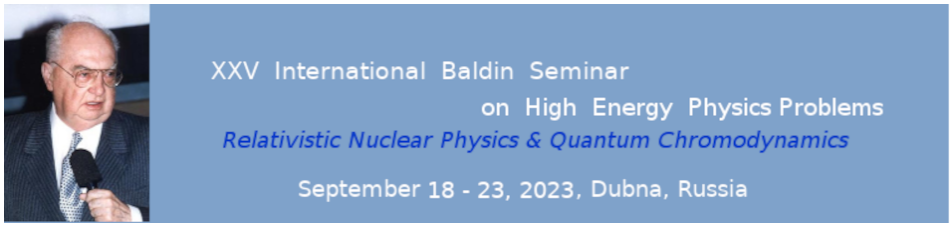

Contribution ID: **66** Type: **not specified**

Fragmentation features of Be, B nuclei in nuclear track emulsions

Thursday, 21 September 2023 12:40 (20 minutes)

Nucleon associations (clusters) are one of the basic phenomena in atomic nuclei structure. Their simplest observable manifestations are the lightest He and H nuclei. Superpositions of the lightest clusters and nucleons form subsequent nuclei (including unstable ^{8}Be and B), which act as constituent clusters themselves for more complicated nuclear systems. The phenomena of claster dissiciations of ligh Be and B isotops are discussed. Charge topology and angular spectra of fragmentation of 1.2 A GeV ^{7}Be nuclei in nuclear track emulsion are presented. The dissociation channels ^{4}He + ^{3}He, 2^{3}He+ n, ^{4}He + 2^{1}H are considered in detail. It is established that the events ^{6}Be + n amount about to 27% in the channel ^{4}He + 2^{1}H. The experimental results are compared with model data of fragmentation of such nuclei in nuclear track emulsions.
The next topic consisted in the study of unstable states of ^{9}Be and ^{9}B. The experemental data for this nuclei obtained in relativistic fragmentation of carbon (^{10}C) and berillium (from 10B) fragmentation in nuclear track emulsions. The opportunity of searching with nuclear track emulsions for more complex excitations in light nuclei - isobar-analogue states for ^{9}Be and ^{9}B isotops are discussed [1-3].
References
[1] P. I. Zarubin Lecture Notes in Physics, Vol. 875, Clusters in Nuclei,
Volume 3. Springer Int. Publ., 51 (2013) [arXiv:1309.4881].
[2] D. A. Artemenkov et al., ^{8}Be and ^{9}B nuclei in dissociation of
relativistic ^{10}C and ^{11}C nuclei, EPJ Web of Conferences DOI: 10.1051/ conf/201611 0602.
[3] P. I. Zarubin et. al., Prospects of Searches for Unstable States
in Relativistic Fragmentation of Nuclei, Physics of Atomic Nuclei, 2022, Vol. 85, No. 6, pp. 528–539.

Primary authors: ARTEMENKOV, Denis (JINR); KORNEGRUTSA, Nadezhda (JINR)

Presenter: ARTEMENKOV, Denis (JINR)

Session Classification: Parallel: Applied use of relativistic beams