



Contribution ID : 216

Type : Oral talk

## Infrastructure of 5 ton Baksan large neutrino telescope prototype

Friday, 25 October 2024 09:55 (15)

The availability of the necessary infrastructure is a prerequisite for the proper functioning of the detector, the article describes a magnetic field compensation system and a liquid scintillator purification system for a 5-ton prototype of the Baksan large neutrino telescope. Detectors based on liquid scintillators play an important role in experiments in neutrino physics and particle astrophysics. Currently, a liquid scintillator based on linear alkylbenzene (LAB) with the addition of PPO (2,5-diphenyloxazole) and bis-MSB (1,4-bis(2-methylstyryl)benzene) is actively used in large-scale neutrino experiments. High optical characteristics of the scintillator and a low radioactive background are necessary for the effective operation of the detector. The main methods of cleaning liquid scintillators are: 1. Chromatographic purification on columns filled with aluminum oxide ( $\text{Al}_2\text{O}_3$ ), which removes organic and radioactive impurities and increases transparency 2. Water extraction to remove radioactive impurities 3. Vacuum molecular distillation Photomultiplier tubes, especially large-sized PMTs used in the project, are sensitive to a magnetic field. The influence of the magnetic field has a negative effect on the resolution of the photomultiplier tubes, and it also affects the jitter in the PMT, which ultimately affects the accuracy of localization of the scintillation flash in the target volume. In this case, it is necessary to use a magnetic field compensation system

**Primary author(s) :** LUKANOV, Arslan (INR RAS)

**Co-author(s) :** NANZANOV, Dmitry (INR RAS); BUDZINSKAYA, Anastasiia (INR RAS); FAZLIAKHMETOV, Almaz (INR RAS); LUBSANDORZHIEV, Bayarto (INR RAS); SIDORENKOV, Andrei (INR RAS); USHAKOV, Nikita (INR RAS); VORONIN, Dmitry (INR RAS)

**Presenter(s) :** LUKANOV, Arslan (INR RAS)

**Session Classification :** Facilities and advanced detector technologies

**Track Classification :** Facilities and advanced detector technologies