

iDREAM - industrial detector for nuclear reactor monitoring

Wednesday, 7 October 2015 13:45 (15)

Prototype of industrial reactor antineutrino detector iDREAM is dedicated for an experiment to demonstrate the possibility of remote monitoring of PWR reactor operational modes by neutrino method in real-time in order to avoid undeclared exposure modes for nuclear fuel and unauthorized removal of isotopes. The prototype detector was started up in 2014. To test the detector elements and components of electronics distilled water has been used as a target, which enables the use of Cerenkov radiation from cosmic muons as a physical signal. Also parallel measuring of the long-term stability was done for samples of liquid organic scintillator doped with gadolinium and synthesized by different methods. The work was done with the help of specially designed test detector with the volume of about 30 liters. As a result, the sample was determined which has stable light output and the concentration of gadolinium within 120 days (the time of measurement).

Presentation type

Section talk (10+5 min)

Primary author(s) : Mr. ORALBAEV, Aldiyar (NRC "Kurchatov institute"); Dr. CHEPURNOV, Alexandr (SINP MSU); Dr. OBINYAKOV, Boris (NRC "Kurchatov institute"); Prof. SKOROKHVATOV, Mikhail (NRC "Kurchatov institute", MEPhI)

Co-author(s) : Dr. ETENKO, Alexandr (NRC "Kurchatov institute"); Dr. NOVIKOVA, Galina (INR RAS); Mr. LUKYANCHENKO, Georgy (NRC "Kurchatov institute"); Dr. GRIBOV, Igor (SINP MSU); Mr. GROMOV, Maxim (MSU); Dr. SUKHOTIN, Sergey (NRC "Kurchatov insitute")

Presenter(s) : Mr. ORALBAEV, Aldiyar (NRC "Kurchatov institute")

Session Classification : Nuclear physics and particle physics - parallel VI

Track Classification : Nuclear physics and particle physics