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The gamma activation measurements at Shanghai Laser Electron Gamma Source

Thursday, 23 May 2024 16:00 (2 hours)

SLEGS is a Laser Compton Scattering gamma source. The gamma energy is 0.66 to 21.7 MeV, and the gamma flux is approximately 4.8×10^5 to 1.5×10^7 phs/s. Gamma activation method is used in beam flux monitor, medical isotope production and nuclear astrophysics in SLEGS. *Gamma beam flux under different collimated apertures has been checked by gamma activation method by using various half-life nuclide targets with an online activation and offline measurement platform. It is consistent with the flux measured with direct method by the LaBr3 detector. The activation method will be uniquely advantageous for monitoring gamma beam with short-life nuclide in a short time. A series of potential medical isotopes giant resonance production cross sections are measured by gamma activation method, which will provide key data for medical isotopes production by photonuclear reactions. The *p*-nuclei's photonuclear cross sections*, for example Ru, are measured by photoneutron and gamma activation, which can provide favorable data on the much larger abundance of ^{98}Ru , ^{96}Ru . The activation experiment of SLEGS provides a reliable option for different experimental research objectives in photonuclear physics.*

Footnotes

- Wang H W, Fan G T, Liu L X, et al., Commissioning of Laser Electron Gamma Beamline SLEGS at SSRF[J], Nuclear Science and Techniques, 2022, 33, 87. **Gy. Gyürky, Zs. Fülöp, F. Käppeler, G. G. Kiss, and A. Wallner, The Activation Method for Cross Section Measurements in Nuclear Astrophysics[J], Eur. Phys. J. A 55, 41 (2019).

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