

## Symposium on Nuclear Data 2020

Ag102 12.9 m	Ag103 65.7 m	Ag104 69.2m	Ag105 41.29 d	S ymposium on	Ag107 51.839 %	Ag108 2.37 m	Ag109 48.161 %	Ag110 24.6 s	Ag111 7.45 d	Ag112 2.120 h
Pd101 8.47 h	Pd102 1.02 %	Pd103 16.991 d	Pd104 11.14 %	Pd105 22.33 %	N uclear	Pd107 6.5e+4 y	Pd108 26.46 %	Pd109 15.700(26)	Pd110 11.72 %	Pd111 23.4 m
Rh100 20.8 h	Rh101 3.3 y	Rh102 2.72 s	Rh103 100 %	Rh104 42.3 s	Rh105 35.38 h	D ata	2020 Nov.	Rh108 9.0 m	Rh109 99 s	Rh110 3.3 s

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# Comparison of double-differential cross sections between JENDL/PD-2016.1 and experimental data for photo-neutron production of medium-heavy nuclei at 16.6 MeV / 16.6MeV における中重核の光中性子生成に対する JENDL/PD-2016.1 と実験データの二重微分断面積の比較

Thursday, 26 November 2020 17:07 (1h 43m)

The double differential cross-section (DDX) of the photoneutron is an important quantity for radiation shielding and shielding calculation of the electron accelerator design. Shielding calculation is usually carried out by Monte Carlo simulation codes, which use the nuclear data library in the calculation. We measured the DDXs of the  $(\gamma, xn)$  reaction using 16.6 MeV polarized photon on  $^{nat}\text{Pb}$ ,  $^{197}\text{Au}$ ,  $^{nat}\text{Sn}$ ,  $^{nat}\text{Cu}$ ,  $^{nat}\text{Fe}$ , and  $^{nat}\text{Ti}$  targets [1], and showed the neutron spectra including the evaporation and direct components. In this presentation, we compared the DDXs from the photonuclear data JENDL/PD-2016.1 and the experiment to check their consistency. The DDXs were extracted from the JENDL/PD-2016.1 library by our python-based software. The abundances of each target's isotopes were considered in calculating the DDXs from the JENDL/PD-2016.1 library. This comparison showed the differences in the photoneutron's energy distributions, and the differences were mostly in the direct component. The evaporation components were found in both JENDL/PD-2016.1 and the experimental data; however, they were not totally consistent. This result can be the first comparison of the DDXs from JENDL/PD-2016.1 and the experiment. The quantitative comparison and discussion will be presented at the symposium.

Keywords: differential double cross-section photoneutron, 16.6 MeV polarized photon, JENDL/PS-2016.1.

[1] T.K. Tuyet et al., "Double differential cross section of the  $(\gamma, xn)$  reaction on medium-heavy nuclei for 16.6 MeV polarized photons. 2020 Fall meeting of AESJ, Sep. 16th –18th.

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