Ladies and Gentlemen, good morning. My name is “Hanxiong Huang”, from China Institute of Atomic Energy”. I’m glad to introduce my work about the “Measurement of differential and double differential cross-section for natural Gallium at 8.0 MeV neutrons.

The neutron emission double-differential cross section (abbreviated to DDXs) is one of the most important nuclear data used in nuclear engineering design, particularly in nuclear device and neutron shielding design. In consequence, it can be used for neutron transport calculations. Gallium is one of the candidates for next generation reactor coolant, yet the double-differential cross section of gallium is still empty in all evaluated data base.

The angular distribution and the DDXs of n+$^{nat}$Ga at 21 angles are measured in our institute using the neutron time of flight method as shown in figure 1. The data analysis basically is an iteration procedure which is demonstrated in Fig. 2. The measured angular distribution of elastic scattering of n+$^{nat}$Ga is compared with evaluated data in Fig. 4. It can be seemed that all evaluated data results are agree well with our experimental result. According to our measurement, the result of JENDL5.0 is more reliable in this angle. Fig. 5 shows one of the 21 degrees results of DDXs result. It shows the comparison of DDX of n+$^{nat}$Ga at 70 degree between the evaluated data and the measured ones. It was found that the experimental results were in agree with TENDL result better than other evaluated data base.

**Summary**: The differential and double-differential cross sections have been measured at 21 angles in the range between 20 deg and 140 deg for n + $^{nat}$Ga reaction at the incident neutron energy of 8.0 MeV. The data would be helpful for improvement of the data evaluation.

If you have more questions about this research, please contact us with the email address under the poster.