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Lead Activation Neutron Yield Measurement System Used In ICF Experiment CUNBANG YANG, JIE FENG, ZHIYUAN LIANG, National Key Laboratory of Laser Fusion, Reseach Center of Laser Fusion, CAEP — Lead activation measurement system is used to measure very low yield neutron of DT or DD reaction, activation sample is Pb sheath that surrounds a NaI(Tl) detector or Pb disks in front of it. Using this system, we can measure the γ rays from the activated sample(^{207m}Pb) with 0.8s half-life decay and calculated the yield. Because half-life decay is too short to move activated sample to measure room manually or mechanic, we place the detector as close as 32cm from the laser target. To minimize this effect of the X-rays burst from the laser irradiated target, we use a gate circuit to remove the detector high voltage about 200ms to 1s adjustable, and restores it less than 100ms after the shot. The drift of the peak address of the pulse-height spectrum is unavoidable because of the NaI(Tl) detectors and the electronic system. We used an embedded multi-channel pulse height analyzer in this system to adjust the peak address of the in time. This system is used successfully in ICF experiment on SG-II facility in 2005.

Cunbang Yang
National Key Laboratory of Laser Fusion,
Reseach Center of Laser Fusion, CAEP

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