

## Recent exposures of nuclear track emulsion to radioactive nuclei, neutrons and heavy ions

*Tuesday, 9 June 2015 18:30 (1h 30m)*

Featuring excellent sensitivity and spatial resolution a nuclear track emulsion (NTE) maintains a position of universal and inexpensive detector for survey and exploratory research (<http://becquerel.jinr.ru/>) 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 completeness observations provided in NTE remains unachievable for electronic detection methods. Computerized microscopes will enable one to approach at a new level to application of NTE.

In particular, clustering features of the wholesome family of light nuclei including radioactive ones were investigated using NTE. New data on the charge topology of  $^{11}\text{C}$  dissociation are presented and compared with data on the nuclei  $^7\text{Be}$ ,  $^8,^{10}\text{B}$ ,  $^9,^{10}\text{C}$  and  $^{14}\text{N}$ . Probabilities of occurrence of a variety of ensembles of fragments allow one to reveal their structural weights.

When testing the novel NTE a variety of physics tasks related with measurements of alpha-particle tracks were addressed. Decays of stopped  $^8\text{He}$  nuclei, breaking-ups of  $^{12}\text{C}$  nuclei by thermonuclear neutrons are analyzed. Splittings induced by thermal neutrons are studied in boron enriched emulsion. There arises a problem calibration of ranges of heavy ions for ternary fission studies. For this purpose Kr and Xe ions are implanted into emulsion at the JINR cyclotrons. Progress of analysis of NTE samples exposed to Am and Cf sources is presented.

**Primary author:** Mr MAMATKULOV, Kahramon (Joint Institute for Nuclear Research, Dubna)

**Presenter:** Mr MAMATKULOV, Kahramon (Joint Institute for Nuclear Research, Dubna)

**Session Classification:** Poster session

**Track Classification:** Instrumentation