

## Additional Evaluation of Alpha Induced Neutron Production Nuclear Data

-  ${}^9\text{Be}$ ,  ${}^{27}\text{Al}$ ,  ${}^{28,29,30}\text{Si}$  -

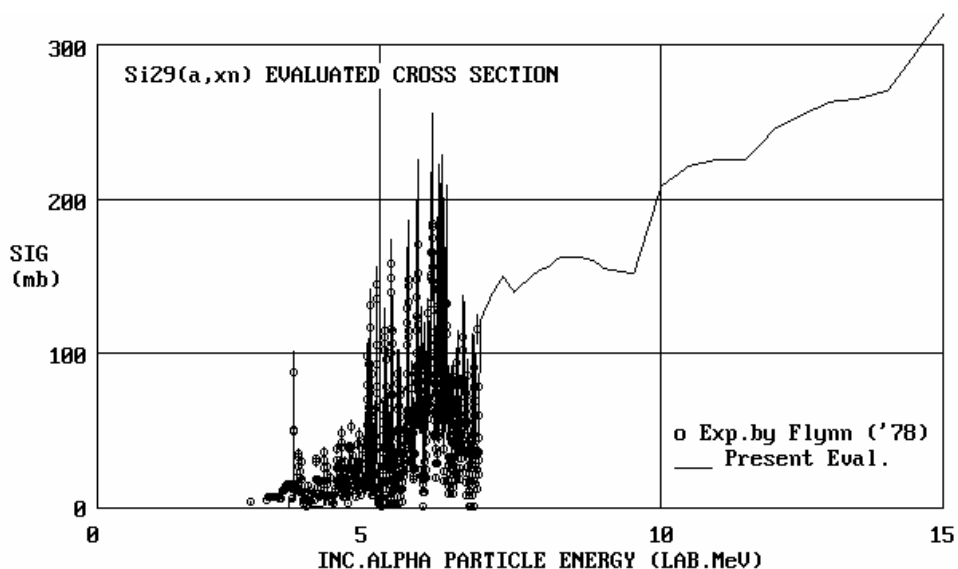
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Though, JENDL ( $\alpha, n$ ) Reaction Data File 2003 has been released for 13 nuclides, additional nuclear data for the reaction are required. For  ${}^9\text{Be}$ , requirement of detailed angular distributions of neutrons to several excited states of  ${}^{12}\text{C}$  was made to analyze intensity of standard radio-active neutron source. Neutron production data of  ${}^{27}\text{Al}$  are necessary to investigate new type nuclear fuel of non-proliferate. The data for Si are necessary to estimate the neutron emission rate of high level radio-active vitrified solid which includes alpha emitting TRU.

These cross sections were obtained by analyzing the experimental cross sections with a resonance formula and statistical model code EGNASH2<sup>1)</sup>. Evaluation of cross section was made by modifying the obtained cross section slightly to reproduce the experimental thick target neutron yields. The following figure compares experimental cross section<sup>2)</sup> and evaluated one for the  ${}^{29}\text{Si}(\alpha, xn)$  reaction.



### References

- 1) GNASH code (P.G.Young, E.D.Arthur;LA-6947) modified by JAERI Nuclear Data Center
- 2) D.S.Flynn et al. Phys.Rev. C15,1566(1978)