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INTERNATIONAL ATOMIC ENERGY AGENCY

NUCLEAR DATA SERVICES

DOCUMENTATION SERIES OF THE IAEA NUCLEAR DATA SECTION

RCN-3

Evaluated Fission-Product Cross-Section Library

by H. Gruppelaar
ECN Netherlands, 1983

Abstract: This document summarizes the contents of the Evaluated Fission-Product Cross-Section Library RCN-3 released in 1983 by the Netherlands Energy Research Foundation, ECN, and those parts of the earlier version of RCN-2 that were not superseded by RCN-3. Upon request the Library is available on magnetic tape from the IAEA Nuclear Data Section, costfree.

H.D. Lemmel (ed.)
August 1986

RCN-3

Evaluated Fission-Product Cross-Section Library

by H. Gruppelaar
ECN Netherlands, 1983

This data library is an update of the earlier library RCN-2 published by H. Gruppelaar in 1977 in the reports ECN-13 and ECN-33. For Nd and Pm isotopes see also report ECN-65. Of the library RCN-2 the evaluations for 7 Mo isotopes and 3 Ru isotopes remain valid, the others are superseded by RCN-3.

RCN-3 contains evaluated neutron cross-section data for the following 37 elements or isotopes. The evaluations taken over from RCN-2 are marked with an asterisk.

41-Nb-93
42-Mo-Nat
* 42-Mo-92, 94, 95, 96, 97, 98, 100
43-Tc-99
* 44-Ru-101, 102, 104
45-Rh-103
46-Pd-102, 104, 105, 106, 107, 108, 110
47-Ag-nat, 107, 109
53-I-127, 129
55-Cs-133
57-La-139
59-Pr-141
60-Nd-nat, 142, 143, 144, 145, 146, 147, 148, 150
61-Pm-147
62-Sm-nat, 147, 148, 149, 150, 151, 152, 154

The data library is in KEDAK-format, compare document IAEA-NDS-21.

On the following pages the documentary text contained in the library, is reproduced.

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TEXT

						MAT	MF
410093	21					1	0
14510	14511	14580	14590	21520	21530	1	0
21540	30010	30020	30040	30050	30051	1	0
30160	30270	31020	31030	31070	32510	1	0
40022	50053	50163				1	0
410093	14510	0	1	1	0	1	1
288						1	1
$RCN 3 EVALUATION H.GRUPPELAAR			NB093C	13/10/78 $		1	1
(N,ALPHA) AND (N,P) ADDED					REV 311078	1	1
MINIMUM ENERGY			.00100	EV		1	1
MIN EN OF STATISTICAL MODEL			7.37185	KEV		1	1
ENERGY OF FIRST EXCITED STATE			30.40000	KEV		1	1
CONTINUOUS STAT MODEL ABOVE			1.15000	MEV		1	1
HIGH ENERGY MODEL ABOVE			6.50000	MEV		1	1
MAXIMUM ENERGY			15.00000	MEV		1	1
LEVEL DENSITY PARAMETER NB093			12.58000	1/MEV		1	1
LEVEL DENSITY PARAMETER NB092			11.00000	1/MEV		1	1
*****REVISED EVALUATION IN THERMAL ENERGY RANGE AND IN STRENGTH						1	1
*****FUCTION REGION.						1	1
RESOLVED ENERGY REGION UPTO 7.322 KEV						1	1
EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA						1	1
RESOLVED RESONANCES FROM NEUDADA-1974						1	1
HYPOTHETICAL RESONANCE ADDED AT -1.88 EV TO FIT CAPTURE						1	1
CROSS SECTION AT 0.0253 EV AND THE RESONANCE INTEGRAL						1	1
STRENGTH FUNCTION REGION UPTO 50 KEV						1	1
CAPTURE CROSS SECTION WITH CODE FISPRO-ECN						1	1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN						1	1
S- AND P-WAVE STRENGTH FUNCTIONS FROM BNL-325 (MU73)						1	1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL						1	1
GAMMA WIDTH = 146 MV (EVEN L-VALUES), =195 MV (ODD L-VALUES)						1	1
FROM RESOLVED RESONANCES (GY72)						1	1
DOBS=100 EV, IN AGREEMENT WITH RESOLVED RESONANCE						1	1
ANALYSIS OF GYULASSY AND PERKINS (GY72)						1	1
HIGH ENERGY REGION						1	1
ALL CROSS SECTIONS WITH CODE SASSI-ECN						1	1
OPTICAL MODEL FROM IGARASI ET AL. (IG74)						1	1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 1.15 MEV (KO72 AND GO70)						1	1
SQUARED TARGET SPIN CUT-OFF PARAMETER=12 FROM EXPERIMENTAL						1	1
SPIN DISTRIBUTION						1	1

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TEXT

						MAT	MF
420000	18					2	0
14510	14511	14580	14590	14600	21520	2	0
30010	30020	30040	30050	30051	30160	2	0
30270	31020	31030	31070	32510	40022	2	0
420000	14510	0	1	1	0	2	1
342						2	1

$RCN-2 EVALUATION H.GRUPPELAAR MO000B 15/01/77 $ 2 1
MINIMUM ENERGY 0.001 EV 2 1
RESOLVED RESONANCES UP TO 1.9408 KEV 2 1
ENERGY OF FIRST EXCITED STATE 0.2039 MEV 2 1
CONTINUUM DESCRIPTION INELASTIC SCATTERING ABOVE 1.0246 MEV 2 1
DISCRETE INELASTIC SCATTERING SPECTRA UP TO 6.5 MEV 2 1
MAXIMUM ENERGY 15.0 MEV 2 1
******REVISED EVALUATION FOR NATURAL MOLYBDENUM********** 2 1
THIS EVALUATION IS THE RESULT OF SUMMATION OF ISOTOPIC 2 1
EVALUATIONS WITH REVISIONS AND ADDITIONS. 2 1
THE ISOTOPIC DATA HAVE BEEN PUBLISHED IN : 2 1
H.GRUPPELAAR, TABLES OF RCN-2 FISSION-PRODUCT CROSS SECTION 2 1
EVALUATION, VOL.1 (24NUCLIDES), ECN-13 (1977). 2 1
SUMMED ISOTOPIC DATA ARE GIVEN UP TO 4.65 KEV, RESOLVED RESONAN- 2 1
CES ARE GIVEN UP TO 1.94 KEV. 2 1
ABOVE 4.65 THE (N,G) CROSS SECTION FOR NATURAL MO HAS BEEN 2 1
RE-EVALUATED, TAKING INTO ACCOUNT RECENT EXPERIMENTAL DATA AND 2 1
INTEGRAL (STEK) DATA, SEE: 2 1
H.GRUPPELAAR AND J.W.M.DEKKER, EVALUATION AND ADJUSTMENT OF 2 1
RADIATIVE CAPTURE CROSS SECTIONS OF NATURAL MO AND THE STABLE 2 1
MO ISOTOPES, PROC. SPEC. MTG. NEUTRON DATA OF STRUCTURAL MATERIALS 2 1
FOR FAST REACTORS, GEEL, DEC.5-8, 1977. 2 1
ABOVE 4.65 KEV THE TOTAL CROSS SECTION IS BASED ON THE SUMMED 2 1
RCN-2 VALUES FOR THE ISOTOPES, WITH IMPORTANT ADJUSTMENTS IN THE 2 1
ENERGY RANGE FROM 100KEV TO 2 MEV TO FIT EXPERIMENTAL DATA. 2 1
THE INELASTIC SCATTERING CROSS SECTION IS EQUAL TO THE SUM OF 2 1
RCN-2 VALUES FOR THE ISOTOPES UPTO THE (N,2N) THRESHOLD. 2 1
SPECTRA FOR 19 DISCRETE LEVELS HAVE BEEN GIVEN. 2 1
THE ELASTIC SCATTERING CROSS SECTION HAS BEEN OBTAINED BY 2 1
SUBTRACTING NON-ELASTIC CROSS SECTIONS FROM THE TOTAL CROSS 2 1
SECTION. THERE IS GOOD AGREEMENT WITH EXPERIMENTAL DATA. 2 1
THE (N,P),(N,ALPHA),(N,2N) CROSS SECTIONS, THE ELASTIC SCATTERING 2 1
ANGULAR DISTRIBUTION AND MUEL HAVE BEEN COPIED FROM KEDAK-3. 2 1
THE SUM OF INELASTIC SCATTERING CROSS SECTION AND THE (N,2N) 2 1
CROSS SECTION EQUALS THAT OF THE SUM OF RCN-2 VALUES FOR THE 2 1
ISOTOPES. SEE FOR FURHER DETAILS: 2 1
H.GRUPPELAAR, EVALUATED NEUTRON CROSS SECTIONS OF NATURAL 2 1
MOLYBDENUM, ECN-REPORT TO BE PUBLISHED. 2 1

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TEXT

MAT MF

430099	25	0	0	0	0	3	0
14510	14511	14580	14590	21520	21530	3	0
21540	30010	30011	30020	30040	30050	3	0
30051	30160	30270	31020	31030	31040	3	0
31050	31060	31070	32510	40022	50053	3	0
50163	0	0	0	0	0	3	0
430099	14510	0	1	1	0	3	1
288	0	0	0	0	0	3	1

$RCN 2.3 EVALUATION H.GRUPPELAAR TC099Z 27/01/76 $ 3 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 3 1
MINIMUM ENERGY .00100 EV 3 1
MIN EN OF STATISTICAL MODEL 1.15329 KEV 3 1
ENERGY OF FIRST EXCITED STATE .14050 MEV 3 1
CONTINUOUS STAT MODEL ABOVE 1.19900 MEV 3 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 3 1
MAXIMUM ENERGY 15.00000 MEV 3 1
LEVEL DENSITY PARAMETER TC099 15.80000 1/MEV 3 1
LEVEL DENSITY PARAMETER TC098 15.30000 1/MEV 3 1
****ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA****** 3 1
RESOLVED RESONANCE REGION UPTO 1.153 KEV 3 1
EVALUATION WITH SIGMA-2 AT 0 K,MULTILEVEL FORMULA 3 1
RESOLVED RESONANCE PARAMETERS FROM ADAMCHUK ET AL.(AD73) 3 1
SMALL 1/V-CORRECTION ADDED 3 1
UNRESOLVED RESONANCE REGION UPTO 150 KEV 3 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 3 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 3 1
S-WAVE STRENGTH FUNCTION S0=0.55 3 1
P-WAVE STRENGTH FUNCTION S1=8.94 3 1
CAPTURE CROSS SECTION DATA OF CHOU AND WERLE(CH73) 3 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 3 1
DOBS=18.6 EV 3 1
GAMMA WIDTH =131 MV 3 1
STATISTICAL REGION 3 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 3 1
OPTICAL MODEL FROM IGARASI ET AL.(IG74) 3 1
TC-99 LEVEL SCHEME MAINLY FROM NUCLEAR DATA SHEETS(NE74) 3 1
WITH NEW LEVELS FROM SVENSSON ET AL.(SV76) 3 1
STATISTICAL DESCRIPTION OF TARGET LEVEL SCHEME ABOVE 1.199 MEV, 3 1
SQUARED TARGET SPIN CUT OFF FACTOR = 6.6 (FROM EXPERIMENTAL 3 1
LEVEL SCHEME) 3 1

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TEXT

						MAT	MF
450103	25	0	0	0	0	4	0
14510	14511	14580	14590	21520	21530	4	0
21540	30010	30011	30020	30040	30050	4	0
30051	30160	30270	31020	31030	31040	4	0
31050	31060	31070	32510	40022	50053	4	0
50163	0	0	0	0	0	4	0
450103	14510	0	1	1	0	4	1
234	0	0	0	0	0	4	1

$RCN 2.3 EVALUATION H.GRUPPELAAR RH103X 29/06/77 $ 4 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 4 1
MINIMUM ENERGY .00100 EV 4 1
MIN EN OF STATISTICAL MODEL 1.01505 KEV 4 1
ENERGY OF FIRST EXCITED STATE 39.80000 KEV 4 1
CONTINUOUS STAT MODEL ABOVE 1.29370 MEV 4 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 4 1
MAXIMUM ENERGY 15.00000 MEV 4 1
LEVEL DENSITY PARAMETER RH103 16.50000 1/MEV 4 1
LEVEL DENSITY PARAMETER RH102 16.30000 1/MEV 4 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 4 1
RESOLVED RESONANCE REGION UPTO 4.028 KEV 4 1
EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA 4 1
RESOLVED RESONANCE PARAMETERS FROM NEUDADA-1974 4 1
UNRESOLVED RESONANCE REGION UPTO 200 KEV 4 1
CAPTURE CROSS SECTION WITH CODE FISPRO-RCN 4 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 4 1
S-WAVE STRENGTH FUNCTION,S0=0.4847 4 1
P-WAVE STRENGTH FUNCTION,S1=6.332 4 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 4 1
DOBS=25.19 EV 4 1
GAMMA WIDTH=160.9 MV 4 1
STATISTICAL REGION 4 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 4 1
OPTICAL MODEL FROM IGARASI ET AL. (IG74) 4 1
RH-103 LEVEL SCHEME FROM REITMAN ET AL. (RE75A) 4 1

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TEXT

						MAT	MF
460102	25	0	0	0	0	5	0
14510	14511	14580	14590	21520	21530	5	0
21540	30010	30011	30020	30040	30050	5	0
30051	30160	31020	30270	31030	31040	5	0
31050	31060	31070	32510	40022	50053	5	0
50163	0	0	0	0	0	5	0
460102	14510	0	1	1	0	5	1
288						5	1

RCN-3 EVALUATION---H.A.J.VAN DER KAMP AND H.GRUPPELAAR---PD102C 11/8/81 5 1

MINIMUM ENERGY	.00100	EV	5 1
MIN EN OF STATISTICAL MODEL	.46500	KEV	5 1
ENERGY OF FIRST EXCITED STATE	.55640	MEV	5 1
CONTINUOUS STAT MODEL ABOVE	2.13810	MEV	5 1
HIGH ENERGY MODEL ABOVE	6.50000	MEV	5 1
MAXIMUM ENERGY	15.00000	MEV	5 1
LEVEL DENSITY PARAMETER PD102	12.90000	1/MEV	5 1
LEVEL DENSITY PARAMETER PD101	10.90000	1/MEV	5 1

*****REVISED EVALUATION WITH NEW RESOLVED RESONANCE PARAMETERS 5 1
RESOLVED ENERGY REGION UPTO 200 EV 5 1
EVALUATION WITH SIGMA-ECN AT O K 5 1
ONE RESONANCE REPORTED AT 190.7 EV BY POPOV ET AL.(PO77) 5 1
A NEGATIVE RESONANCE HAS BEEN ADDED TO FIT THE THERMAL 5 1
CAPTURE CROSS SECTION 5 1
STRENGTH FUNCTION REGION UPTO 100 KEV 5 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 5 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 5 1
S-WAVE STRENGTH FUNCTION =0.5, P-WAVE STRENGTH FUNCTION 5 1
=7.5, BOTH FROM SYSTEMATICS 5 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 5 1
DOBS= 413 EV FROM SYSTEMATICS 5 1
AVERAGE GAMMA WIDTH= 109 MV FROM POPOV ET AL.(PO77) 5 1
HIGH ENERGY REGION 5 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 5 1
OPTICAL MODEL FROM EVALUATION OF AUTHORS 5 1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 2.1381 MEV FROM SIMMS ET 5 1
AL.(SI73A) 5 1
SQUARED SPIN CUT-OFF PARAMETER= 11.5 FROM EXPERIMENTAL 5 1
SPIN DISTRIBUTION 5 1
CHARGED-PARTICLE EMISSION CROSS SECTION FROM THRES-2 5 1
RENORMALIZED AT 14.5 MEV(QA78) 5 1

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TEXT

						MAT	MF
460104	25	0	0	0	0	6	0
14510	14511	14580	14590	21520	21530	6	0
21540	30010	30011	30020	30040	30050	6	0
30051	30160	31020	30270	31030	31040	6	0
31050	31060	31070	32510	40022	50053	6	0
50163	0	0	0	0	0	6	0
460104	14510	0	1	1	0	6	1
333						6	1

RCN-3 EVALUATION---H.GRUPPELAAR AND H.A.J.VAN DER KAMP---PD104E 24/7/81 6 1
MINIMUM ENERGY .00100 EV 6 1
MIN EN OF STATISTICAL MODEL 3.17248 KEV 6 1
ENERGY OF FIRST EXCITED STATE .55570 MEV 6 1
CONTINUOUS STAT MODEL ABOVE 2.19320 MEV 6 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 6 1
MAXIMUM ENERGY 15.00000 MEV 6 1
LEVEL DENSITY PARAMETER PD104 15.00000 1/MEV 6 1
LEVEL DENSITY PARAMETER PD103 15.10000 1/MEV 6 1
*****REVISED EVALUATION WITH NEW RESOLVED RESONANCE PARAMETERS 6 1
AND TAKING INTO ACCOUNT THE STEK RESULTS 6 1
RESOLVED ENERGY REGION UPTO 3.2 KEV 6 1
EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA 6 1
RESOLVED RESONANCE PARAMETERS FROM STAVELOZ ET AL.(ST80) 6 1
THERMAL CROSS SECTION AND RESONANCE INTEGRAL NOT MEASURED 6 1
STRENGTH FUNCTION REGION UPTO 100 KEV 6 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 6 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 6 1
S-WAVE STRENGTH FUNCTION=0.53, OBTAINED FROM MAXIMUM 6 1
LIKELIHOOD ANALYSIS OF RESOLVED RESONANCE PARAMETERS 6 1
P-WAVE STRENGTH FUNCTION =6.9 ,ADJUSTED TO OBTAIN 6 1
BETTER AGREEMENT WITH STEK RESULTS 6 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 6 1
DOBS=254 EV FROM FROM ANALYSIS OF THE RESOLVED 6 1
RESONANCE PARAMETERS FROM STAVELOZ ET AL. (ST80). 6 1
AVERAGE GAMMA WIDTH= 86, THE AVERAGE VALUE OF STAVELOZ ET AL. 6 1
HAS BEEN ADJUSTED WITH 6 PERCENT TO OBTAIN A BETTER 6 1
AGREEMENT WITH THE STEK RESULTS 6 1
HIGH ENERGY REGION ABOVE 100 KEV 6 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 6 1
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COMPILATION BY BASS ET AL.(BA70) AND FROM GOVOR ET AL.(GO75) 6 1
SQUARED SPIN CUT-OFF PARAMETER= 6.3 FROM EXP. SPIN 6 1
DISTRIBUTION 6 1
CHARGED-PARTICLE EMISSION CROSS SECTION FROM THRES-2, 6 1
RENORMALIZED AT 14.5 MEV(QA78) 6 1

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TEXT

						MAT	MF
460105	25	0	0	0	0	7	0
14510	14511	14580	14590	21520	21530	7	0
21540	30010	30011	30020	30040	30050	7	0
30051	30160	31020	30270	31030	31040	7	0
31050	31060	31070	32510	40022	50053	7	0
50163	0	0	0	0	0	7	0
460105	14510	0	1	1	0	7	1
306						7	1

RCN-3 EVALUATION---H.A.J.VAN DER KAMP AND H.GRUPPELAAR---PD105P 13/7/81 7 1

MINIMUM ENERGY	.00100	EV	7 1
MIN EN OF STATISTICAL MODEL	2.05815	KEV	7 1
ENERGY OF FIRST EXCITED STATE	.28050	MEV	7 1
CONTINUOUS STAT MODEL ABOVE	.78200	MEV	7 1
HIGH ENERGY MODEL ABOVE	6.50000	MEV	7 1
MAXIMUM ENERGY	15.00000	MEV	7 1
LEVEL DENSITY PARAMETER PD105	17.28000	1/MEV	7 1
LEVEL DENSITY PARAMETER PD104	15.00000	1/MEV	7 1

*****REVISED EVALUATION WITH NEW RESOLVED RESONANCE 7 1
PARAMETERS (IN AGREEMENT WITH INTEGRAL STEK DATA) 7 1
RESOLVED ENERGY REGION UPTO 2.1 KEV 7 1
THERMAL CROSS SECTION =22 BARN, FROM CORVI(CO81) 7 1
A NEGATIVE RESONANCE WAS FITTED TO OBTAIN AGREEMENT WITH THE 7 1
THERMAL CAPTURE CROSS SECTION. EVALUATION WITH SIGMA-ECN AT 0 K, 7 1
MULTILEVEL FORMULA. RESOLVED RESONANCES FROM STAVELOZ ET AL.(ST80) 7 1
STRENGTH FUNCTION REGION UPTO 50 KEV 7 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 7 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 7 1
S-WAVE STRENGTH FUNCTION S0=0.64 AND P-WAVE STRENGTH 7 1
FUNCTION S1=5.6 FROM MAXIMUM LIKELIHOOD ANALYSIS OF THE 7 1
RESOLVED RESONANCE PARAMETERS OF STAVELOZ ET AL.(ST80) 7 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL (LA77A) 7 1
DOBS=9.7 EV FROM ANALYSIS OF RESOLVED RESONANCES 7 1
AVERAGE CAPTURE WIDTH=150 MV FROM RESOLVED RESONANCES(ST80) 7 1
HIGH ENERGY REGION ABOVE 50 KEV 7 1
MOST CROSS SECTIONS WITH CODE SASSI-ECN 7 1
OPTICAL MODEL FROM EVALUATION OF AUTHORS 7 1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 0.782 MEV FROM 7 1
NUCLEAR DATA SHEETS(EL79) 7 1
SQUARED SPIN CUTOFF PARAMETER = 5.8 FROM EXPERIMENTAL 7 1
SPIN DISTRIBUTION 7 1
CHARGED-PARTICLE EMISSION CROSS SECTIONS FROM THRES-2, 7 1
RENORMALIZED AT 14.5 MEV(QA78) 7 1

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TEXT

						MAT	MF
460106	25	0	0	0	0	8	0
14510	14511	14580	14590	21520	21530	8	0
21540	30010	30011	30020	30040	30050	8	0
30051	30160	31020	30270	31030	31040	8	0
31050	31060	31070	32510	40022	50053	8	0
50163	0	0	0	0	0	8	0
460106	14510	0	1	1	0	8	1
396						8	1
RCN-3 EVALUATION---H.GRUPPELAAR AND H.A.J.VAN DER KAMP---PD106G 24/7/81						8	1
MINIMUM ENERGY			.00100 EV			8	1
MIN EN OF STATISTICAL MODEL			3.12771 KEV			8	1
ENERGY OF FIRST EXCITED STATE			.51190 MEV			8	1
CONTINUOUS STAT MODEL ABOVE			2.36600 MEV			8	1
HIGH ENERGY MODEL ABOVE			6.50000 MEV			8	1
MAXIMUM ENERGY			15.00000 MEV			8	1
LEVEL DENSITY PARAMETER PD105			17.23000 1/MEV			8	1
LEVEL DENSITY PARAMETER PD105			17.28000 1/MEV			8	1
*****REVISED EVALUATION WITH NEW RESOLVED RESONANCE PARAMETERS						8	1
AND TAKING INTO ACCOUNT THE STEK RESULTS						8	1
RESOLVED ENERGY REGION UPTO 3.2 KEV						8	1
EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA						8	1
RESOLVED RESONANCE PARAMETERS FROM STAVELOZ ET AL.(ST80)						8	1
A NEGATIVE RESONANCE HAS BEEN FITTED TO OBTAIN						8	1
AGREEMENT WITH THE EXPERIMENTAL VALUE OF THE CAPTURE						8	1
CROSS SECTION						8	1
EXPERIMENTAL VALUE OF THE CAPTURE CROSS SECTION						8	1
=0.3+-0.03 BARN FROM BNL-325(MU73)						8	1
CALCULATED VALUE OF THE CAPTURE CROSS SECTION=0.30 BARN						8	1
EXPERIMENTAL VALUE OF RESONANCE INTEGRAL=5.73+-0.57 BARN						8	1
CALCULATED VALUE OF RESONANCE INTEGRAL=6.00 BARN						8	1
STRENGTH FUNCTION REGION UPTO 100 KEV						8	1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN						8	1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN						8	1
S-WAVE STRENGTH FUNCTION=0.39 FROM MAXIMUM LIKELIHOOD						8	1
ANALYSIS OF RESOLVED RESONANCE PARAMETERS OF STAVELOZ ET AL.(ST80)						8	1
P-WAVE STRENGTH FUNCTION =5.8, ADJUSTED TO OBTAIN						8	1
BETTER AGREEMENT WITH STEK RESULT						8	1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL						8	1
DOBS=172 EV, ADJUSTED TO OBTAIN A BETTER AGREEMENT						8	1
WITH STEK RESULTS						8	1
AVERAGE CAPTURE WIDTH =68 MV, THE AVERAGE VALUE OF						8	1
STAVELOZ ET AL. HAS BEEN INCREASED WITH 10 PER CENT TO OBTAIN						8	1
BETTER AGREEMENT WITH STEK RESULTS						8	1
HIGH ENERGY REGION ABOVE 100 KEV						8	1
ALL CROSS SECTIONS WITH CODE SASSI-ECN						8	1
OPTICAL MODEL FROM EVALUATION OF AUTHORS						8	1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 2.3660 MEV FROM NUCLEAR DATA						8	1
SHEETS (BE74B) AND GOVOR ET AL.(GO75)						8	1
SQUARED SPIN CUT-OFF PARAMETER= 5.8 FROM EXPERIMENTAL						8	1
SPIN DISTRIBUTION						8	1
CHARGED PARTICLE CROSS SECTIONS FROM THRES-2,RENORMALIZED						8	1
AT 14.5 MEV(QA78)						8	1

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TEXT

						MAT	MF
460107	25	0	0	0	0	9	0
14510	14511	14580	14590	21520	21530	9	0
21540	30010	30011	30020	30040	30050	9	0
30051	30160	31020	30270	31030	31040	9	0
31050	31060	31070	32510	40022	50053	9	0
50163	0	0	0	0	0	9	0
460107	14510	0	1	1	0	9	1
324						9	1
RCN-3 EVALUATION---H.A.J.VAN DER KAMP AND H.GRUPPELAAR---PD107F 9/7/81						9	1
MINIMUM ENERGY			.00100	EV		9	1
MIN EN OF STATISTICAL MODEL			.65766	KEV		9	1
ENERGY OF FIRST EXCITED STATE			.11570	MEV		9	1
CONTINUOUS STAT MODEL ABOVE			.80600	MEV		9	1
HIGH ENERGY MODEL ABOVE			6.50000	MEV		9	1
MAXIMUM ENERGY			15.00000	MEV		9	1
LEVEL DENSITY PARAMETER PD107			19.52000	1/MEV		9	1
LEVEL DENSITY PARAMETER PD106			17.23000	1/MEV		9	1
*****REVISED EVALUATION WITH NEW RESOLVED RESONANCE						9	1
PARAMETERS AND TAKING INTO ACCOUNT INTEGRAL STEK DATA						9	1
RESOLVED ENERGY REGION UPTO 659 EV						9	1
THERMAL CAPTURE CROSS SECTION AND RESONANCE INTEGRAL						9	1
NOT MEASURED						9	1
EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA						9	1
RESOLVED RESONANCE PARAMETERS FROM SINGH ET AL.(SI78)						9	1
STRENGTH FUNCTION REGION UPTO 50 KEV						9	1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN						9	1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN						9	1
S-WAVE STRENGTH FUNCTION=0.69 FROM ANALYSIS OF RESOLVED						9	1
RESONANCE PARAMETERS						9	1
P-WAVE STRENGTH FUNCTION=5.6 ASSUMED TO BE THE SAME AS THE						9	1
VALUE FOR PD 105						9	1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL						9	1
DOBS= 6.13 EV FROM ADJUSTMENT TO STEK RESULTS						9	1
AVERAGE CAPTURE WIDTH= 125 MV FROM SINGH ET AL.(SI78)						9	1
HIGH ENERGY REGION ABOVE 50 KEV						9	1
ALL CROSS SECTIONS WITH CODE SASSI-ECN						9	1
OPTICAL MODEL PARAMETERS EVALUATION OF AUTHORS						9	1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA						9	1
SHEETS (BE72B)						9	1
WITH CORRECTIONS AND GENERATED LEVELS BY RIBON ET AL.(RI75)						9	1
SQUARED SPIN CUT-OFF PARAMETER = 4.6 FROM EXPERIMENTAL						9	1
SPIN DISTRIBUTION						9	1
CHARGED PARTICLE EMISSION CROSS SECTION FROM THRES-2						9	1
RENORMALIZED AT 14.5 MEV(QA78)						9	1

RCN-3 LIBRARY INDEX
TEXT

MAT MF

460108	25	0	0	0	0	10	0
14510	14511	14580	14590	21520	21530	10	0
21540	30010	30011	30020	30040	30050	10	0
30051	30160	31020	30270	31030	31040	10	0
31050	31060	31070	32510	40022	50053	10	0
50163	0	0	0	0	0	10	0
460108	14510	0	1	1	0	10	1
423						10	1

RCN-3 EVALUATION---H.GRUPPELAAR AND H.A.J.VAN DER KAMP---PD108C 24/7/81 10 1
MINIMUM ENERGY .00100 EV 10 1
MIN EN OF STATISTICAL MODEL 3.14092 KEV 10 1
ENERGY OF FIRST EXCITED STATE .43400 MEV 10 1
CONTINUOUS STAT MODEL ABOVE 1.77130 MEV 10 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 10 1
MAXIMUM ENERGY 15.00000 MEV 10 1
LEVEL DENSITY PARAMETER PD108 18.90000 1/MEV 10 1
LEVEL DENSITY PARAMETER PD107 19.50000 1/MEV 10 1
*****REVISED EVALUATION WITH NEW RESOLVED RESONANCE 10 1
PARAMETERS AND TAKING INTO ACCOUNT THE STEK RESULTS 10 1
RESOLVED ENERGY REGION UPTO 3.2 KEV 10 1
RESOLVED RESONANCE PARAMETERS FROM STAVELOZ ET AL.(ST80) 10 1
A NEGATIVE RESONANCE HAS BEEN FITTED TO OBTAIN AGREEMENT 10 1
WITH THE EXPERIMENTAL VALUE OF THE THERMAL CAPTURE CROSS 10 1
SECTION 10 1
EXPERIMENTAL THERMAL CAPTURE CROSS SECTIONS ARE 10 1
8.5+-0.5 BARN FROM BNL-325(MU73) AND 7.37+-0.4 BARN 10 1
FROM CORVI(CO81) 10 1
ADOPTED VALUE FROM CORVI (CO81) 10 1
CALCULATED THERMAL CAPTURE CROSS SECTION= 7.36 BARN 10 1
EXPERIMENTAL VALUE OF RESONANCE INTEGRAL= 173 +-9 BARN 10 1
FROM VAN DER LINDEN (LI72) AND 250+-30 B FROM BNL-325 (MU73) 10 1
CALCULATED RESONANCE INTEGRAL=219 BARN 10 1
EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA 10 1
STRENGTH FUNCTION REGION UPTO 100 KEV 10 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 10 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 10 1
S-WAVE STRENGTH FUNCTION S0=0.64, VALUE DERIVED FROM A 10 1
MAXIMUM LIKELIHOOD ANALYSIS OF THE RESOLVED RESONANCE 10 1
PARAMETERS OF STAVELOZ ET AL.(ST80) 10 1
P-WAVE STRENGTH FUNCTION S1=4.1, VALUE ADJUSTED TO 10 1
OBTAIN A BETTER AGREEMENT WITH THE STEK RESULTS 10 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 10 1
D0BS=157 EV FROM AN ANALYSIS OF THE RESOLVED RESONANCE 10 1
PARAMETERS OF STAVELOZ ET AL.(ST80) 10 1
AVERAGE CAPTURE WIDTH = 54.4 MV 10 1
FROM AN ANALYSIS OF THE RESOLVED RESONANCE PARAMETERS 10 1
OF STAVELOZ ET AL.(ST80) 10 1
HIGH ENERGY REGION ABOVE 100 KEV 10 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 10 1
OPTICAL MODEL FROM EVALUATION OF AUTHORS 10 1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS (BE72A), 10 1
GOVOR ET AL.(GO75) AND SINGHAL ET AL.(SI73) 10 1
SQUARED SPIN CUT-OFF PARAMETER=5.0 FROM EXP. SPIN DISTRIBUTION 10 1
CHARGED PARTICLE EMISSION CROSS SECTIONS FROM THRES-2, 10 1
RENORMALIZED AT 14.5 MEV(QA78) 10 1

RCN-3 LIBRARY INDEX
TEXT

MAT MF

460110	25	0	0	0	0	11	0
14510	14511	14580	14590	21520	21530	11	0
21540	30010	30011	30020	30040	30050	11	0
30051	30160	31020	30270	31030	31040	11	0
31050	31060	31070	32510	40022	50053	11	0
50163	0	0	0	0	0	11	0
460110	14510	0	1	1	0	11	1
405						11	1

RCN-3 EVALUATION---H.A.J.VAN DER KAMP AND H.GRUPPELAAR---PD110P 31/7/81 11 1
MINIMUM ENERGY .00100 EV 11 1
MIN E^N OF STATISTICAL MODEL 2.83408 KEV 11 1
ENERGY OF FIRST EXCITED STATE .37380 MEV 11 1
CONTINUOUS STAT MODEL ABOVE 1.57390 MEV 11 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 11 1
MAXIMUM ENERGY 15.00000 MEV 11 1
LEVEL DENSITY PARAMETER PD110 20.60000 1/MEV 11 1
LEVEL DENSITY PARAMETER PD109 20.90000 1/MEV 11 1
*****REVISED EVALUATION WITH NEW RESOLVED RESONANCE 11 1
PARAMETERS AND TAKING INTO ACCOUNT THE STEK RESULTS 11 1
RESOLVED ENERGY REGION UPTO 2.9 KEV 11 1
EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA 11 1
RESOLVED RESONANCE PARAMETERS FROM STAVELOZ ET AL. (ST80) 11 1
A 1/V-COMPONENT HAS BEEN ADDED TO OBTAIN A BETTER 11 1
AGREEMENT WITH THE EXPERIMENTAL VALUE OF THE THERMAL 11 1
CAPTURE CROSS SECTION AND THE EXPERIMENTAL VALUE OF THE 11 1
RESONANCE INTEGRAL 11 1
EXPERIMENTAL VALUE THERMAL CAPTURE CROSS SECTION= 11 1
0.227+-0.03 BARN FROM BNL-325(MU80) 11 1
CALCULATED VALUE THERMAL CAPTURE CROSS SECTION= 11 1
0.230 BARN 11 1
EXPERIMENTAL VALUE RESONANCE INTEGRAL =3.1+-0.3 BARN 11 1
FROM BNL-325(MU73) 11 1
CALCULATED VALUE OF RESONANCE INTEGRAL=2.52 BARN 11 1
STRENGTH FUNCTION REGION UPTO 100 KEV 11 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 11 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 11 1
S-WAVE STRENGTH FUNCTION = 0.22 FOLLOWS FROM ANALYSIS 11 1
OF RESOLVED RESONANCE DATA FROM STAVELOZ ET AL.(ST80) 11 1
P-WAVE STRENGTH FUNCTION = 2.5, A GUESSED VALUE 11 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 11 1
DOBS=282 EV, VALUE ADJUSTED TO OBTAIN A BETTER AGREEMENT 11 1
WITH THE STEK RESULTS 11 1
AVERAGE GAMMA WIDTH = 55MV OBTAINED FROM ANALYSIS 11 1
OF RESOLVED RESONANCE DATA FROM STAVELOZ ET AL.(ST80) 11 1
HIGH ENERGY REGION ABOVE 100 KEV 11 1
MOST CROSS SECTIONS WITH CODE SASSI-ECN 11 1
OPTICAL MODEL FROM EVALUATION OF AUTHORS 11 1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCL. DATA SHEETS (BE71) 11 1
AND GOVOR ET AL.(GO75) 11 1
SQUARED SPIN CUT-OFF PARAMETER=5.1 FROM EXPERIMENTAL 11 1
SPIN DISTRIBUTION 11 1
CHARGED PARTICLE EMISSION CROSS SECTIONS FROM THRESH-2, 11 1
RENORMALIZED AT 14.5 MEV(QA78) 11 1

RCN-3 LIBRARY INDEX
TEXT

						MAT	MF
470000	18					12	0
14510	14580	14590	14600	14511	21520	12	0
30010	30020	30270	31020	30040	30050	12	0
30051	30160	31030	31070	32510	40022	12	0
470000	14510	0	1	1	0	12	1
117						12	1
$RCN-2 EVALUATION H.GRUPPELAAR AG000A 24/11/7 $						12	1
MINIMUM ENERGY		0.001 EV				12	1
ENERGY OF FIRST EXCITED STATE		0.0880 MEV				12	1
CONTINUOUS STAT. MODEL ABOVE		0.9729 MEV				12	1
HIGH ENERGY MODEL ABOVE		6.5 MEV				12	1
MAXIMUM ENERGY		15.0 MEV				12	1
******SUMMATION OF ISOTOPIC CONTRIBUTIONS FROM REVISED AND ******						12	1
ADJUSTED RCN-2 EVALUATION						12	1
SEE ISOTOPIC EVALUATIONS FOR AG-107Y AND AG-109Z IN						12	1
RESOLVED RESONANCES ARE GIVEN UP TO 915 EV (126 RESONANCES).						12	1
HOWEVER, FOR THE CALCULATION OF THE POINTWISE CROSS SECTIONS						12	1
RESOLVED RESONANCES HAVE BEEN USED UP TO 976.1 EV (AG-109).						12	1
TARGET LEVELS FOR INELASTIC SCATTERING ARE GIVEN UP TO 0.9497 MEV.						12	1

RCN-3 LIBRARY INDEX
TEXT

						MAT	MF
470107	21					13	0
14510	14511	14580	14590	21520	21530	13	0
21540	30010	30020	30040	30050	30051	13	0
30160	30270	31020	31030	31070	32510	13	0
40022	50053	50163				13	0
470107	14510	0	1	1	0	13	1
261						13	1

$RCN 3 EVALUATION H.GRUPPELAAR AG107Y 20/12/77 $ 13 1
(N,ALPHA) AND (N,P) ADDED REV 61178 13 1
MINIMUM ENERGY .00100 EV 13 1
MIN EN OF STATISTICAL MODEL .92393 KEV 13 1
ENERGY OF FIRST EXCITED STATE 93.10000 KEV 13 1
CONTINUOUS STAT MODEL ABOVE .97290 MEV 13 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 13 1
MAXIMUM ENERGY 15.00000 MEV 13 1
LEVEL DENSITY PARAMETER AG107 16.00000 1/MEV 13 1
LEVEL DENSITY PARAMETER AG106 14.70000 1/MEV 13 1
******ADJUSTED EVALUATION BASED ON CFRMF ACTIVATION DATA****** 13 1
RESOLVED RESONANCE REGION UPTO 915 EV 13 1
EVALUATION WITH SIGMA-RCN AT 0 K, MULTILEVEL FORMULA 13 1
RESOLVED RESONANCES FROM ENDFB-4 (BH73) 13 1
HYPOTHETICAL RESONANCE ADDED AT -5 EV 13 1
STRENGTH FUNCTION REGION UPTO 125 KEV 13 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 13 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 13 1
S-WAVE STRENGTH FUNCTION,S0=0.37, RECOMMENDED BY MUSGROVE (MU73A) 13 1
P-WAVE STRENGTH FUNCTION, S1=3.8, MEASURED FOR NATURAL AG (CA74) 13 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL (MO63A) 13 1
DOBS=18.1 EV (ADJUSTED PARAMETER) 13 1
GAMMA WIDTH=142 MV (ADJUSTED PARAMETER) 13 1
HIGH ENERGY REGION 13 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 13 1
OPTICAL MODEL FROM MOLDAUER (MO63A) 13 1
LEVEL SCHEME OF TARGET NUCLEUS FROM BETA DECAY (PA74) AND 13 1
(P,T) WORK (DE75A), TWO LEVELS POSTULATED AT 0.6 AND 0.85 MEV 13 1
REVISIONS IN MOST XSECT. ABOVE 1.8 MEV TO FIT NATURAL AG DATA 13 1

RCN-3 LIBRARY INDEX
TEXT

MAT MF

470109	21						14	0
14510	14511	14580	14590	21520	21530		14	0
21540	30010	30020	30040	30050	30051		14	0
30160	30270	31020	31030	31070	32510		14	0
40022	50053	50163					14	0
470109	14510	0	1	1	0		14	1
261							14	1
$RCN 3 EVALUATION H.GRUPPELAAR			AG109Z	27/01/78	$		14	1
(N,ALPHA) AND (N,P) ADDED					REV	61178	14	1
MINIMUM ENERGY			.00100	EV			14	1
MIN EN OF STATISTICAL MODEL			.98424	KEV			14	1
ENERGY OF FIRST EXCITED STATE			88.00000	KEV			14	1
CONTINUOUS STAT MODEL ABOVE			.91230	MEV			14	1
HIGH ENERGY MODEL ABOVE			6.50000	MEV			14	1
MAXIMUM ENERGY			15.00000	MEV			14	1
LEVEL DENSITY PARAMETER AG109			17.80000	1/MEV			14	1
LEVEL DENSITY PARAMETER AG108			17.15000	1/MEV			14	1
RESOLVED RESONANCE REGION UPTO 976.1 EV							14	1
******ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA******							14	1
EVALUATION WITH SIGMA-2 AT O K, MULTILEVEL FORMULA							14	1
RESOLVED RESONANCES AS COMPILED BY RIBON ET AL. (RI75), WITH							14	1
A VALUE OF 129 MV FOR THE CAPTURE WIDTH OF RESONANCES FOR							14	1
WHICH THIS QUANTITY IS NOT KNOWN							14	1
STRENGTH FUNCTION REGION UPTO 100 KEV							14	1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN							14	1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN							14	1
S-WAVE STRENGTH FUNCTION, S0=0.64							14	1
P-WAVE STRENGTH FUNCTION, S1=3.95							14	1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL (MO63A)							14	1
DOBS=16.3 EV							14	1
GAMMA WIDTH= 132 MV							14	1
HIGH ENERGY REGION							14	1
ALL CROSS SECTIONS WITH CODE SASSI-RCN							14	1
OPTICAL MODEL FROM MOLDAUER(MO63A)							14	1
LEVEL SCHEME OF TARGET NUCLEUS FROM EL-BEWEDI ET AL.(EL75)							14	1
REVISIONS IN MOST XSECT. ABOVE 1.5 MEV TO FIT NATURAL AG DATA							14	1

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TEXT

						MAT	MF
530127	25	0	0	0	0	15	0
14510	14511	14580	14590	21520	21530	15	0
21540	30010	30011	30020	30040	30050	15	0
30051	30160	30270	31020	31030	31040	15	0
31050	31060	31070	32510	40022	50053	15	0
50163	0	0	0	0	0	15	0
530127	14510	0	1	1	0	15	1
261	0	0	0	0	0	15	1

$RCN 2.3 EVALUATION H.GRUPPELAAR I127Z 26/01/78 $ 15 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 15 1
MINIMUM ENERGY .00100 EV 15 1
MIN EN OF STATISTICAL MODEL 2.02406 KEV 15 1
ENERGY OF FIRST EXCITED STATE 57.60000 KEV 15 1
CONTINUOUS STAT MODEL ABOVE 1.12400 MEV 15 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 15 1
MAXIMUM ENERGY 15.00000 MEV 15 1
LEVEL DENSITY PARAMETER I127 17.40000 1/MEV 15 1
LEVEL DENSITY PARAMETER I126 17.60000 1/MEV 15 1
****ADJUSTED EVALUATION BASED ON STEK END CFRMF INTEGRAL DATA****** 15 1
RESOLVED RESONANCE REGION UPTO 2.02 KEV 15 1
EVALUATION WITH CODE SIGMA-RCN AT 0 K, MULTILEVEL FORMULA 15 1
RESOLVED RESONANCE PARAMETERS FROM ROHR (RO76) 15 1
HYPOTHETICAL NEGATIVE RESONANCE ADDED AT - 5 EV 15 1
STRENGTH FUNCTION REGION UPTO 60 KEV 15 1
CAPTURE CROSS SECTION WITH CODE FISPRO-RCN 15 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 15 1
S-WAVE STRENGTH FUNCTION= 0.87 15 1
P-WAVE STRENGTH FUNCTION=2.20 15 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL. 15 1
DOBS=11.3 EV 15 1
GAMMA WIDTH= 98.6 MV 15 1
HIGH ENERGY REGION 15 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 15 1
(OPTICAL MODEL FROM IG74) 15 1
LEVEL SCHEME DATA FROM NUCLEAR DATA SHEETS (AU72). 15 1
SQUARED TARGET SPIN CUT-OFF FACTOR=8.0 FROM EXPERIMENTAL 15 1
LEVEL SCHEME 15 1

530129	25	0	0	0	0	16	0
14510	14511	14580	14590	21520	21530	16	0
21540	30010	30011	30020	30040	30050	16	0
30051	30160	30270	31020	31030	31040	16	0
31050	31060	31070	32510	40022	50053	16	0
50163	0	0	0	0	0	16	0
530129	14510	0	1	1	0	16	1
261	0	0	0	0	0	16	1

$RCN 2.3 EVALUATION H.GRUPPELAAR I129Z 27/01/78 $ 16 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 16 1
MINIMUM ENERGY .00100 EV 16 1
MIN EN OF STATISTICAL MODEL .16877 KEV 16 1
ENERGY OF FIRST EXCITED STATE 27.80000 KEV 16 1
CONTINUOUS STAT MODEL ABOVE .95000 MEV 16 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 16 1
MAXIMUM ENERGY 15.00000 MEV 16 1
LEVEL DENSITY PARAMETER I129 16.80000 1/MEV 16 1
LEVEL DENSITY PARAMETER I128 17.20000 1/MEV 16 1
*****ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA**** 16 1
RESOLVED ENERGY REGION UPTO 153 EV 16 1
EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA 16 1
RESOLVED RESONANCES FROM BNL-325 (MU73) 16 1
HYPOTHETICAL NEGATIVE RESONANCE ADDED AT -5 EV 16 1
STRENGTH FUNCTION REGION UPTO 60 KEV 16 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 16 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 16 1
S-WAVE STRENGTH FUNCTION S0=0.52 16 1
P-WAVE STRENGTH FUNCTION S1=2.08 16 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 16 1
D0BS=31.5 EV 16 1
GAMMA WIDTH= 104.5 MV 16 1
HIGH ENERGY REGION 16 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 16 1
OPTICAL MODEL FROM IGARASI ET AL.(IG74) 16 1
LEVEL SCHEME OF TARGET NUCLEUS FROM DE RAEDT ET AL. (RA74) 16 1
SQUARED TARGET SPIN CUT-OFF FACTOR=7.9 FROM EXPERIMENTAL 16 1
LEVEL SCHEME 16 1

RCN-3 LIBRARY INDEX
TEXT

MAT MF

550133	25	0	0	0	0	17	0
14510	14511	14580	14590	21520	21530	17	0
21540	30010	30011	30020	30040	30050	17	0
30051	30160	31020	30270	31030	31040	17	0
31050	31060	31070	32510	40022	50053	17	0
50163	0	0	0	0	0	17	0
550133	14510	0	1	1	0	17	1
333	0	0	0	0	0	17	1

RCN-3 EVL. CS 133, VERSION Z BY H.GRUPPELAAR AND H.A.J. VAN DER KAMP 17 1
CONTINUOUS BACKGROUND FUNCTION ADDED NORMAL END REV 190880 17 1
MINIMUM ENERGY .00100 EV 17 1
MIN EN OF STATISTICAL MODEL 3.51102 KEV 17 1
ENERGY OF FIRST EXCITED STATE 81.00000 KEV 17 1
CONTINUOUS STAT MODEL ABOVE .95870 MEV 17 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 17 1
MAXIMUM ENERGY 15.00000 MEV 17 1
LEVEL DENSITY PARAMETER CS133 17.00000 1/MEV 17 1
LEVEL DENSITY PARAMETER CS132 17.30000 1/MEV 17 1
*****ADJUSTED AND REVISED EVALUATION BASED UPON STEK AND CFRMF INTEGRAL 17 1
DATA. 17 1
*****REVISIONS: 17 1
ADDED NEGATIVE RESONANCE , UPDATED PARAMETERS 17 1
OPTICAL MODEL DOWN TO 3.5 KEV (NO STRENGTH FUNCTIONS USED) 17 1
UPDATED LEVEL SCHEME OF TARGET NUCLEUS 17 1
ADDED (N,X) CROSS SECTIONS (X=P,ALPHA,D,T,HE-3) 17 1
ADDED BACKGROUND IN RESOLVED RESONANCE REGION 17 1
RESOLVED RESONANCE REGION UPTO 3.5 KEV 17 1
EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA 17 1
RESOLVED RESONANCE PARAMETERS FROM NEUDADA-1974 17 1
SOME RESONANCE SPINS FROM RIEHS AND THOMAS (RI74A) 17 1
NEGATIVE RESONANCE ADDED AT -8.25 EV 17 1
ADDITIONAL RESONANCES AT 9.5, 59.7 AND 132.6 EV FROM 17 1
ANUVRIEV ET AL. (AN77) 17 1
CONTINUOUS BACKGROUND ADDED TO AGREE WITH STEK INTEGRAL DATA. 17 1
STATISTICAL MODEL RANGE ABOVE 3.5 KEV 17 1
MOST CROSS SECTIONS WITH CODE SASSI-ECN 17 1
OPTICAL MODEL FROM IGARASI ET AL. (IG74) 17 1
DOBS=22 EV FROM ADJUSTMENT, IN AGREEMENT WITH RECENT ANALYSIS 17 1
OF RESOLVED RESONANCE PARAMETERS (DE80). 17 1
GAMMA WIDTH=125 MILLI EV FROM AVERAGE RESOLVED RESONANCE PARAM 17 1
CS-133 LEVEL SCHEME EVALUATED BY HENRY(HE74) 17 1
WITH RECENT UPDATINGS. 17 1
(N,X) CROSS SECTIONS CALCULATED WITH THRES-2, WITH 17 1
RENORMALIZATIONS TO RECENT 14.5 MEV VALUES FROM EXPERIMENTS 17 1
AND/OR SYSTEMATICS. 17 1

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TEXT

570139	25	0	0	0	0	18	0
14510	14511	14580	14590	21520	21530	18	0
21540	30010	30011	30020	30040	30050	18	0
30051	30160	31020	30270	31030	31040	18	0
31050	31060	31070	32510	40022	50053	18	0
50163	0	0	0	0	0	18	0
570139	14510	0	1	1	0	18	1
279						18	1

RCN-3 EVL. FOR LA-139, VERSION Y, H.A.J. VAN DER KAMP AND H.GRUPPELAAR			18	1
MINIMUM ENERGY	.00100	EV	18	1
MIN EN OF STATISTICAL MODEL	10.51640	KEV	18	1
ENERGY OF FIRST EXCITED STATE	.16600	MEV	18	1
CONTINUOUS STAT MODEL ABOVE	1.96300	MEV	18	1
HIGH ENERGY MODEL ABOVE	6.50000	MEV	18	1
MAXIMUM ENERGY	15.00000	MEV	18	1
LEVEL DENSITY PARAMETER LA139	13.10000	1/MEV	18	1
LEVEL DENSITY PARAMETER LA138	14.50000	1/MEV	18	1
*****ADJUSTED EVALUATION BASED UPON CFRMF INTEGRAL DATA , 7-10-80			18	1
REVISIONS: SIGTOT,SIGEL UPTO 250 KEV, (N,X) CROSS SECTIONS ADDED.			18	1
RESOLVED RESONANCE REGION UPTO 10.4 KEV			18	1
EVALUATION WITH SIGMA-ECN AT 0 K,MULTILEVEL FORMULA			18	1
RESOLVED RESONANCE PARAMETERS FROM NEUDADA-1974			18	1
HYPOTHETICAL RESONANCE ADDED AT -14.67 EV			18	1
STRENGTH FUNCTION REGION UPTO 250 KEV			18	1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN			18	1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN			18	1
S-WAVE AND P-WAVE STRENGTH FUNCTION EVALUATED BY			18	1
DELFINI AND GRUPPELAAR(DE80)			18	1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL			18	1
DORS=289 EV,ADJUSTED VALUE			18	1
GAMMA WIDTH= 46 MILLI EV,ADJUSTED VALUE			18	1
TOTAL AND ELASTIC SCATTERING XSECTS. FITTED TO EXP. DATA.			18	1
OPTICAL MODEL REGION			18	1
ALL CROSS SECTIONS WITH CODE SASSI-RCN			18	1
OPTICAL MODEL FROM IGARASI ET AL.(IG74)			18	1
LA-139 LEVEL SCHEME FROM RIBON ET AL.(RI75)			18	1
STATISTICAL DESCRIPTION OF TARGET LEVEL SCHEME ABOVE 1.963 MEV			18	1
SQUARED TARGET SPIN CUT OFF FACTOR =8.2 FROM EXPERIMENTAL DISTR.			18	1
(N,X) ADDED FROM THRES-2 CALC., RENORMALISED TO EXP. 14.5 MEV DATA			18	1

590141	25	0	0	0	0	19	0
14510	14511	14580	14590	21520	21530	19	0
21540	30010	30011	30020	30040	30050	19	0
30051	30160	31020	30270	31030	31040	19	0
31050	31060	31070	32510	40022	50053	19	0
50163	0	0	0	0	0	19	0
590141	14510	0	1	1	0	19	1
261						19	1

RCN-3 EVL. FOR PR-141,VERSION S, H.GRUPPELAAR AND H.A.J.VAN DER KAMP			19 1
MINIMUM ENERGY	.00100	EV	19 1
MIN EN OF STATISTICAL MODEL	5.77274	KEV	19 1
ENERGY OF FIRST EXCITED STATE	.14550	MEV	19 1
CONTINUOUS STAT MODEL ABOVE	1.85600	MEV	19 1
HIGH ENERGY MODEL ABOVE	6.50000	MEV	19 1
MAXIMUM ENERGY	15.00000	MEV	19 1
LEVEL DENSITY PARAMETER PR141	13.50000	1/MEV	19 1
LEVEL DENSITY PARAMETER PR140	14.80000	1/MEV	19 1
******ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA 2/10/80			19 1
REVISIONS: SIGTOT,SIGEL UPTO 300 KEV, (N,X) XSECTS. ADDED			19 1
RESOLVED RESONANCE REGION UPTO 5.7 KEV			19 1
MULTI-LEVEL B.W. FORMULA WITH PARAMETERS MAINLY FROM NEUDADA-1974			19 1
HYPOTHETICAL RESONANCE ADDED AT -14.68 EV			19 1
STRENGTH FUNCTION REGION UPTO 300 KEV			19 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN			19 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN			19 1
S0=1.00(VALUE ADOPTED TO FIT TOTAL CROSS SECTIONS			19 1
BELOW 300 KEV).			19 1
S1=1.0 (ADJUSTED VALUE).			19 1
GAMMAWIDTH=84.87 EV, ADJUSTED VALUE			19 1
ADOPTED DOBS=121.6, ADJUSTED VALUE			19 1
TOTAL AND ELASTIC SCATTERING XSECTS. FITTED TO EXPERIMENTAL DATA.			19 1
HIGH ENERGY REGION			19 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN			19 1
OPTICAL MODEL FROM IGARASI ET AL.(IG74)			19 1
LEVEL SCHEME OF TARGET NUCLEUS EVALUATED BY RIBON ET AL.(RI75)			19 1
SQUARED TARGET SPIN CUT-OFF FACTOR=7.0 FROM EXPERIMENTAL DISTR.			19 1
(N,X) XSECTS. FROM THRES-2 CALC., RENORMALISED TO EXP. 14.5 MEV			19 1

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TEXT

MAT MF

```
     600000          21           0           0           0           0 20   0
      14510       14580       14590       14600       14511       21520 20   0
      30010       30020       30270       31020       30040       30050 20   0
      30051       30160       31030       31040       31050       31060 20   0
      31070       32510       40022           0           0           0 20   0
     600000       14510           0           1           1           0 20   1
        180                                                              20   1
$RCN-3  EVALUATION H.GRUPPELAAR          ND000A 180979  $                20   1
MINIMUM ENERGY                 0.001 EV                                  20   1
ENERGY OF FIRST EXCITED STATE  0.0672 MEV                                20   1
CONTINUOUS STAT. MODEL ABOVE   1.020 MEV                                 20   1
HIGH ENERGY MODEL ABOVE        6.5 MEV                                   20   1
MAXIMUM ENERGY                 15.0 MEV                                  20   1
******SUMMATION OF ISOTOPIC CONTRIBUTIONS FROM RCN-3 EVALUATION******     20   1
      SEE ISOTOPIC EVALUATIONS FOR ND-ISOTOPES WITH ADJUSTED CAPTURE      20   1
      CROSS SECTIONS.                                                    20   1
      RESOLVED RESONANCES ARE GIVEN UP TO 2.16 KEV (231 RESONANCES).     20   1
      HOWEVER, FOR THE CALCULATION OF POINT-WISE CROSS SECTIONS RESOLVED  20   1
      RESONANCES HAVE BEEN USED UP TO MAXIMUM ENERGIES OF 21.955, 4.022,  20   1
      11.66, 2.157, 9.813, 7.668 AND 9.175 KEV, FOR ND-142,143,144,145,  20   1
      146,148 AND 150, RESPECTIVELY. THESE CROSS SECTIONS HAVE BEEN       20   1
      SMOOTHED FROM 1 TO 30 KEV IN ORDER TO REDUCE THE NUMBER OF POINTS   20   1
      TARGET LEVELS FOR INELASTIC SCATTERING ARE GIVEN UP TO 0.9992 MEV.  20   1
      HOWEVER, FOR THE CALCULATION OF THE TOTAL INELASTIC SCATTERING      20   1
      CROSS SECTION THE MAXIMUM ENERGIES OF THE TARGET LEVELS ARE 3.151,  20   1
      1.9108, 2.2951, 1.1612,1.8372, 1.241 AND 1.076 MEV, FOR ND-142,     20   1
      143,144,145,146,148 AND 150, RESPECTIVELY.                         20   1
```

600142	25	0	0	0	0	21	0
14510	14511	14580	14590	21520	21530	21	0
21540	30010	30011	30020	30040	30050	21	0
30051	30160	30270	31020	31030	31040	21	0
31050	31060	31070	32510	40022	50053	21	0
50163	0	0	0	0	0	21	0
600142	14510	0	1	1	0	21	1
324	0	0	0	0	0	21	1

$RCN 2.3 EVALUATION H.GRUPPELAAR ND142X 24/07/78 $ 21 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 170979 21 1
MINIMUM ENERGY .00100 EV 21 1
MIN EN OF STATISTICAL MODEL 22.37990 KEV 21 1
ENERGY OF FIRST EXCITED STATE 1.57600 MEV 21 1
CONTINUOUS STAT MODEL ABOVE 3.15100 MEV 21 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 21 1
MAXIMUM ENERGY 15.00000 MEV 21 1
LEVEL DENSITY PARAMETER ND142 16.40000 1/MEV 21 1
LEVEL DENSITY PARAMETER ND141 18.00000 1/MEV 21 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 21 1
*****OTHER DIFFERENCES: S0 ACCORDING TO MU77, ONLY S-WAVE 21 1
*****CAPTURE WIDTH DIFFERENT. 21 1
RESOLVED ENERGY REGION UPTO 22 KEV 21 1
EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA. 21 1
RESOLVED RESONANCES FROM MUSGROVE ET AL. (MU77),SUPPLEMENTED 21 1
WITH LOW-ENERGY RESONANCES GIVEN IN BNL-325(MU73) 21 1
L=0 ASSIGNMENTS FROM MU77 AND THE EVALUATOR. 21 1
SOME NEUTRON WIDTHS ARE DIFFERENT FROM THOSE GIVEN IN MU77, 21 1
THEY HAVE BEEN RECALCULATED FROM CAPTURE KERNEL AND 21 1
ADOPTED VALUES FOR J AND CAPTURE WIDTH. 21 1
A NEGATIVE RESONANCE HAS BEEN ASSUMED TO FIT THE CAPTURE 21 1
CROSS SECTION AT 0.0253 EV (MU73). 21 1
STRENGTH FUNCTION REGION UPTO 50 KEV 21 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 21 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 21 1
S-WAVE STRENGTH FUNCTION FROM MUSGROVE ET AL.(MU77), S0=1.35 21 1
P-WAVE STRENGTH FUNCTION, S1=1.0 (MU77) 21 1
S-WAVE GAMMA WIDTH = 60 MV 21 1
P-WAVE AND HIGHER WAVE GAMMA WIDTHS= 43 MV 21 1
DOBS=850 EV 21 1
HIGH ENERGY REGION 21 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 21 1
OPTICAL MODEL FROM IGARASI ET AL.(IG75) 21 1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS (LE73) 21 1
AND FROM DE GEER ET AL. (DE75B) 21 1

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TEXT

MAT MF

600143	25	0	0	0	0	22	0
14510	14511	14580	14590	21520	21530	22	0
21540	30010	30011	30020	30040	30050	22	0
30051	30160	30270	31020	31030	31040	22	0
31050	31060	31070	32510	40022	50053	22	0
50163	0	0	0	0	0	22	0
600143	14510	0	1	1	0	22	1
315	0	0	0	0	0	22	1

$RCN 2.3 EVALUATION H.GRUPPELAAR ND143X 24/07/78 $ 22 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 170979 22 1
MINIMUM ENERGY .00100 EV 22 1
MIN EN OF STATISTICAL MODEL 4.04061 KEV 22 1
ENERGY OF FIRST EXCITED STATE .74210 MEV 22 1
CONTINUOUS STAT MODEL ABOVE 1.91080 MEV 22 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 22 1
MAXIMUM ENERGY 15.00000 MEV 22 1
LEVEL DENSITY PARAMETER ND143 17.80000 1/MEV 22 1
LEVEL DENSITY PARAMETER ND142 16.40000 1/MEV 22 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 22 1
*****OTHER DIFFERENCE: S0 ACCORDING TO MUSGROVE ET AL.(MU77). 22 1
RESOLVED ENERGY REGION UPTO 4 KEV 22 1
EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA 22 1
RESOLVED RESONANCES EVALUATED BY RIBON ET AL.(RI75), 22 1
SUPPLEMENTED WITH RESONANCES OF MUSGROVE ET AL.(MU77) 22 1
ABOVE 2.5 KEV. 22 1
L=1 ASSIGNMENTS MAINLY FROM MUSGROVE ET AL.(MU77) 22 1
FOR RESONANCES WITH UNKNOWN CAPTURE WIDTH THE VALUE 86 MV (MU77) 22 1
HAS BEEN ASSUMED. 22 1
NEGATIVE RESONANCE PARAMETERS HAVE BEEN FITTED TO THE THERMAL 22 1
CAPTURE (MU73) AND SCATTERING (VE73) CROSS SECTIONS AT 0.0253 EV. 22 1
STRENGTH FUNCTION REGION UPTO 50 KEV 22 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 22 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 22 1
S-WAVE STRENGTH FUNCTION, S0=3.1 (MU77) 22 1
P-WAVE STRENGTH FUNCTION, S1= 1.1 22 1
S-WAVE CAPTURE WIDTH = 81 MV 22 1
P-WAVE CAPTURE WIDTH = 80 MV 22 1
DOBS= 37 EV 22 1
HIGH ENERGY REGION 22 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 22 1
OPTICAL MODEL FROM IGARASI ET AL. (IG75) 22 1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS (LE74A) 22 1
AND FROM MORE RECENT WORK (MI76,VE75,CL77). 22 1

						MAT	MF
600144	25	0	0	0	0	23	0
14510	14511	14580	14590	21520	21530	23	0
21540	30010	30011	30020	30040	30050	23	0
30051	30160	30270	31020	31030	31040	23	0
31050	31060	31070	32510	40022	50053	23	0
50163	0	0	0	0	0	23	0
600144	14510	0	1	1	0	23	1
315	0	0	0	0	0	23	1

$RCN 2.3 EVALUATION H.GRUPPELAAR ND144X 24/07/78 $ 23 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 170979 23 1
MINIMUM ENERGY .00100 EV 23 1
MIN EN OF STATISTICAL MODEL 11.89890 KEV 23 1
ENERGY OF FIRST EXCITED STATE .69650 MEV 23 1
CONTINUOUS STAT MODEL ABOVE 2.29510 MEV 23 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 23 1
MAXIMUM ENERGY 15.00000 MEV 23 1
LEVEL DENSITY PARAMETER ND144 17.60000 1/MEV 23 1
LEVEL DENSITY PARAMETER ND143 18.80000 1/MEV 23 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 23 1
*****OTHER DIFFERENCE: S0 ACCORDING TO MUSGROVE ET AL. (MU77) 23 1
RESOLVED ENERGY REGION UPTO 12 KEV 23 1
EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA. 23 1
RESOLVED RESONANCES FROM MUSGROVE ET AL.(MU77), SUPPLEMENTED 23 1
WITH LOW-ENERGY RESONANCES AS GIVEN IN BNL-325 (MU73). 23 1
L=0 ASSIGNMENTS FROM MU77 AND THE EVALUATOR 23 1
SOME NEUTRON WIDTHS ARE DIFFERENT FROM THOSE IN MU77, 23 1
THEY HAVE BEEN RECALCULATED FROM CAPTURE KERNEL AND 23 1
ADOPTED VALUES FOR J AND CAPTURE WIDTH. 23 1
A NEGATIVE RESONANCE HAS BEEN ASSUMED TO FIT THE CAPTURE 23 1
CROSS SECTION AT 0.0253 EV (MU73). 23 1
STRENGTH FUNCTION REGION UPTO 50 KEV 23 1
CAPTURE CROSS SECTIONS WITH CODE SASSI-ECN 23 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 23 1
S-WAVE STRENGTH FUNCTION, S0=3.9 (MU77) 23 1
P-WAVE STRENGTH FUNCTION, S1=0.9 23 1
S-WAVE GAMMA WIDTH = 47 MV 23 1
P-WAVE GAMMA WIDTH = 41 MV 23 1
DOBS= 477 EV 23 1
HIGH ENERGY REGION 23 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 23 1
OPTICAL MODEL FROM IGARASI ET AL.(IG75) 23 1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS (BU75), 23 1
VAN DER BAAN (VA70), DE GEER ET AL.(DE76) AND BERZIN ET AL.(BE76). 23 1

600145	25	0	0	0	0	24	0
14510	14511	14580	14590	21520	21530	24	0
21540	30010	30011	30020	30040	30050	24	0
30051	30160	30270	31020	31030	31040	24	0
31050	31060	31070	32510	40022	50053	24	0
50163	0	0	0	0	0	24	0
600145	14510	0	1	1	0	24	1
297	0	0	0	0	0	24	1

$RCN 2.3 EVALUATION H.GRUPPELAAR ND145X 24/07/78 $ 24 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 170979 24 1
MINIMUM ENERGY .00100 EV 24 1
MIN EN OF STATISTICAL MODEL 2.16646 KEV 24 1
ENERGY OF FIRST EXCITED STATE 67.20000 KEV 24 1
CONTINUOUS STAT MODEL ABOVE 1.16120 MEV 24 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 24 1
MAXIMUM ENERGY 15.00000 MEV 24 1
LEVEL DENSITY PARAMETER ND145 20.42000 1/MEV 24 1
LEVEL DENSITY PARAMETER ND144 17.60000 1/MEV 24 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 24 1
*****OTHER DIFFERENCE: S0 ACCORDING TO MUSGROVE ET AL. (MU77) 24 1
RESOLVED ENERGY REGION UPTO 2.16 KEV 24 1
EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA 24 1
RESOLVED RESONANCES EVALUATED BY RIBON ET AL.(RI75) 24 1
ALL RESONANCES HAVE BEEN ASSIGNED L=0 24 1
FOR RESONANCES WITH UNKNOWN CAPTURE WIDTH THE VALUE 86 MV (MU77) 24 1
HAS BEEN INSERTED. 24 1
NEGATIVE RESONANCE PARAMETERS HAVE BEEN FITTED TO FIT THE 24 1
CAPTURE (MU73) AND SCATTERING (VE73) CROSS SECTIONS AT 0.0253 EV. 24 1
STRENGTH FUNCTION REGION UPTO 50 KEV 24 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 24 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 24 1
S-WAVE STRENGTH FUNCTION, S0=5.2 (MU77) 24 1
P-WAVE STRENGTH FUNCTIOM, S1=0.98 24 1
S-WAVE CAPTURE WIDTH= 89 MV 24 1
P-WAVE CAPTURE WIDTH= 88 MV 24 1
DOBS= 18.6 EV 24 1
HIGH ENERGY REGION 24 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 24 1
OPTICAL MODEL FROM IGARASI ET AL. (IG75) 24 1
LEVEL SCHEME OF TARGET NUCLEUS FROM HILLIS ET AL.(HI75) 24 1
AND FROM GALES ET AL.(GA73) 24 1

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						MAT	MF
600146	25	0	0	0	0	25	0
14510	14511	14580	14590	21520	21530	25	0
21540	30010	30011	30020	30040	30050	25	0
30051	30160	30270	31020	31030	31040	25	0
31050	31060	31070	32510	40022	50053	25	0
50163	0	0	0	0	0	25	0
600146	14510	0	1	1	0	25	1
315	0	0	0	0	0	25	1

$RCN 2.3 EVALUATION H.GRUPPELAAR ND146Z 24/07/78 $ 25 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 170979 25 1
MINIMUM ENERGY .00100 EV 25 1
MIN EN OF STATISTICAL MODEL 9.95189 KEV 25 1
ENERGY OF FIRST EXCITED STATE .45370 MEV 25 1
CONTINUOUS STAT MODEL ABOVE 1.83720 MEV 25 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 25 1
MAXIMUM ENERGY 15.00000 MEV 25 1
LEVEL DENSITY PARAMETER ND146 20.25000 1/MEV 25 1
LEVEL DENSITY PARAMETER ND145 20.42000 1/MEV 25 1
*****ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA**** 25 1
*****OTHER DIFFERENCE: S0 ACCORDING TO MUSGROVE ET AL. (MU77) 25 1
RESOLVED ENERGY REGION UPTO 10 KEV 25 1
EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA 25 1
RESOLVED RESONANCES FROM MUSGROVE ET AL.(MU77),SUPPLEMENTED 25 1
WITH LOW-ENERGY RESONANCES AS GIVEN IN BNL-325 (MU73). 25 1
L=0 ASSIGNMENTS FROM MU77 AND THE EVALUATOR 25 1
THE NEUTRON WIDTHS ARE SLIGHTLY DIFFERENT FROM THOSE OF MUSGROVE, 25 1
THEY HAVE BEEN RECALCULATED FROM THE MEASURED CAPTURE KERNEL 25 1
AND THE ADOPTED VALUES OF J AND THE CAPTURE WIDTH. 25 1
A NEGATIVE RESONANCE HAS BEEN ASSUMED TO FIT THE CAPTURE 25 1
CROSS SECTION AT 0.0253 EV (MU73). 25 1
STRENGTH FUNCTION REGION UPTO 50 KEV 25 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 25 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 25 1
S-WAVE STRENGTH FUNCTION, S0=3.7 (MU77) 25 1
P-WAVE STRENGTH FUNCTION, S1=0.95 25 1
S-WAVE CAPTURE WIDTH = 51 MV 25 1
P-WAVE CAPTURE WIDTH = 40 MV 25 1
DOBS=278 EV 25 1
HIGH ENERGY REGION 25 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 25 1
OPTICAL MODEL FROM IGARASI ET AL.(IG75) 25 1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS (BU75A) 25 1
AND FROM BUSHNELL ET AL.(BU76). 25 1

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TEXT

						MAT	MF
600147	25	0	0	0	0	26	0
14510	14511	14580	14590	21520	21530	26	0
21540	30010	30011	30020	30040	30050	26	0
30051	30160	30270	31020	31030	31040	26	0
31050	31060	31070	32510	40022	50053	26	0
50163	0	0	0	0	0	26	0
600147	14510	0	1	1	0	26	1
252	0	0	0	0	0	26	1

$RCN 2.3 EVALUATION H.GRUPPELAAR ND147Z 25/07/78 $ 26 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 170979 26 1
MINIMUM ENERGY .00100 EV 26 1
MIN EN OF STATISTICAL MODEL 7.00000 EV 26 1
ENERGY OF FIRST EXCITED STATE 49.90000 KEV 26 1
CONTINUOUS STAT MODEL ABOVE .46360 MEV 26 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 26 1
MAXIMUM ENERGY 15.00000 MEV 26 1
LEVEL DENSITY PARAMETER ND147 23.91000 1/MEV 26 1
LEVEL DENSITY PARAMETER ND146 20.25000 1/MEV 26 1
*****EVALUATION PARTLY BASED ON ADJUSTED PARAMETER SYSTEMATICS**** 26 1
RESOLVED ENERGY REGION UPTO 5 EV 26 1
EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA 26 1
NO EXPERIMENTAL RESONANCE PARAMETERS KNOWN 26 1
ONE HYPOTHETICAL RESONANCE ASSUMED AT 2.15 EV 26 1
CAPTURE CROSS SECTION AT 0.0253 EV IN AGREEMENT WITH THERMAL VALUE 26 1
OF HECK ET AL.(HE74B), 497 BARNS (UNCERTAINTY 170 B). 26 1
STRENGTH FUNCTION REGION UPTO 50 KEV 26 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 26 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 26 1
S-WAVE STRENGTH FUNCTION, S0=3.2 26 1
P-WAVE STRENGTH FUNCTION, S1=0.78 26 1
CAPTURE WIDTH= 87 MV 26 1
DOBS= 8.6 EV 26 1
HIGH ENERGY REGION 26 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 26 1
OPTICAL MODEL FROM IGARASI ET AL.(IG75) 26 1
LEVEL SCHEME OF TARGET NUCLEUS FROM ROUSSILLE ET AL.(RO75) 26 1

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     600148         25          0          0          0          0 27   0
      14510      14511      14580      14590      21520      21530 27   0
      21540      30010      30011      30020      30040      30050 27   0
      30051      30160      30270      31020      31030      31040 27   0
      31050      31060      31070      32510      40022      50053 27   0
      50163          0          0          0          0          0 27   0
     600148      14510          0          1          1          0 27   1
        297          0          0          0          0          0 27   1
$RCN 2.3 EVALUATION H.GRUPPELAAR       ND148Z     25/07/78  $              27   1
 N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 170979 27   1
 MINIMUM ENERGY                          .00100    EV                     27   1
 MIN EN OF STATISTICAL MODEL            7.75309   KEV                     27   1
 ENERGY OF FIRST EXCITED STATE           .30170   MEV                     27   1
 CONTINUOUS STAT MODEL ABOVE            1.24100   MEV                     27   1
 HIGH ENERGY MODEL ABOVE                6.50000   MEV                     27   1
 MAXIMUM ENERGY                        15.00000   MEV                     27   1
 LEVEL DENSITY PARAMETER  ND148        23.60000 1/MEV                     27   1
 LEVEL DENSITY PARAMETER  ND147        23.91000 1/MEV                     27   1
 *****ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA****       27   1
 RESOLVED ENERGY REGION UPTO 7.7 KEV                                     27   1
      EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA                 27   1
      RESOLVED RESONANCES FROM MUSGROVE ET AL.(MU77), SUPPLEMENTED       27   1
      WITH LOW-ENERGY RESONANCES AS GIVEN IN BNL-325 (MU73).             27   1
      L=0 ASSIGNMENTS FROM MU77 AND THE EVALUATOR                        27   1
      THE NEUTRON WIDTHS ARE SLIGHTLY DIFFERENT FROM THOSE OF MUSGROVE,  27   1
      THEY HAVE BEEN RECALCULATED FROM THE MEASURED CAPTURE KERNEL       27   1
      AND THE ADOPTED VALUES OF J AND THE CAPTURE WIDTH.                 27   1
      SMALL 1/V-COMPONENT ADDED TO CAPTURE CROSS SECTION, TO CORRECT     27   1
      FOR DIFFERENCE BETWEEN CALCULATED AND MEASURED THERMAL VALUE.      27   1
 STRENGTH FUNCTION REGION UP TO 50 KEV                                   27   1
      CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN                        27   1
      OTHER CROSS SECTIONS WITH CODE SASSI-ECN                           27   1
      S-WAVE STRENGTH FUNCTION, S0= 2.7                                  27   1
      P-WAVE STRENGTH FUNCTION, S1= 0.58                                 27   1
      S-WAVE CAPTURE WIDTH= 46 MV                                        27   1
      P-WAVE CAPTURE WIDTH= 40 MV                                        27   1
      D0BS=171 EV                                                        27   1
 HIGH ENERGY REGION                                                      27   1
      ALL CROSS SECTIONS WITH CODE SASSI-ECN                             27   1
      OPTICAL MODEL FROM IGARASI ET AL. (IG75)                           27   1
      LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS (HA77)     27   1
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     600150          25           0           0           0           0 28   0
      14510       14511       14580       14590       21520       21530 28   0
      21540       30010       30011       30020       30040       30050 28   0
      30051       30160       30270       31020       31030       31040 28   0
      31050       31060       31070       32510       40022       50053 28   0
      50163           0           0           0           0           0 28   0
     600150       14510           0           1           1           0 28   1
        261           0           0           0           0           0 28   1
$RCN 2.3 EVALUATION H.GRUPPELAAR       ND150Z     25/07/78  $              28   1
 N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 170979 28   1
 MINIMUM ENERGY                          .00100    EV                     28   1
 MIN EN OF STATISTICAL MODEL           10.08910    KEV                    28   1
 ENERGY OF FIRST EXCITED STATE           .13010    MEV                    28   1
 CONTINUOUS STAT MODEL ABOVE            1.07600    MEV                    28   1
 HIGH ENERGY MODEL ABOVE                6.50000    MEV                    28   1
 MAXIMUM ENERGY                        15.00000    MEV                    28   1
 LEVEL DENSITY PARAMETER  ND150        24.10000 1/MEV                     28   1
 LEVEL DENSITY PARAMETER  ND149        26.75000 1/MEV                     28   1
 *****ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA****      28   1
 RESOLVED ENERGY REGION UPTO 10 KEV                                     28   1
      EVALUATION WITH SIGMA-2 AT 0 K, MULTILEVEL FORMULA                28   1
      RESOLVED RESONANCES FROM BNL-325 (MU73)                           28   1
      L=0 ASSIGNMENTS FROM EVALUATOR                                    28   1
      A NEGATIVE RESONANCE HAS BEEN ASSUMED TO FIT THE CAPTURE          28   1
      CROSS SECTION AT 0.0253 EV (MU73).                                28   1
 STRENGTH FUNCTION REGION UPTO 50 KEV                                   28   1
      CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN                       28   1
      OTHER CROSS SECTIONS WITH CODE SASSI-ECN                          28   1
      S-WAVE STRENGTH FUNCTION, S0=2.6                                  28   1
      P-WAVE STRENGTH FUNCTION, S1=0.81                                 28   1
      AVERAGE GAMMA WIDTH= 68 MV                                        28   1
      DOBS=158 EV                                                       28   1
 HIGH ENERGY REGION                                                     28   1
      ALL CROSS SECTIONS WITH CODE SASSI-ECN                            28   1
      OPTICAL MODEL FROM IGARASI ET AL.(IG75)                           28   1
      LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS (BA76)    28   1
      AND FROM VAN DER BAAN (VA70).                                     28   1
```

RCN-3 LIBRARY INDEX
TEXT

						MAT	MF
610147	25	0	0	0	0	29	0
14510	14511	14580	14590	21520	21530	29	0
21540	30010	30011	30020	30040	30050	29	0
30051	30160	31020	30270	31030	31040	29	0
31050	31060	31070	32510	40022	50053	29	0
50163	0	0	0	0	0	29	0
610147	14510	0	1	1	0	29	1
261	0	0	0	0	0	29	1

$RCN 2.3 EVALUATION H.GRUPPELAAR PM147Z 19/03/79 $ 29 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 29 1
MINIMUM ENERGY .00100 EV 29 1
MIN EN OF STATISTICAL MODEL .31827 KEV 29 1
ENERGY OF FIRST EXCITED STATE 91.10000 KEV 29 1
CONTINUOUS STAT MODEL ABOVE .73070 MEV 29 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 29 1
MAXIMUM ENERGY 15.00000 MEV 29 1
LEVEL DENSITY PARAMETER PM147 20.20000 1/MEV 29 1
LEVEL DENSITY PARAMETER PM146 18.60000 1/MEV 29 1
*****ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA**** 29 1
RESOLVED ENERGY REGION UPTO 319 EV 29 1
EVALUATION WITH SIGMA-ECN AT 0 K, MULTILEVEL FORMULA 29 1
RESOLVED RESONANCES FROM BNL-325 (MU73) 29 1
L=0 HAS BEEN ASSUMED FOR ALL RESONANCES 29 1
A NEGATIVE RESONANCE HAS BEEN ASSUMED AT -1.8 EV TO FIT 29 1
THE VALUE OF THE CAPTURE CROSS SECTION AT 0.0253 EV, 29 1
181 B FROM BNL-325 (MU73). 29 1
STRENGTH FUNCTION REGION UPTO 50 KEV 29 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-ECN 29 1
OTHER CROSS SECTIONS WITH CODE SASSI-ECN 29 1
S-WAVE STRENGTH FUNCTION, S0=3.2 29 1
P-WAVE STRENGTH FUNCTION, S1=0.61 29 1
CAPTURE WIDTH= 72 MV 29 1
DOBS=3.6 EV 29 1
HIGH ENERGY REGION 29 1
ALL CROSS SECTIONS WITH CODE SASSI-ECN 29 1
OPTICAL MODEL FROM IGARASI ET AL. (IG75) 29 1
LEVEL SCHEME OF TARGET NUCLEUS FROM KORTELAHTI ET AL. (KO77) 29 1

RCN-3 LIBRARY INDEX
TEXT

MAT MF

```
     620000          21           0           0           0           0 30   0
      14510       14580       14590       14600       14511       21520 30   0
      30010       30020       30270       31020       30040       30050 30   0
      30051       30160       31030       31040       31050       31060 30   0
      31070       32510       40022           0           0           0 30   0
     620000       14510           0           1           1           0 30   1
        207                                                              30   1
$RCN-3  EVALUATION H.GRUPPELAAR         SM000A 210979  $                 30   1
MINIMUM ENERGY                  0.001 EV                                 30   1
ENERGY OF FIRST EXCITED STATE   0.0225 MEV                               30   1
CONTINUOUS STAT. MODEL ABOVE    0.7155 MEV                               30   1
HIGH ENERGY MODEL ABOVE         6.5 MEV                                  30   1
MAXIMUM ENERGY                  15.0 MEV                                 30   1
******SUMMATION OF ISOTOPIC CONTRIBUTIONS FROM RCN-3 EVALUATION******    30   1
      SEE ISOTOPIC EVALUATIONS FOR SM-ISOTOPES WITH ADJUSTED CAPTURE     30   1
      CROSS SECTIONS. NO DATA FOR SM-144 WERE AVAILABLE. INSTEAD THE     30   1
      ABUNDANCE OF SM-148 HAS BEEN INCREASED BY 0.031.                   30   1
      RESOLVED RESONANCES ARE GIVEN UP TO 150 EV (97 RESONANCES).        30   1
      HOWEVER, FOR THE CALCULATION OF POINT-WISE CROSS SECTIONS RESOLVED  30   1
      RESONANCES HAVE BEEN USED UP TO MAXIMUM ENERGIES OF 0.6, 0.1495,   30   1
      0.832, 2.9855 AND 3.0468 KEV FOR SM-147, -149, -150, -152 AND -154 30   1
      RESPECTIVELY. NOTE THAT FOR SM-148 ONLY ONE RESONANCE IS GIVEN,    30   1
      WHICH HAS BEEN ASSUMED TO FIT THE CAPTURE CROSS SECTION AT 2200    30   1
      M/S AND THE RESONANCE INTEGRAL.                                    30   1
      TARGET LEVELS FOR INELASTIC SCATTERING ARE GIVEN UP TO 0.71 MEV.   30   1
      HOWEVER, FOR THE CALCULATION OF THE TOTAL INELASTIC SCATTERING      30   1
      CROSS SECTION THE MAXIMUM ENERGIES OF THE TARGET LEVELS ARE 1.166,  30   1
      1.972,0.71,1.449,1.293,1.182 FOR SM-147,-148,-149,-150,-152,-154   30   1
      CROSS SECTIONS HAVE BEEN SMOOTHED FROM 1 TO 32 KEV, IN ORDER TO    30   1
      REDUCE THE NUMBER OF POINTS.                                       30   1
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RCN-3 LIBRARY INDEX

TEXT

						MAT	MF
620147	25	0	0	0	0	31	0
14510	14511	14580	14590	21520	21530	31	0
21540	30010	30011	30020	30040	30050	31	0
30051	30160	30270	31020	31030	31040	31	0
31050	31060	31070	32510	40022	50053	31	0
50163	0	0	0	0	0	31	0
620147	14510	0	1	1	0	31	1
261	0	0	0	0	0	31	1

$RCN 2.3 EVALUATION H.GRUPPELAAR SM147X 28/06/77 $ 31 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 31 1
MINIMUM ENERGY .00100 EV 31 1
MIN EN OF STATISTICAL MODEL .40171 KEV 31 1
ENERGY OF FIRST EXCITED STATE .12300 MEV 31 1
CONTINUOUS STAT MODEL ABOVE 1.18000 MEV 31 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 31 1
MAXIMUM ENERGY 15.00000 MEV 31 1
LEVEL DENSITY PARAMETER SM147 21.00000 1/MEV 31 1
LEVEL DENSITY PARAMETER SM146 17.50000 1/MEV 31 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 31 1
RESOLVED ENERY REGION UPTO 402 EV 31 1
EVALUATION WITH SIGMA-RCN AT 0 K,MULTILEVEL FORMULA 31 1
RESOLVED RESONANCES FROM BNL-325 (MU73) 31 1
HYPOTHETICAL RESONANCE ADDED AT -3.0 EV 31 1
ALPHA WIDTHS FROM BNL-325(MU73) ,NOT USED FOR (N,ALPHA) 31 1
STRENGTH FUNCTION REGION UPTO 70 KEV 31 1
CAPTURE CROSS SECTION WITH CODE FISPRO-RCN 31 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 31 1
S-WAVE STRENGTH FUNCTION,S0=4.256 31 1
P-WAVE STRENGTH FUNCTION,S1=1.746 31 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL (RO66) 31 1
DOBS= 6.435 EV 31 1
GAMMA WIDTH= 87.37 MV 31 1
HIGH ENERGY REGION 31 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 31 1
OPTICAL MODEL FROM ROSEN ET AL.(RO66) 31 1
LEVEL SCHEME OF TARGET NUCLEUS FROM EW67,SM75 AND GA76 31 1
SQUARED SPIN CUT-OFF PARAMETER=7.1 FROM EXP.LEVEL SCHEME 31 1

RCN-3 LIBRARY INDEX
TEXT

						MAT	MF
620148	25	0	0	0	0	32	0
14510	14511	14580	14590	21520	21530	32	0
21540	30010	30011	30020	30040	30050	32	0
30051	30160	30270	31020	31030	31040	32	0
31050	31060	31070	32510	40022	50053	32	0
50163	0	0	0	0	0	32	0
620148	14510	0	1	1	0	32	1
306	0	0	0	0	0	32	1

$RCN 2.3 EVALUATION H.GRUPPELAAR SM148X 28/06/77 $ 32 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 32 1
MINIMUM ENERGY .00100 EV 32 1
MIN EN OF STATISTICAL MODEL .21500 KEV 32 1
ENERGY OF FIRST EXCITED STATE .55030 MEV 32 1
CONTINUOUS STAT MODEL ABOVE 2.03230 MEV 32 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 32 1
MAXIMUM ENERGY 15.00000 MEV 32 1
LEVEL DENSITY PARAMETER SM148 20.74000 1/MEV 32 1
LEVEL DENSITY PARAMETER SM147 21.00000 1/MEV 32 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 32 1
RESOLVED ENERGY REGION UPTO 154 EV 32 1
EVALUATION WITH SIGMA-RCN AT 0 K 32 1
NO EXPERIMENTAL RESONANCE PARAMETERS KNOWN 32 1
POSITIVE RESONANCE FITTED AT 100 EV IN ORDER TO 32 1
OBTAIN AGREEMENT WITH THERMAL CAPTURE CROSS SECTION AT 0.0253 EV 32 1
AND RESONANCE INTEGRAL,TAKING INTO ACCOUNT THE UNRESOLVED 32 1
RESONANCE CONTRBUTION 32 1
STRENGTH FUNCTION REGION UPTO 70 KEV 32 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 32 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 32 1
S-WAVE STRENGTH FUNCTION,S0=3.064 32 1
P-WAVE STRENGTH FUNCTION,S1=1.147 32 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL (RO66) 32 1
DOBS= 106.2 EV 32 1
GAMMA WIDTH= 57.25 MV 32 1
HIGH ENERGY REGION 32 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 32 1
OPTICAL MODEL FROM ROSEN ET AL. (RO66) 32 1
CALCULATED TOTAL CROSS SECTIONS CLOSE TO MEASURED VALUES OF 32 1
SHAMU ET AL. (SH75) 32 1
LEVEL SCHEME OF TARGET NUCLEUS FROM OWN EVALUATION, MOST DATA FROM 32 1
RESONANCE NEUTRON CAPTURE BY ALDEA ET AL. (AL74) 32 1
SQUARED SPIN CUT-OFF PARAMETER = 6.1 FROM EXP. LEVEL SCHEME SM-148 32 1

RCN-3 LIBRARY INDEX
TEXT

						MAT	MF
620149	25	0	0	0	0	33	0
14510	14511	14580	14590	21520	21530	33	0
21540	30010	30011	30020	30040	30050	33	0
30051	30160	30270	31020	31030	31040	33	0
31050	31060	31070	32510	40022	50053	33	0
50163	0	0	0	0	0	33	0
620149	14510	0	1	1	0	33	1
279	0	0	0	0	0	33	1

$RCN 2.3 EVALUATION H.GRUPPELAAR SM149X 28/06/77 $ 33 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 33 1
MINIMUM ENERGY .00100 EV 33 1
MIN EN OF STATISTICAL MODEL .15050 KEV 33 1
ENERGY OF FIRST EXCITED STATE 22.50000 KEV 33 1
CONTINUOUS STAT MODEL ABOVE .72200 MEV 33 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 33 1
MAXIMUM ENERGY 15.00000 MEV 33 1
LEVEL DENSITY PARAMETER SM149 23.80000 1/MEV 33 1
LEVEL DENSITY PARAMETER SM148 20.74000 1/MEV 33 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 33 1
RESOLVED ENERY REGION UPTO 151 EV 33 1
EVALUATION WITH SIGMA-RCN AT 0 K,MULTILEVEL FORMULA 33 1
RESOLVED RESONANCES FROM BNL-325 (MU73) AND BECVAR ET AL.(BE74D) 33 1
WITH SPINS FROM KARZHAVINA ET AL.(KA73) 33 1
HYPOTHETICAL NEGATIVE RESONANCE FROM BECVAR ET AL.(BE74D) 33 1
ALPHA WIDTHS FROM BNL-325 (MU73), NOT USED FOR (N,ALPHA) 33 1
STRENGTH FUNCTION REGION UPTO 70 KEV 33 1
CAPTURE CROSS SECTION WITH CODE FISPRO-RCN 33 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 33 1
S-WAVE STRENGTH FUNCTION,S0=4.129 33 1
P-WAVE STRENGTH FUNCTION,S1=2.318 33 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL (RO66) 33 1
DOBS= 2.003 EV 33 1
GAMMA WIDTH =74.98 MV 33 1
HIGH ENERGY REGION 33 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 33 1
OPTICAL MODEL FROM ROSEN ET AL.(RO66) 33 1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS(HO76B) 33 1
AND OTHER RECENT DATA (SM75,LO75,GA76) 33 1
SQUARED SPIN CUT-OFF PARAMETER=6.2 FROM EXP.LEVELS SM-149 33 1

RCN-3 LIBRARY INDEX
TEXT

						MAT	MF
620150	25	0	0	0	0	34	0
14510	14511	14580	14590	21520	21530	34	0
21540	30010	30011	30020	30040	30050	34	0
30051	30160	30270	31020	31030	31040	34	0
31050	31060	31070	32510	40022	50053	34	0
50163	0	0	0	0	0	34	0
620150	14510	0	1	1	0	34	1
252	0	0	0	0	0	34	1

$RCN 2.3 EVALUATION H.GRUPPELAAR SM150X 28/06/77 $ 34 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 34 1
MINIMUM ENERGY .00100 EV 34 1
MIN EN OF STATISTICAL MODEL .85704 KEV 34 1
ENERGY OF FIRST EXCITED STATE .33400 MEV 34 1
CONTINUOUS STAT MODEL ABOVE 1.50450 MEV 34 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 34 1
MAXIMUM ENERGY 15.00000 MEV 34 1
LEVEL DENSITY PARAMETER SM150 24.00000 1/MEV 34 1
LEVEL DENSITY PARAMETER SM149 23.80000 1/MEV 34 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 34 1
RESOLVED ENERGY REGION UPTO 832 EV 34 1
EVALUATION WITH SIGMA-RCN AT 0 K, MULTILEVEL FORMULA 34 1
RESOLVED RESONANCES FROM EILAND ET AL. (EI74) 34 1
HYPOTHETICAL NEGATIVE RESONANCE AT -3.5 EV ALSO FROM EI74 34 1
STRENGTH FUNCTION REGION UPTO 70 KEV 34 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 34 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 34 1
S-WAVE STRENGTH FUNCTION,S0=3.52 34 1
P-WAVE STRENGTH FUNCTION,S1=1.49 34 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL (RO66) 34 1
DOBS= 50.07 EV 34 1
GAMMA WIDTH= 69.93 MV 34 1
HIGH ENERGY REGION 34 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 34 1
OPTICAL MODEL FROM ROSEN ET AL.(RO66) 34 1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS (BA76) 34 1
SQUARED SPIN CUT-OFF PARAMETER=5.7 FROM EXP.LEVELS SM-150 34 1

RCN-3 LIBRARY INDEX
TEXT

						MAT	MF
620151	25	0	0	0	0	35	0
14510	14511	14580	14590	21520	21530	35	0
21540	30010	30011	30020	30040	30050	35	0
30051	30160	30270	31020	31030	31040	35	0
31050	31060	31070	32510	40022	50053	35	0
50163	0	0	0	0	0	35	0
620151	14510	0	1	1	0	35	1
252	0	0	0	0	0	35	1

$RCN 2.3 EVALUATION H.GRUPPELAAR SM151X 28/06/77 $ 35 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 35 1
MINIMUM ENERGY .00100 EV 35 1
MIN EN OF STATISTICAL MODEL .10621 KEV 35 1
ENERGY OF FIRST EXCITED STATE 4.80000 KEV 35 1
CONTINUOUS STAT MODEL ABOVE .35760 MEV 35 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 35 1
MAXIMUM ENERGY 15.00000 MEV 35 1
LEVEL DENSITY PARAMETER SM151 27.21000 1/MEV 35 1
LEVEL DENSITY PARAMETER SM150 24.00000 1/MEV 35 1
*****ADJUSTED EVALUATION BASED ON STEK INTEGRAL DATA***** 35 1
RESOLVED RESONANCE REGION UPTO 106 EV 35 1
EVALUATION WITH SIGMA-RCN AT 0 K, MULTILEVEL FORMULA 35 1
RESOLVED RESONANCES FROM KIROUAC AND EILAND (KI75) 35 1
HYPOTHETICAL NEGATIVE RESONANCE AT -0.12 EV ALSO FROM KI75 35 1
STRENGTH FUNCTION REGION UPTO 70 KEV 35 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 35 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 35 1
S-WAVE STRENGTH FUNCTION,S0=2.546 35 1
P-WAVE STRENGTH FUNCTION,S1=1.129 35 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL (RO66) 35 1
DOBS=1.83 EV 35 1
GAMMA WIDTH= 90.89 MV 35 1
HIGH ENERGY REGION 35 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 35 1
OPTICAL MODEL FROM ROSEN ET AL. (RO66) 35 1
LEVEL SCHEME OF TARGET NUCLEUS FROM NUCLEAR DATA SHEETS (HA76) 35 1
SQUARED SPIN CUT-OFF PARAMETER= 8.2 FROM EXP. LEVELS SM-151 35 1

RCN-3 LIBRARY INDEX
TEXT

						MAT	MF
620152	25	0	0	0	0	36	0
14510	14511	14580	14590	21520	21530	36	0
21540	30010	30011	30020	30040	30050	36	0
30051	30160	30270	31020	31030	31040	36	0
31050	31060	31070	32510	40022	50053	36	0
50163	0	0	0	0	0	36	0
620152	14510	0	1	1	0	36	1
288	0	0	0	0	0	36	1

$RCN 2.3 EVALUATION H.GRUPPELAAR SM152Z 31/01/78 $ 36 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 36 1
MINIMUM ENERGY .00100 EV 36 1
MIN EN OF STATISTICAL MODEL 2.72257 KEV 36 1
ENERGY OF FIRST EXCITED STATE .12180 MEV 36 1
CONTINUOUS STAT MODEL ABOVE 1.31100 MEV 36 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 36 1
MAXIMUM ENERGY 15.00000 MEV 36 1
LEVEL DENSITY PARAMETER SM152 24.10000 1/MEV 36 1
LEVEL DENSITY PARAMETER SM151 26.88000 1/MEV 36 1
*****ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA**** 36 1
RESOLVED ENERGY REGION UPTO 3.01 KEV 36 1
EVALUATION WITH SIGMA-RCN AT 0 K,MULTILEVEL FORMULA 36 1
RESOLVED RESONANCES FROM BNL-325 (MU73) 36 1
SMALL 1/V-CORRECTION APPLIED TO FIT THERMAL 36 1
CAPTURE CROSS SECTION AND RESONANCE INTEGRAL 36 1
STRENGTH FUNCTION REGION UPTO 70 KEV 36 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 36 1
OTHER SROSS SECTIONS WITH CODE SASSI-RCN 36 1
S-WAVE STRENGTH FUNCTIONS,S0=2.3 36 1
P-WAVE STRENGTH FUNCTION, S1=1.6 36 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL (RO66),S1=1.2 36 1
DOBS=53.4 EV 36 1
GAMMA WIDTH=71.8 MV 36 1
0.41 BARN 36 1
HIGH ENERGY REGION 36 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 36 1
OPTICAL MODEL FROM ROSEN ET AL. (RO66) 36 1
LEVEL SCHEME OF TARGET NUCLEUS FROM OWN EVALUATION ,WITH 36 1
MOST LEVELS FROM RECENT INELASTIC GAMMA MEASUREMENTS OF 36 1
ANDREEV ET AL. (AN76) 36 1
SQUARED SPIN CUT-OFF PARAMETER=8.4 FROM EXP.LEVELS OF SM-152 36 1

RCN-3 LIBRARY INDEX
TEXT

						MAT	MF	
620154	25	0	0	0	0	37	0	
14510	14511	14580	14590	21520	21530	37	0	
21540	30010	30011	30020	30040	30050	37	0	
30051	30160	30270	31020	31030	31040	37	0	
31050	31060	31070	32510	40022	50053	37	0	
50163	0	0	0	0	0	37	0	
620154	14510	0	1	1	0	37	1	
270	0	0	0	0	0	37	1	

$RCN 2.3 EVALUATION H.GRUPPELAAR SM154Z 31/01/78 $ 37 1
N,P N,D N,T N,HE3 N,A ADDED (THRES-2), ABS AND TOTAL CORRECT REV 190979 37 1
MINIMUM ENERGY .00100 EV 37 1
MIN EN OF STATISTICAL MODEL 3.11436 KEV 37 1
ENERGY OF FIRST EXCITED STATE 82.00000 KEV 37 1
CONTINUOUS STAT MODEL ABOVE 1.20200 MEV 37 1
HIGH ENERGY MODEL ABOVE 6.50000 MEV 37 1
MAXIMUM ENERGY 15.00000 MEV 37 1
LEVEL DENSITY PARAMETER SM154 22.80000 1/MEV 37 1
LEVEL DENSITY PARAMETER SM153 25.60000 1/MEV 37 1
*****ADJUSTED EVALUATION BASED ON STEK AND CFRMF INTEGRAL DATA**** 37 1
RESOLVED RESONANCE REGION UPTO 3.1 KEV 37 1
EVALUATION WITH SIGMA-RCN AT 0 K, MULTILEVEL FORMULA 37 1
RESOLVED RESONANCES FROM BNL-325 (MU73) 37 1
HYPOTHETICAL NEGATIVE RESONANCE ADDED AT -20 EV 37 1
TO FIT THERMAL CAPTURE CROSS SECTION AT 0.0253 EV 37 1
STRENGTH FUNCTION REGION UPTO 70 KEV 37 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 37 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 37 1
S-WAVE STRENGTH FUNCTION, S0=1.8 37 1
P-WAVE STRENGTH FUNCTION, S1=1.2 37 1
DOBS= 135 EV 37 1
GAMMA WIDTH=53.8 MV 37 1
HIGH ENERGY REGION 37 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 37 1
OPTICAL MODEL FROM ROSEN ET AL. (RO66) 37 1
THIS OPTICAL MODEL HAS ALSO BEEN USED BY ELBAKR ET AL (EL73) 37 1
FOR THE INTERPRETATION OF INELASTIC GAMMA MEASUREMENTS 37 1
LEVEL SCHEME OF TARGET NUCLEUS FROM ELBAKR ET AL. (EL73) 37 1
SQUARED SPIN CUT-OFF PARAMETER=7.7 FROM EXP. LEVELS OF SM-154 37 1

RCN-2 LIBRARY INDEX
TEXT

						MAT	MF
420092	16					13	0
14510	14580	14590	14511	21520	30270	13	0
30011	31020	30040	30050	30051	30020	13	0
30010	30160	21530	21540			13	0
420092	14510	0	1	1	0	13	1
261						13	1
$RCN 2.2 EVALUATION H.GRUPPELAAR			MO092A	21/01/76 $		13	1
MINIMUM ENERGY			.00100	EV		13	1
MIN EN OF STATISTICAL MODEL			33.07500	KEV		13	1
ENERGY OF FIRST EXCITED STATE			1.50900	MEV		13	1
CONTINUOUS STAT MODEL ABOVE			3.09200	MEV		13	1
COMPLETELY CONT DESCRIPTION ABOVE			6.50000	MEV		13	1
MAXIMUM ENERGY			15.00000	MEV		13	1
LEVEL DENSITY PARAMETER MO092			9.00000	1/MEV		13	1
LEVEL DENSITY PARAMETER MO091			8.00000	1/MEV		13	1
RESOLVED ENERGY REGION UPTO 31.1 KEV						13	1
EVALUATION WITH SIGMA-RCN AT 0 K, MULTILEVEL FORMULA						13	1
RESOLVED RESONANCES FROM BNL-325 (MU73) AND WASSON ET AL. (WA73),						13	1
SOME SPIN ASSIGNMENTS FROM RUDAK AND RUDAK (RU75)						13	1
STRENGTH FUNCTION REGION UPTO 100 KEV						13	1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN						13	1
OTHER CROSS SECTUONS WITH CODE SASSI-RCN						13	1
S- AND P-WAVE STRENGTH FUNCTIONS FROM WASSON ET AL.(WA73)						13	1
AVERAGE GAMMA WIDTH > 178 MV (EVEN L-VALUES) FROM WA73						13	1
AVERAGE GAMMA WIDTH > 180 MV (ODD L-VALUES) +						13	1
P-WAVE VALENCY COMPONENT OF 105 MV, IN AGREEMENT WITH WA73						13	1
DOBS> 3.92 KEV FROM RESOLVED RESONANCE ANALYSES						13	1
HIGH ENERGY REGION						13	1
ALL CROSS SECTIONS WITH CODE SASSI-RCN						13	1
OPTICAL MODEL SIMILAR TO THAT OF SMITH ET AL. (SM74)						13	1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 3.092 MEV MAINLY FROM						13	1
NUCLEAR DATA SHEETS (KO72A),CHANGES FROM						13	1
CHARVET ET AL. (CH74A) AND GUENTHER ET AL.(GU75)						13	1
SQUARED TARGET SPIN CUT-OFF PARAMETER>11 FROM EXPERIMENTAL						13	1
SPIN DISTRIBUTION						13	1

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TEXT

						MAT	MF
420094	17					14	0
14510	14580	14590	32510	14511	21520	14	0
30270	30011	31020	30040	30050	30051	14	0
30020	30010	30160	21530	21540		14	0
420094	14510	0	1	1	0	14	1
270						14	1

$RCN 2.2 EVALUATION H.GRUPPELAAR M0094A 16/01/76 $ 14 1
MINIMUM ENERGY .00100 EV 14 1
MIN EN OF STATISTICAL MODEL 5.49514 KEV 14 1
ENERGY OF FIRST EXCITED STATE .87110 MEV 14 1
CONTINUOUS STAT MODEL ABOVE 2.60800 MEV 14 1
COMPLETELY CONT DESCRIPTION ABOVE 6.50000 MEV 14 1
MAXIMUM ENERGY 15.00000 MEV 14 1
LEVEL DENSITY PARAMETER M0094 11.50000 1/MEV 14 1
LEVEL DENSITY PARAMETER M0093 10.53000 1/MEV 14 1
RESOLVED ENERGY REGION UPTO 4.9 KEV 14 1
EVALUATION WITH SIGMA-RCN AT 0 K, MULTILEVEL FORMULA 14 1
RESOLVED RESONANCES FROM BNL-325 ((MU73) 14 1
NO EXPERIMENTAL THERMAL CROSS SECTION KNOWN 14 1
STRENGTH FUNCTION REGION UPTO 100 KEV 14 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 14 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 14 1
S-WAVE STRENGTH FUNCTION FROM BNL-325 (MU73) 14 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 14 1
AVERAGE GAMMA WIDTH FOT EVEN L-VALUES> 169 MV FROM 14 1
RESOLVED RESONANCES (MU73) 14 1
AVARAGE GAMMA WIDTH FOR ODD L-VALUES> 200 MV, 14 1
P-WAVE VALENCY CONTRIBUTION> 54 MV 14 1
DOBS> 1.74 KEV, IN AGREEMENT WITH RESOLVED RESONANCES RESULT 14 1
HIGH ENERGY REGION 14 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 14 1
OPTICAL MODEL SIMILAR TO THAT OF SMITH ET AL. (SM74) 14 1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 2.608 MEV FROM NUCLEAR 14 1
DATA SHEETS (KO73),ONE ADDITIONAL LEVEL AT 1.740 MEV FROM (MC74A) 14 1
SQUARED TARGET SPIN CUT-OFF PARAMETER> 6.4 FROM EXPERIMENTAL 14 1
SPIN DISTRIBUTION 14 1

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TEXT

						MAT	MF
420095	17					15	0
14510	14580	14590	32510	14511	21520	15	0
30270	30011	31020	30040	30050	30051	15	0
30020	30010	30160	21530	21540		15	0
420095	14510	0	1	1	0	15	1
261						15	1

$RCN 2.2 EVALUATION H.GRUPPELAAR MO095A 16/01/76 $ 15 1
MINIMUM ENERGY .00100 EV 15 1
MIN EN OF STATISTICAL MODEL 2.18270 KEV 15 1
ENERGY OF FIRST EXCITED STATE .20390 MEV 15 1
CONTINUOUS STAT MODEL ABOVE 1.70700 MEV 15 1
COMPLETELY CONT DESCRIPTION ABOVE 6.50000 MEV 15 1
MAXIMUM ENERGY 15.00000 MEV 15 1
LEVEL DENSITY PARAMETER MO095 12.90000 1/MEV 15 1
LEVEL DENSITY PARAMETER MO094 10.50000 1/MEV 15 1
RESOLVED ENERGY REGION UPTO 2.14 KEV 15 1
EVALUATION WITH SIGMA-RCN AT 0 K, MULTILEVEL FORMULA 15 1
RESOLVED RESONANCES FROM BNL-325 (MU73) 15 1
BOUND LEVEL ASSUMED AT -16 EV 15 1
STRENGTH FUNCTION REGION UPTO 100 KEV 15 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 15 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 15 1
ALL STRENGTH FUNCTIONS FROM OPTICAL MODEL 15 1
AVERAGE GAMMA WIDTH > 154 MV (EVEN L-VALUES), > 265 MV (ODD 15 1
L-VALUES) IN AGREEMENT WITH RESOLVED RESONANCES 15 1
P-WAVE VALENCY CONTRIBUTION > 16 MV 15 1
DOBS>82 EV IN AGREEMENT WITH RESOLVED RESONANCES RESULT 15 1
(DOBS>87 EV WITH UNCERTAINTY OF 10 EV) 15 1
HIGH ENERGY REGION 15 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 15 1
OPTICAL MODEL SIMILAR TO THAT OF SMITH ET AL. (SM74) 15 1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 1.707 MEV EVALUATED 15 1
BY RIBON ET AL.(RI75) 15 1
SQUARED SPIN CUT-OFF PARAMETER>5.1 FROM EXPERIMENTAL 15 1
SPIN DISTRIBUTION 15 1

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TEXT

						MAT	MF
420096	17					16	0
14510	14580	14590	32510	14511	21520	16	0
30270	30011	31020	30040	30050	30051	16	0
30020	30010	30160	21530	21540		16	0
420096	14510	0	1	1	0	16	1
270						16	1

$RCN 2.2 EVALUATION H.GRUPPELAAR	M0096B	22/03/76 $	16 1
MINIMUM ENERGY	.00100	EV	16 1
MIN EN OF STATISTICAL MODEL	6.35529	KEV	16 1
ENERGY OF FIRST EXCITED STATE	.77830	MEV	16 1
CONTINUOUS STAT MODEL ABOVE	2.70000	MEV	16 1
COMPLETELY CONT DESCRIPTION ABOVE	6.50000	MEV	16 1
MAXIMUM ENERGY	15.00000	MEV	16 1
LEVEL DENSITY PARAMETER M0096	14.00000	1/MEV	16 1
LEVEL DENSITY PARAMETER M0095	12.90000	1/MEV	16 1
RESOLVED ENERGY REGION UPTO 5.4 KEV			16 1
EVALUATION WITH SIGMA-RCN AT 0 K,MULTILEVEL FORMULA			16 1
RESOLVED RESONANCES FROM BNL-325 (MU73)			16 1
STRENGTH FUNCTION REGION UPTO 100 KEV			16 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN			16 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN			16 1
S-WAVE STRENGTH FUNCTION ESTIMATED TO FIT CAPTURE CROSS			16 1
SECTION AT LOW ENERGIES			16 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL			16 1
AVERAGE GAMMA WIDTH FOR EVEN L-VALES > 152 MV FROM			16 1
RESOLVED RESONANCES (MU73)			16 1
AVERAGE GAMMA WIDTH FOR ODD L-VALUES> 160MV			16 1
P-WAVE VALENCY CONTRIBUTION >42MV			16 1
DOBS>1.3 KEV FROM SYSTEMATICS			16 1
HIGH ENERGY REGION			16 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN			16 1
OPTICAL MODEL SIMILAR TO THAT OF SMITH ET AL.(SM74)			16 1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 2.700 MEV FROM			16 1
NUCLEAR DATA SHEETS (ME72A)			16 1
SQUARED SPIN CUT-OFF PARAMETER>6.8 FROM EXPERIMENTAL			16 1
SPIN DISTRIBUTION			16 1

						MAT	MF
420097	17					17	0
14510	14580	14590	32510	14511	21520	17	0
30270	30011	31020	30040	30050	30051	17	0
30020	30010	30160	21530	21540		17	0
420097	14510	0	1	1	0	17	1
270						17	1

$RCN 2.2 EVALUATION H.GRUPPELAAR	M0097B	14/01/76	$	17 1
MINIMUM ENERGY	.00100	EV		17 1
MIN EN OF STATISTICAL MODEL	1.97394	KEV		17 1
ENERGY OF FIRST EXCITED STATE	.48090	MEV		17 1
CONTINUOUS STAT MODEL ABOVE	1.51600	MEV		17 1
COMPLETELY CONT DESCRIPTION ABOVE	6.50000	MEV		17 1
MAXIMUM ENERGY	15.00000	MEV		17 1
L. VEL DENSITY PARAMETER M0097	14.60000	1/MEV		17 1
LEVEL DENSITY PARAMETER M0096	14.00000	1/MEV		17 1
RESOLVED ENERGY REGION UPTO 1.95 KEV				17 1
EVALUATION WITH SIGMA- RCN AT 0 K, MULTILEVEL FORMULA				17 1
RESOLVED RESONANCES FROM BNL-325 (MU73),				17 1
SUPPLEMENTED WITH TWO LOW-ENERGY RESONANCES FROM				17 1
SCHWE AND COTE (SC69A)				17 1
HYPOTHETICAL NEGATIVE RESONANCE ADDED TO FIT CAPTURE				17 1
CROSS SECTION AT 0.0253 EV (MU73)				17 1
STRENGTH FUNCTION REGION UPTO 100 KEV				17 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN				17 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN				17 1
ALL STRENGTH FUNCTIONS FROM OPTICAL MODEL				17 1
AVARAGE GAMMA WIDTH> 134 MV (EVEN L-VALUES),				17 1
FROM RESOLVED RESONANCES (MU73)				17 1
AVERAGE GAMMA WIDTH FOR ODD L-VALUES EQUAL TO 175 MV				17 1
P-WAVE VALENCY CONTRIBUTION > 15 MV				17 1
DOBS>66 EV IN AGREEMENT WITH RESOLVED RESONANCES RESULT				17 1
(DOBS>78 EV WITH 12 EV UNCERTAINTY)				17 1
HIGH ENERGY REGION				17 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN				17 1
OPTICAL MODEL SIMILAR TO THAT OF SMITH ET AL. (SM74)				17 1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 1.516 MEV FROM (RI75),				17 1

						MAT	MF
420098	17					18	0
14510	14580	14590	32510	14511	21520	18	0
30270	30011	31020	30040	30050	30051	18	0
30020	30010	30160	21530	21540		18	0
420098	14510	0	1	1	0	18	1
261						18	1

$RCN 2.2 EVALUATION H.GRUPPELAAR	M0098C	14/01/76 $	18 1
MINIMUM ENERGY	.00100	EV	18 1
MIN EN OF STATISTICAL MODEL	53.10020	KEV	18 1
ENERGY OF FIRST EXCITED STATE	.73480	MEV	18 1
CONTINUOUS STAT MODEL ABOVE	2.73800	MEV	18 1
COMPLETELY CONT DESCRIPTION ABOVE	6.50000	MEV	18 1
MAXIMUM ENERGY	15.00000	MEV	18 1
LEVEL DENSITY PARAMETER M0098	15.78000	1/MEV	18 1
LEVEL DENSITY PARAMETER M0097	14.60000	1/MEV	18 1

RESOLVED ENERGY REGION UPTO 52.6 KEV 18 1
EVALUATION WITH SIGMA-2 AT 0 K,MULTILEVEL FORMULA 18 1
RESOLVED RESONANCES FROM CHRIEN ET AL. (CH75) 18 1
HYPOTHETICAL NEGATIVE RESONANCE ADDED 18 1
STRENGTH FUNCTION REGION UPTO 0.7 MEV 18 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 18 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 18 1
S-WAVE STRENGTH FUNCTION FROM BNL-325 (MU73) 18 1
P-WAVE STRENGTH FUNCTION ADJUSTED TO FIT TOTAL CROSS SECTION 18 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 18 1
MEAN GAMMA WIDTH> 86 MV(EVEN L-VALUES), 110 MV (ODD L-VALUES) 18 1
P-WAVE VALENCY CONTRIBUTION > 28 MV 18 1
(AVERAGE GAMMA WIDTHS FROM RESOLVED RESONANCES, MU73) 18 1
DOBS > 1000 EV, IN AGREEMENT WITH RESOLVED RESONANCE AVERAGE 18 1
OPTICAL MODEL SIMILAR TO THAT OF SMITH ET AL. (SM74) 18 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 18 1
OPTICAL MODEL FROM IGARASI ET AL. (IG74) 18 1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 2.738 MEV (RI75 AND ME74B) 18 1
SQUARED SPIN CUT-OFF PARAMETER > 6.6 FROM EXPERIMENTAL SPIN 18 1
DISTRIBUTION 18 1

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TEXT

						MAT	MF
420100	17					19	0
14510	14580	14590	32510	14511	21520	19	0
30270	30011	31020	30040	30050	30051	19	0
30020	30010	30160	21530	21540		19	0
420100	14510	0	1	1	0	19	1
261						19	1

$RCN 2.2 EVALUATION H.GRUPPELAAR MO100C 20/01/76 $ 19 1
MINIMUM ENERGY .00100 EV 19 1
MIN EN OF STATISTICAL MODEL 5.07320 KEV 19 1
ENERGY OF FIRST EXCITED STATE .53600 MEV 19 1
CONTINUOUS STAT MODEL ABOVE 1.50300 MEV 19 1
COMPLETELY CONT DESCRIPTION ABOVE 6.50000 MEV 19 1
MAXIMUM ENERGY 15.00000 MEV 19 1
LEVEL DENSITY PARAMETER MO100 19.00000 1/MEV 19 1
LEVEL DENSITY PARAMETER MO099 17.62000 1/MEV 19 1
RESOLVED ENERGY REGION UPTO 4.8 KEV 19 1
EVALUATION WITH SIGMA-RCN AT 0 K,MULTILEVEL FORMULA 19 1
RESOLVED RESONANCES FROM BNL-325 (MU73) 19 1
HYPOTHETICAL NEGATIVE RESONANCE ADDED TO FIT CAPTURE 19 1
CROSS SECTION AT 0.0253 EV 19 1
STRENGTH FUNCTION REGION UPTO 750 KEV 19 1
CAPTURE CROSS SECTIONS WITH CODE FISPRO-RCN 19 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN 19 1
P-WAVE STRENGTH FUNCTION ADJUSTED TO FIT TOTAL CROSS SECTION 19 1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL 19 1
MEAN GAMMA WIDTH> 58 MV(EVEN L-VALUES), > 95 MV (ODD L-VALUES) 19 1
FROM RESOLVED RESONANCES (MU73) 19 1
P-WAVE VALENCY CONTRIBUTION > 20 MV 19 1
DOBS> 700 EV (FROM STAIRCASE PLOT OF THREE S-WAVE RESONANCES 19 1
A VALUE OF 1200 EV FOLLOWS) 19 1
HIGH ENERGY REGION 19 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN 19 1
OPTICAL MODEL SIMILAR TO THAT OF SMITH ET AL. (SM74) 19 1
LEVEL SCHEME OF TARGET NUCLEUS UPTO 1.503 MEV (RI75 AND KO74) 19 1
SQUARED SPIN CUT-OFF PARAMETER > 7.0 (GUESSED) 19 1

						MAT	MF
440101	17					7	0
14510	14580	14590	32510	14511	21520	7	0
30270	30011	31020	30040	30050	30051	7	0
30020	30010	30160	21530	21540		7	0
440101	14510	0	1	1	0	7	1
198						7	1
$RCN 2.2 EVALUATION H.GRUPPELAAR			RU101B	19/02/75 $		7	1
MINIMUM ENERGY			.00100	EV		7	1
MIN EN OF STATISTICAL MODEL			.67433	KEV		7	1
ENERGY OF FIRST EXCITED STATE			.12720	MEV		7	1
CONTINUOUS STAT MODEL ABOVE			.64380	MEV		7	1
COMPLETELY CONT DESCRIPTION ABOVE			6.50000	MEV		7	1
MAXIMUM ENERGY			15.00000	MEV		7	1
LEVEL DENSITY PARAMETER RU101			16.30000	1/MEV		7	1
LEVEL DENSITY PARAMETER RU100			14.50000	1/MEV		7	1
RESOLVED RESONANCE REGION UP TO 677 EV						7	1
EVALUATION WITH SIGMA-2 AT 0 K						7	1
RESOLVED RESONANCE PARAMETERS FROM NEUDADA-1974						7	1
UNRESOLVED RESONANCE REGION UP TO 10 KEV						7	1
CAPTURE CROSS SECTION WITH CODE FISPRO RCN						7	1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN						7	1
S-WAVE STRENGTH FUNCTIONS FROM MU73						7	1
OTHER STRENGTH FUNCTIONS FROM OPTICAL MODEL						7	1
DOBS AND GAMMA WIDTH FROM RI75						7	1
STATISTICAL REGION						7	1
ALL CROSS SECTIONS WITH CODE SASSI-RCN						7	1
(OPTICAL MODEL FROM IG74)						7	1
LEVEL SCHEME DATA FROM TO73						7	1

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TEXT

						MAT	MF
440102	17					8	0
14510	14580	14590	32510	14511	21520	8	0
30270	30011	31020	30040	30050	30051	8	0
30020	30010	30160	21530	21540		8	0
440102	14510	0	1	1	0	8	1
207						8	1

$RCN 2.2 EVALUATION H.GRUPPELAAR	RU102G	20/02/75	$	8 1
MINIMUM ENERGY	.00100	EV		8 1
MIN EN OF STATISTICAL MODEL	1.44288	KEV		8 1
ENERGY OF FIRST EXCITED STATE	.47500	MEV		8 1
CONTINUOUS STAT MODEL ABOVE	2.47100	MEV		8 1
COMPLETELY CONT DESCRIPTION ABOVE	6.50000	MEV		8 1
MAXIMUM ENERGY	15.00000	MEV		8 1
LEVEL DENSITY PARAMETER RU102	16.20000	1/MEV		8 1
LEVEL DENSITY PARAMETER RU101	16.30000	1/MEV		8 1
RESOLVED RESONANCE REGION UP TO 1.578 KEV				8 1
EVALUATION WITH CODE SIGMA-2 AT 0 K.				8 1
RESOLVED RESONANCE PARAMETERS FROM NEUDADA-1974				8 1
UNRESOLVED RESONANCE REGION UP TO 10 KEV				8 1
CAPTURE CROSS SECTION WITH CODE FISPRO-RCN				8 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN				8 1
STRENGTH FUNCTIONS FROM OPTICAL MODEL				8 1
DOBS ESTIMATED FROM THREE KNOWN RESOLVED RESONANCES				8 1
GAMMA WIDTH ADJUSTED TO FIT EXPERIMENTAL POINTS AT				8 1
2 KEV (SC69) AND 24 KEV (MU73)				8 1
STATISTICAL REGION				8 1
ALL CROSS SECTIONS WITH CODE SASSI-RCN				8 1
(OPTICAL MODEL FROM IG74)				8 1
LEVEL SCHEME DATA FROM RI74				8 1

						MAT	MF
440104	17					6	0
14510	14580	14590	32510	14511	21520	6	0
30270	30011	31020	30040	30050	30051	6	0
30020	30010	30160	21530	21540		6	0
440104	14510	0	1	1	0	6	1
198						6	1

$RCN 2.2 EVALUATION H.GRUPPELAAR	RU104B	10/02/75	$	6 1
MINIMUM ENERGY	.00100	EV		6 1
MIN EN OF STATISTICAL MODEL	1.17353	KEV		6 1
ENERGY OF FIRST EXCITED STATE	.35800	MEV		6 1
CONTINUOUS STAT MODEL ABOVE	2.03400	MEV		6 1
COMPLETELY CONT DESCRIPTION ABOVE	6.50000	MEV		6 1
MAXIMUM ENERGY	15.00000	MEV		6 1
LEVEL DENSITY PARAMETER RU104	17.00000	1/MEV		6 1
LEVEL DENSITY PARAMETER RU103	19.74000	1/MEV		6 1
RESOLVED RESONANCE REGION UP TO 1.183				6 1
EVALUATION WITH SIGMA-2 AT 0 K.				6 1
RESOLVED RESONANCE PARAMETERS FROM NEUDADA-1974				6 1
UNRESOLVED RESONANCE REGION UP TO 10 KEV				6 1
CAPTURE CROSS SECTION WITH CODE FISPRO-RCN				6 1
OTHER CROSS SECTIONS WITH CODE SASSI-RCN				6 1
STRENGTH FUNCTIONS FROM OPTICAL MODEL				6 1
DOBS FROM MU73				6 1
GAMMA WIDTH FROM WE73				6 1
STATISTICAL REGION				6 1
EVALUATION WITH CODE SASSI-RCN				6 1
OPTICAL MODEL FROM IG74				6 1
LEVEL SCHEME DATA FROM BA70,RI74				6 1