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Apparatus complex based on liquid xenon detector for gamma spectrometry in the intervals between pulses of intense radiation

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To investigate the effects of intense radiation on the operation of the liquid xenon spectrometer was created apparatus complex based on liquid xenon detector. The experimental setup consists of a multifunctional chamber, gas system, cooling system, temperature control system, a special preamp, passive protection, scintillation monitor the accelerator beam, thermoluminescent dosimeters. Multifunctional chamber includes a detecting unit (flat or cylindrical ionization chamber), the cleaning unit of the xenon, control unit of the purity of liquid xenon. The liquid xenon detector was irradiated by bremsstrahlung pulses of the microtron. The frequency of irradiation pulses was 400 Hz. The absorbed dose was varied from 10-7 to 0.1 Gy per pulse. The electronic and ionic processes in liquid xenon at different radiation doses were investigated. Stable operation of the liquid xenon spectrometer in the intervals between the pulses of the accelerator shown for a long time.

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