

International Atomic Energy Agency

INDC(KUW)-001/G

INTERNATIONAL NUCLEAR DATA COMMITTEE

Status Report: Nuclear Data Evaluation in Kuwait

NDS LIBRARY COPY

NDS.	LIBRARY	Сору
· ·		

March 1983

IAEA NUCLEAR DATA SECTION, WAGRAMERSTRASSE 5, A-1400 VIENNA

Reproduced by the IAEA in Austria March 1983 93-02021

INDC(KUW)-001/G

Status Report: Nuclear Data Evaluation in Kuwait

Readers are requested not to quote results contained herein without first consulting the appropriate authors

Status Report: Nuclear Data Evaluation in Kuwait*

i) Mass Chain Evaluation

As a member of the International Nuclear Data Network the Kuwait Nuclear Data Group has been assigned mass-chains A=74 to 80 in ENSDF (Evaluated Nuclear Structure Data File). Since the start of work here in 1-5) Nov. '78, several mass chains have been completed . Work is in progress on A=76 and A=74.

11) Data Base for Nuclear Structure and Decay Data

The Kuwait group receives updated versions of ENSDF and NSRF (Nuclear Structure Reference File) from Brookhaven National Laboratory every four months. Computer programs have been developed to retrieve from these files data of interest to users in Kuwait and neighbouring countries. Tables of levels and gammarays with their principal properties (either adopted values or the results of individual experiments) can readily be obtained. A table of adopted half-lives for all known nuclear ground states in isotopic order or in ascending half-life order is also available.

111) Experimental Work

The evaluations often reveal ambiguities and omissions in the existing data. Where possible experimental work is carried out in collaboration with laboratories outside Kuwait to solve these problems. In col-

laboration with a nuclear laboratory at the University of Toronto a study of the decay of As to 78 6) has been completed and we are now investi-Se 76 76 76 gating the decay of Ga to Ge. The Ga 1sotope was formed by 14 MeV neutrons in the (n,p) reaction on an enriched target. The figure shows a half-life curve for two prominent gazma rays from Ga present in the spectrum shown. A semi-7) automatic system was used for this measurement and several hundred samples were required for



reliable results. Our value of 32.6+0.6 s differs from earlier values of 27.1+0.2 s and 29.8-0.4 s which were based on techniques more susceptible to contamination. Further spectroscopic studies on Ga are planned. Recently we have begun a study of levels of Sm. Gamma-gamma coincidence and directional 148 correlation measurements have been completed. The Eu source was formed by a deuteron beam from the McGill University synchrocyclotron. The results are being analysed. There is evidence for several 148 revisions to the Eu - Sm decay scheme reported in the literature .

REFERENCES

B. Singh and D.A. Viggars. A=77, Nuclear Data Sheets 29, 75-168 (1980)
 B. Singh and D.A. Viggars. A=78, Nuclear Data Sheets 33, 189-274 (1981)
 B. Singh and D.A. Viggars. A=188, Nuclear Data Sheets 33, 275-387 (1981)
 B. Singh and D.A. Viggars. A=80, Nuclear Data Sheets 36, 127-226 (1982)

- - B. Singh and D.A. Viggars. A=80, Nuclear Data Sheets 36, 127-226 (1982) 4.
 - 5. B. Singh and D.A. Viggars. A=79, Nuclear Data Sheets (1983) (in Press) B. Singh and D.A. Viggars. A=/9, Nuclear Data Sheets (1983) (in Press) 78 B. Singh, D.A. Viggars and H.W. Taylor. Spectroscopy of Gamma-rays in As Decay, Phys. Rev. C25, 6.

- 2003-12 (1982)
- 7. H.W. Taylor, D.A. Craig, J.K.P. Lee and B. Singh. Half-life of 3⁺ Isomer of ¹²⁴ In Using a Simple MCA-Computer System, Nucl. Instr. and Methods, (1983) (in Press)
 8. C.M. Lederer et al. Table of Isotopes 7th Ed. (1978)

Research supported by Kuwait Institute for Scientific Research and Physics Department, Kuwait University, Kuwait.