

Nuclear Data Activities in Korea

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Abstract

KAERI/NDEL is performing evaluation, multi-group library processing, and validation of nuclear data which are required by various nuclear R&D program in Korea. For measurement of nuclear reaction data, KAERI/NDEL is also coordinating measurements of Pohang Neutron Facility (PNF) of Pohang Accelerator Laboratory (PAL), Van de Graff laboratory of Korea Institute of Geosciences and Mineral Resources (KIGAM), and MC-50 Cyclotron at Korea Institute of Radiological and Medical Sciences (KIRAMS). The presentation briefly describes nuclear data activities performed in Korea during 2006-2007.

At Pohang Neutron Facility of PAL,

-The total cross sections of natural Pd, Nb, Mo were measured using TOF method.

At Van der Graaf of KIGAM,

-Neutron captured gamma spectrum on ^{197}Au is measured and being analyzed for neutron energies of 1 ~ 2 MeV

At MC-50 of KIRAMS,

-Proton induced reaction cross-sections on $^{\text{nat}}\text{Mo}$, $^{\text{nat}}\text{Zn}$, and $^{\text{nat}}\text{W}$ were measured such as

$^{\text{nat}}\text{Mo}(p,xn)^{99\text{m},96\text{m},95\text{m},g}\text{Tc}$

$^{\text{nat}}\text{Zn}(p,xn)^{66}\text{Ga}$, $^{\text{nat}}\text{Zn}(p,xn)^{67}\text{Ga}$, $^{\text{nat}}\text{Zn}(p,pxn)^{62}\text{Zn}$, $^{\text{nat}}\text{Zn}(p,axn)^{61}\text{Cu}$, $^{\text{nat}}\text{Zn}(p,axn)^{65}\text{Zn}$,

$\text{Zn}(p,axn)^{69\text{m}}\text{Zn}$

$^{\text{nat}}\text{Mo}(p,xn)^{99\text{m},96\text{m},95\text{m},g}\text{Tc}$

For the design of an accelerator-based facility, proton induced nuclear data was evaluated for Al-27 in the energy region up to 150 MeV.

In response to discrepancies between calculations and measurements of several fusion shielding benchmarks, neutron cross sections for $^{182,183,184,186}\text{W}$ were evaluated in the neutron-incident energy range from 0.1 MeV to 20 MeV for all tungsten isotopes.