

# The first results of analysis of nuclear track emulsion exposed to relativistic nucleus $^{11}\text{C}$ and $^{10}\text{B}$

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Featuring an excellent sensitivity and spatial resolution nuclear track emulsion (NTE) maintains the position of a universal and inexpensive detector for survey and exploratory research in microcosm physics. Use of this classical technique on beams of modern accelerators and reactors turns out highly productive. In a number of important tasks the completeness of observations provided in NTE cannot be achieved for electronic detection methods. In particular, in the last decade clustering work of a whole family of light nuclei including radioactive ones was investigated in the processes of dissociation of relativistic nuclei in NTE [1, 2].

Recent data on pattern of diffractive dissociation of the  $^{11}\text{C}$  and  $^{10}\text{B}$  will be discussed in this context. It is already established that 144 “white” stars produced by the  $^{11}\text{C}$  in NTE are distributed over the charge channels in the following way:  $2\text{He} + 2\text{H}$  (50%),  $3\text{He}$  (17%),  $^7\text{Be} + \text{He}$  (13%),  $\text{He} + 4\text{H}$  (11%),  $\text{B} + \text{H}$  (5%),  $\text{Li} + \text{He}$  +  $\text{H}$  (3%),  $6\text{H}$  (2%). The distributions of He fragments over the opening angle  $\theta_{2\text{He}}$  show that  $^8\text{Be}_{g.s.}$  decays are presented in 21%  $2\text{He} + 2\text{H}$  and 19% in the  $3\text{He}$  events. These distributions allow one to assume a strong contribution of  $^8\text{Be}_{2+}$  decays but it is a subject of future consideration. The  $^9\text{B}$  nucleus can exist in  $^{11}\text{C}$  as an independent virtual component or as a component of a virtual basis  $^{10}\text{B}$ .

Measurements of the first 21 stars pointed to four decays  $^8\text{Be}_{g.s.}$ , two of which originated from  $^9\text{B}_{g.s.}$  decays. Measurements of “white” stars  $^{10}\text{B}$ , including identification of He and H isotopes by a multiple scattering method, are in progress now.

1. P.I. Zarubin // Lect. Notes in Phys. 2013 V.875. P.51.
2. K.Z. Mamatkulov et al. // Phys. At. Nucl. 2013 V.76. P.1224.

## Presentation type

Poster

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