

Development of Si-PIN Diodes Detection Unit for Noble Gas Systems ARIX

- New detecting unit of conversion electrons was made in new geometry of 10 pieces Si-PIN diodes, disposed in an aluminum cylinder of height 35 mm and diameter 18 mm (~8cm³ volume). Si-PIN detectors with a thickness of ~0.45 mm and an active area of ~1 cm² were used. The parameters of the created detection unit was tested using gas that contains all four Xe radionuclides. New development of detection unit allowed to obtain the energy resolution for conversion electrons ^{131}mXe equal 15 keV. The real effectiveness of registration was ~30 %. • NaI (Tl) -Si-PIN detector will be used for Noble gas system ARIX-4 for the IMS radionuclide station RUX-55 in Norilsk, Russia and mobile Noble gas system of high productivity RINGA-F. Estimations expected for the given Si-PIN detector unit of uncertainty measurement and the minimal detected activity of Xe isomers are compared to corresponding parameters of used scintillation beta-gamma coincidence detector

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