

Registration of volumetric activities of gaseous and liquid media with scintillator detectors

Wednesday, 7 October 2015 14:30 (30)

The aim of work is development detectors for diagnostic of physical process for monitoring of radiation situation at nuclear reactors, including fast neutron reactors. Detectors for registration of radiation in gas and liquid media in wide measurement range and for identification of presence of particular isotopes- gamma sources are needed. The model of scintillator detectors using crystals $\text{LaBr}_3(\text{Ce})$ и $\text{YAlO}_3(\text{Ce})$ were created and experimentally investigated. The possibility of identification of the presence Kr-85, Kr-85m, Kr-88, Xe-133, Xe-135, Cs-137, Cs-134, Cs-136, Cs-138, I-131, I-133, Na-24 by proposed models was demonstrated. It was demonstrated also, that the maximum measuring level of gas medium activity with 100s measuring time will be 107Bq/m^3 . Measurement range for liquid media volumetric activity for Cs-137 with measuring time 100s is $3,79 \cdot 10^2 \text{ Bq/l} - 1,08 \cdot 10^8 \text{ Bq/l}$.

Presentation type

Poster

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Session Classification : Poster session II

Track Classification : Methods of experimental physics