in fission fragment's brake-up while passing the solid-state foil. According to the previous experiments [1-3], it is expected that masses of some brake-up residuals correspond to magic nuclei such as  $^{128,132}\text{Sn}$  and  $^{144}\text{Ba}$ . The project aims to detect in coincidence all the products of fragment's brake-up using the Timepix3 pixel detector. It permits simultaneous determination of (x, y) coordinates of the detected products with  $\mu\text{m}$  resolution as well as their energy and time-of-flight. Measurements of angular and energy correlations of the products are performed in FLNR (JINR) with thin source of  $^{252}\text{Cf}(sf)$ . Special software for searching for multibody decays were worked out and applied for processing of the experimental data already obtained. First results and problems arisen of using Timepix3 detectors will be reported.

### References

1. Yu.V.Pyatkov, D. V. Kamanin et al., Physics Procedia 74, 67 (2015).
2. D. V. Kamanin, Yu. V. Pyatkov, et al., 11th International Conference on Clustering Aspects of Nuclear Structure and Dynamics, Napoli, Italy May 23-27 2016, Journal of Physics: Conference Series 863, 2017, art. 012045.
3. A. O. Strelakovsky, Yu. V. Pyatkov, D. V. Kamanin, et al., Journal of Physics: Conference Series, v. 1390, 2019, 012010

For the Czech Republic: B. Bergmann, P. Burian, M. Holík, J. Janeček, L. Meduna, S. Pospíšil, all from IEAP CTU in Prague

**Primary author:** Mr SOLODOV, A.N. (Joint Institute for Nuclear Research)

**Co-authors:** Mr KAMANIN, D.V.; Mr POSPISIL, S.; Mr PYATKOV, Yu.V.; Mr HOLIK, M.; Mr STREKALOVSKY, O.V.; Ms GORYAINOVA, Z.I.; Mr ZHUCHKO, V.E.

**Presenter:** Mr SOLODOV, A.N. (Joint Institute for Nuclear Research)

**Session Classification:** Poster session

**Track Classification:** Section 3. Modern nuclear physics methods and technologies.