

# Search for rare cluster configuration in $^{14}\text{C}$ nucleus

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Search for rare cluster configuration in  $^{14}\text{C}$  nucleus was carried out in the correlation measurements of stopped pion absorption reaction  $\pi^- + ^{14}\text{C} \rightarrow \text{p} + \text{d} + \text{X}$ . For our analysis we took the data obtained in the experiment on the LANL accelerator (Los Alamos, USA) using the multilayer semiconductor spectrometer [1]. The analysis of the reaction was made via previously used method for the search of rare cluster structures in  $^9\text{Be}$  [2] and  $^{11}\text{B}$  [3].

The study of the 2-dimensional energy distribution of the registered particles (p, d) allowed the extraction of two-body ( $\pi^- + ^{14}\text{C} \rightarrow \text{p}(\text{d}) + ^{13}(^{12})\text{Be}$ ) and three-body ( $\pi^- + ^{14}\text{C} \rightarrow \text{p} + \text{d} + ^{11}\text{Li}$ ) reaction mechanisms. In the three-body channel we have found the region corresponding to the pion absorption by the intranuclear 3p cluster:  $\pi^- + 3\text{p} \rightarrow \text{p} + \text{d}$ , in this case the residual  $^{11}\text{Li}$  is a "spectator". The momentum of  $^{11}\text{Li}$  in the mentioned region is about  $p_{\text{Li}} \approx 150 \text{ MeV}$ , which is typical for the movement of an intranuclear cluster. Thus, we obtained the indication on the presence of rare exotic configuration  $^{11}\text{Li} + 3\text{p}$  in  $^{14}\text{C}$  nucleus.

1. M.G. Gornov et al., Nucl. Inst. and Meth. in Phys. Res. A. 2000. V. 446. P. 461.
2. Yu.B. Gurov et al., JETP Lett. 2006. V. 84. P. 1.
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## Presentation type

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