

(資料)

IAEAに送付したEXFOR変換データ

Data in TRANS E012 AND E013

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今年度は TRANS E012 を10月12日に、TRANS E013を11月 1日にそれぞれIAEAに送付したが、いずれも既に送ったデータを再送したものである。

TRANS E012には25エントリ入っている。これらのエントリはすべてTRANS E010に含まれていたものである。TRANS E010のエントリで見つかったエラーに対するComment[NRDF ANNUAL REPORT 92, pp112-114] に基づき修正してある。ただし、エントリ E1315、E1350、E1357 と E1358含まれていたエラーを直しきれなかったため、これらのエントリは TRANS E011 から除かれている。

TRANS E013には 25 エントリが含まれている。これらのエントリも TRANS E012 のものと同様に、TRANS E011のエントリにあったエラーを"Comment on TRANS E011" に基づき修正して再変換したものである。ただし、エントリE1428 は正しく変換できなかったため、TRANS E013 には含めなかった。

なお、さらにTRANS E012とE013にたいしても、エラー修正要求のコメントが来ている。

また、資料1にTRANS E012を、資料2にTRANS E013のデータのインデックス・リスティングを掲げる。

April 6, 1994

To: Dr. M. Chiba

From: O. Schwerer *O. Schwerer*

Subject: **Comments on TRANS E011**

As mentioned in my fax of 29 March, TRANS E011 was checked at NDS. A list of errors and some general comments are given below. JCPRG is asked to review this list, make the appropriate corrections and retransmit the corrected entries.

It would be very useful if some of the general comments (some of them were valid also for TRANS E010) could be implemented in JCPRG's compilation and/or format conversion routines, so that the number of corrections would be smaller in all future JCPRG TRANS tapes.

General remarks:

- If no error is given for some of the data points, leave this field blank rather than giving an error of 0.0.
(This concerns e.g. subentries E1388.005, 6, 7, 8, and others)
- In some entries, the error is only given in free text, e.g. in all subentries of entry E1399:

ERR-ANALYS TOTAL ERROR 10 PER-CENT

but actually no error is given in COMMON or DATA sections.

Instead, the heading ERR-T (if detailed error analysis is given by authors) or DATA-ERR should be given in COMMON section of each subentry, or, if the value is the same throughout, like in this case, in the COMMON section of subentry 1. The same applies to entry E1378.

- E-LVL=0. is very often omitted in COMMON/DATA section (and given only in BIB section under LEVEL-PROP). However, it must be given in COMMON/DATA in the same way as any other level energy if partial data were measured.

Entry	Subent	Comment
E1388	2-24	Delete EN-MIN and EN-MAX from COMMON section. This is illegal redundant information since EN is given in DATA section.
E1413	5 (line 18) 9 (line 25)	Data point out of sequence or wrong " "
E1378	2 (line14)	E-LVL-ERR should be E-LVL
E1388	2-4, 25-30	Delete 'PAR' from REACTION SF5 (or add secondary energy to COMMON or DATA section if this is actual PARTIAL data)
	5-8	Delete 'PAR' from REACTION SF5 because this is elastic scattering
	13-16	Same as above. In addition, keyword LEVEL-PROP for ground state of MG-24 need not be given and should be deleted.
E1399	2-4	Delete PAR (elastic scattering)
E1403	2, 5, 8, 12, 16, 20, 24, 28	"
E1404	5	E-LVL missing in COMMON section
	9	Either E-LVL (or E-EXC) missing in COMMON section, or delete 'PAR' from SF5
E1405	2	E-LVL missing in COMMON section
E1409	2-6	<u>Either</u> delete 'PAR' from SF5 (if this is total scattering), <u>or</u> give secondary energy and change (A,A) to (A,INL)
E1412	3,4	Delete PAR (elastic scattering)
	5	E-LVL missing in COMMON section
E1414	8, 10, 12, 14, 16, 19, 21	Delete PAR (elastic scattering)
E1415	2-6	" "

Entry	Subent	Comment
E1416	6-11, 16, 17, 20-25	E-LVL missing in COMMON section
E1418	9	" "
E1419	2	" "
E1420	2, 4, 14, 15, 20, 21	E-LVL missing in COMMON section
E1421	2,4	" "
E1428	2-8	LEVEL-PROP: second subfield must not be blank, either level energy or LVL-NUMB <u>must</u> be given, and must be repeated in COMMON (or DATA) section
E1434	2,4	E-LVL missing in COMMON section

Comments on TRANS E012.

Entry	Subent	Comment
E1307	18, 19	Delete PAR in reaction SF5 because this has no meaning for elastic scattering, also put EL in Sf3 and delete LEVEL-PROP and E-LVL.
E1310	All	Change (P,P) to (P,INL).
E1311*)	2 - 10	Delete second line under LEVEL-PROP or use keyword EN-SEC.
E1316	All	Change (P,P) to (P,INL).
E1317	3,17 4-16 (19-30)*	See comment on entry E1307. Change (P,P) to (P,INL). What happened with subentries 19-30 which existed in TRANS E010 ?
E1319*)	2,3	To be consistent with the other subentries, E-EXC should be changed to E-LVL, keyword LEVEL-PROP may be added also but is not required.
E1323	2-17	Change (P,P) to (P,INL).
E1343*)		What is DATA-ERR given in some of the subentries? (Explain under ERR-ANALYS and, if possible, use more specific error heading.) It is probably not the total error because it is occasionally smaller than the 10 percent systematic error (e.g subentry 3, lines 22 and 24).
E1363*)	2 - 41	Add keyword LEVEL-PROP with LVL-NUMB=1 or E-LVL=(numm. value) in subfield 2 and SPIN=2, PARITY=+1 in subfield 3,4. Add also LVL-NUMB or E-LVL into COMMON section.
E1366*)	5,6	Only +DATA-ERR or -DATA-ERR given in line 24, explanation should be given.
E1367*)		Giving both E-LVL and Q-VAL is redundant, delete one of them (recommend to keep E-LVL).
E1372*)	2 - 13	Add E-LVL or LVL-NUMB (and possibly LEVEL-PROP keyword).

Comments on TRANS E013.

Entry	Subent	Comment
E1376	2-6	Reaction Sf3 should be INL.
E1378*)	2-118	What is DATA-ERR (Explain under ERR-ANALYS and, if possible, use more specific error heading. In many cases the data-errors are smaller than ERR-1 = 20%)
E1388	5-8, 13-16	Delete PAR in reaction SF5 because this has no meaning for elastic scattering, also put EL in Sf3 and delete E-EXC. or E-LVL and LEVEL-PROP
	9--12,17-24	Reaction Sf3 should be INL.
E1403	2, 5, 8, 12, 16, 20, 24, 27 Remaining subents	Delete PAR in reaction SF5 because this has no meaning for elastic scattering, also put EL in Sf3 and delete LEVEL-PROP and E-LVL. Reaction Sf3 should be INL
E1406	All	Reaction Sf3 should be INL
E1407	2-29	Reaction Sf3 should be INL
E1412	3, 4	Put EL in reaction Sf3 and delete PAR in reaction Sf5 and E-EXC in COMMON.
	8-13	Reaction Sf3 should be INL
E1413	5-11	Reaction Sf3 should be INL
E1415	2 - 6	Put EL in reaction Sf3 and delete PAR in reaction Sf5 and E-EXC in COMMON.
	7 - 33	Put INL in reaction Sf3.

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REACTION-UNIT	ENERGY RANGE(EV)	LAB	YR	AUTHOR	REFERENCE	ACC.#	PTS
6-C-12(HE3,N)8-0-14, PAR, DA	4.55+07	2JPNTOH	87	ABE+	J.NP/A.466.109.87	E1364002	10
6-C-12(HE3,N)8-0-14, PAR, DA	4.55+07	2JPNTOH	87	ABE+	J.NP/A.466.109.87	E1364003	8
6-C-12(P,N)7-N-12, PAR, DA	3.50+07	2JPNTIT	87	OHNUMA+	J.NP/A.467.61.87	E1372002	16
6-C-12(P,N)7-N-12, PAR, DA	3.50+07	2JPNTIT	87	OHNUMA+	J.NP/A.467.61.87	E1372003	14
6-C-12(P,N)7-N-12, PAR, DA	3.50+07	2JPNTIT	87	OHNUMA+	J.NP/A.467.61.87	E1372004	15
6-C-12(P,N)7-N-12, PAR, DA	4.00+07	2JPNTIT	87	OHNUMA+	J.NP/A.467.61.87	E1372005	15
6-C-12(P,N)7-N-12, PAR, DA	4.00+07	2JPNTIT	87	OHNUMA+	J.NP/A.467.61.87	E1372006	15
6-C-12(P,N)7-N-12, PAR, DA	4.00+07	2JPNTIT	87	OHNUMA+	J.NP/A.467.61.87	E1372007	14
6-C-12(P,P)6-C-12, PAR, DA	3.50+07	2JPNTIT	90	IEKI+	J.PR/C.42.457.90	E1316002	16
6-C-12(P,P)6-C-12, PAR, DA	3.50+07	2JPNTIT	90	IEKI+	J.PR/C.42.457.90	E1316003	16
6-C-12(P,P)6-C-12, PAR, DA	3.50+07	2JPNTIT	90	IEKI+	J.PR/C.42.457.90	E1316004	16
6-C-12(P,P)6-C-12, PAR, POL/DA	3.50+07	2JPNTIT	90	IEKI+	J.PR/C.42.457.90	E1316007	16
6-C-12(P,P)6-C-12, PAR, POL/DA	3.50+07	2JPNTIT	90	IEKI+	J.PR/C.42.457.90	E1316008	16
6-C-12(P,P)6-C-12, PAR, POL/DA	3.50+07	2JPNTIT	90	IEKI+	J.PR/C.42.457.90	E1316009	16
6-C-12(3-LI-7,4-BE-7)5-B-12, PAR, DA	1.50+01	2.60+01	2JPNJPN	90 NAKAYAMA+	J.PL/B.246.342.90	E1311002	3
6-C-12(3-LI-7,4-BE-7)5-B-12, PAR, DA	1.50+01	2.60+01	2JPNJPN	90 NAKAYAMA+	J.PL/B.246.342.90	E1311003	3
6-C-12(3-LI-7,4-BE-7)5-B-12, PAR, DA	1.50+01	2.70+01	2JPNJPN	90 NAKAYAMA+	J.PL/B.246.342.90	E1311004	3
6-C-12(3-LI-7,4-BE-7)5-B-12, PAR, DA	1.50+01	2.60+01	2JPNJPN	90 NAKAYAMA+	J.PL/B.246.342.90	E1311005	3
6-C-12(3-LI-7,4-BE-7)5-B-12, PAR, DA	1.50+01	2.60+01	2JPNJPN	90 NAKAYAMA+	J.PL/B.246.342.90	E1311006	3
6-C-12(3-LI-7,4-BE-7)5-B-12, PAR, DA	1.50+01	2.60+01	2JPNJPN	90 NAKAYAMA+	J.PL/B.246.342.90	E1311007	3
6-C-12(3-LI-7,4-BE-7)5-B-12, PAR, DA	1.40+01	2.20+01	2JPNJPN	90 NAKAYAMA+	J.PL/B.246.342.90	E1311008	2
6-C-12(3-LI-7,4-BE-7)5-B-12, PAR, DA	1.40+01	2.60+01	2JPNJPN	90 NAKAYAMA+	J.PL/B.246.342.90	E1311009	3
6-C-12(3-LI-7,4-BE-7)5-B-12, PAR, DA	1.50+01	2.60+01	2JPNJPN	90 NAKAYAMA+	J.PL/B.246.342.90	E1311010	3
6-C-13(P,N)7-N-13, PAR, DA	3.50+07	2JPNTOH	87	ORIHARA+	J.PL/B.187.240.87	E1362002	22
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307002	17
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307003	17
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307004	15
6-C-14(P,D)6-C-13, PAR, DA	4.01+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307005	10
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307006	15
6-C-14(P,D)6-C-13, PAR, DA	4.01+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307007	11
6-C-14(P,D)6-C-13, PAR, DA	4.01+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307008	10
6-C-14(P,D)6-C-13, PAR, DA	4.01+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307009	15
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307010	16
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307011	13
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307012	14
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307013	14
6-C-14(P,D)6-C-13, PAR, DA	4.01+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307014	18
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307015	8
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307016	14
6-C-14(P,D)6-C-13, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307017	14
6-C-14(P,N)7-N-14, PAR, DA	3.50+07	2JPNTIT	90	IEKI+	J.PR/C.42.457.90	E1316005	15
6-C-14(P,P)6-C-14, PAR, DA	3.50+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307018	9
6-C-14(P,P)6-C-14, PAR, DA	4.01+07	2JPNOSA	90	YASUE+	J.NP/A.509.141.90	E1307019	16
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318002	20
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318003	16
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318004	15
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318005	20
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318006	17
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318007	16
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318008	15
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318009	11
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318010	14
6-C-14(P,T)6-C-12, PAR, DA	4.03+07	2JPNOSA	90	YASUE+	J.NP/A.510.285.90	E1318011	14
7-N-14(P,N)8-0-14, PAR, DA	3.50+07	2JPNTOH	87	ORIHARA+	J.PL/B.187.240.87	E1362003	19
7-N-14(P,P)7-N-14, PAR, DA	3.50+07	2JPNTIT	90	IEKI+	J.PR/C.42.457.90	E1316006	21

REACTION-UNIT	ENERGY RANGE(EV)	LAB	YR	AUTHOR	REFERENCE	ACC.#	PTS
12-MG-24(A,A)12-MG-24,PAR,DA	2.21+07 2.43+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388007	18
12-MG-24(A,A)12-MG-24,PAR,DA	2.20+07 2.43+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388008	24
12-MG-24(A,A)12-MG-24,PAR,DA	2.19+07 2.43+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388009	18
12-MG-24(A,A)12-MG-24,PAR,DA	2.20+07 2.43+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388010	22
12-MG-24(A,A)12-MG-24,PAR,DA	2.20+07 2.43+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388011	22
12-MG-24(A,A)12-MG-24,PAR,DA	2.20+07 2.43+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388012	24
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388013	15
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388014	17
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388015	19
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388016	19
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388017	16
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388018	18
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388019	17
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388020	18
12-MG-24(A,A)12-MG-24,PAR,DA	2.44+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388021	14
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388022	18
12-MG-24(A,A)12-MG-24,PAR,DA	2.43+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388023	18
12-MG-24(A,A)12-MG-24,PAR,DA	2.44+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388024	17
12-MG-24(A,D)13-AL-26,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378015	15
12-MG-24(A,D)13-AL-26,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378016	15
12-MG-24(A,D)13-AL-26,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378017	10
12-MG-24(A,D)13-AL-26,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378018	15
12-MG-24(A,D)13-AL-26,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378019	13
12-MG-24(A,D)13-AL-26,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378020	13
12-MG-24(A,D)13-AL-26,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378021	13
12-MG-24(A,D)13-AL-26,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378022	10
12-MG-24(A,D)13-AL-26,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378023	12
12-MG-24(A,6-C-12)8-0-16,PAR,DA	2.20+07 2.43+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388002	28
12-MG-24(A,6-C-12)8-0-16,PAR,DA	2.40+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388003	22
12-MG-24(A,6-C-12)8-0-16,PAR,DA	2.41+07 2.58+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388004	21
12-MG-24(A,6-C-12)8-0-16,PAR,DA	2.28+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388025	31
12-MG-24(A,6-C-12)8-0-16,PAR,DA	2.43+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388026	34
12-MG-24(A,6-C-12)8-0-16,PAR,DA	2.46+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388027	31
12-MG-24(A,6-C-12)8-0-16,PAR,DA	2.49+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388028	33
12-MG-24(A,6-C-12)8-0-16,PAR,DA	2.51+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388029	32
12-MG-24(A,6-C-12)8-0-16,PAR,DA	2.54+07	2JPNTOK	78	SOGA+	J,PR/C,18,2457,78	E1388030	32
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378002	22
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378003	22
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378004	21
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378005	22
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378006	22
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378007	22
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378008	22
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378009	42
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378010	22
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378011	21
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378012	22
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378013	18
14-SI-28(A,D)15-P-30,PAR,DA	6.43+07	2JPNKTO	86	KADOTA+	J,NP/A,458,523,86	E1378014	21
14-SI-28(P,EL)14-SI-28,PAR,DA	5.19+07	2JPNJCL	78	TOBA+	J,JPJ,45,367,78	E1413005	22
14-SI-28(P,EL)14-SI-28,PAR,DA	5.19+07	2JPNJCL	78	TOBA+	J,JPJ,45,367,78	E1413006	21
14-SI-29(P,EL)14-SI-29,PAR,DA	5.19+07	2JPNJCL	78	TOBA+	J,JPJ,45,367,78	E1413007	14
14-SI-29(P,EL)14-SI-29,PAR,DA	5.19+07	2JPNJCL	78	TOBA+	J,JPJ,45,367,78	E1413008	19
14-SI-29(P,EL)14-SI-29,PAR,DA	5.19+07	2JPNJCL	78	TOBA+	J,JPJ,45,367,78	E1413009	18
14-SI-30(P,EL)14-SI-30,PAR,DA	5.19+07	2JPNJCL	78	TOBA+	J,JPJ,45,367,78	E1413010	22

REACTION-UNIT	ENERGY RANGE(EV)	LAB	YR	AUTHOR	REFERENCE	ACC.#	PTS
14-SI-30(P,EL)14-SI-30,PAR,DA	5.19+07	2JPNJCL	78	TOBA+	J,JPJ,45,367,78	E1413011	17
26-FE-56(P,N)27-CO-56,PAR,DA	1.70+07	2JPNTOH	83	ORIHARA+	J,NP/A,403,317,83	E1424002	11
26-FE-56(P,N)27-CO-56,PAR,DA	1.70+07	2JPNTOH	83	ORIHARA+	J,NP/A,403,317,83	E1424003	11
26-FE-56(P,N)27-CO-56,PAR,DA	1.70+07	2JPNTOH	83	ORIHARA+	J,NP/A,403,317,83	E1424004	10
26-FE-56(P,N)27-CO-56,PAR,DA	1.70+07	2JPNTOH	83	ORIHARA+	J,NP/A,403,317,83	E1424005	9
40-ZR-92(P,D)40-ZR-91,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416002	18
40-ZR-92(P,D)40-ZR-91,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416012	18
40-ZR-92(P,D)40-ZR-91,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416016	13
40-ZR-92(P,D)40-ZR-91,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416018	13
40-ZR-92(P,D)40-ZR-91,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416026	17
40-ZR-92(P,D)40-ZR-91,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416003	18
40-ZR-92(P,D)40-ZR-91,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416013	18
40-ZR-92(P,D)40-ZR-91,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416017	13
40-ZR-92(P,D)40-ZR-91,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416019	13
40-ZR-92(P,D)40-ZR-91,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416027	18
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407017	26
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407018	25
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407019	23
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407020	21
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407021	24
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407022	23
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407023	22
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407024	15
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407025	16
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407026	16
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407027	19
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407028	20
42-MO-98(P,EL)42-MO-98,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407029	18
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407002	27
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407003	23
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407004	25
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407005	25
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407006	15
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407007	26
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407008	16
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407009	18
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407010	21
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407011	16
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407012	14
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407013	16
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407014	17
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407015	23
42-MO-100(P,EL)42-MO-100,PAR,DA	1.47+07	2JPNJCL	72	AWAYA+	J,JPJ,33,881,72	E1407016	23
44-RU-102(P,D)44-RU-101,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416020	16
44-RU-102(P,D)44-RU-101,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416021	16
46-PD-106(P,D)46-PD-105,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416022	16
46-PD-106(P,D)46-PD-105,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416023	16
46-PD-108(P,D)46-PD-107,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416004	16
46-PD-108(P,D)46-PD-107,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416024	16
46-PD-108(P,D)46-PD-107,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416028	13
46-PD-108(P,D)46-PD-107,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416005	16
46-PD-108(P,D)46-PD-107,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416025	16
46-PD-108(P,D)46-PD-107,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416029	13
48-CD-110(P,N)49-IN-110,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425002	11
48-CD-110(P,N)49-IN-110,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425005	11

REACTION-UNIT	ENERGY RANGE (EV)	LAB	YR	AUTHOR	REFERENCE	ACC.#	PTS
48-CD-110(P,N)49-IN-110,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425008	11
48-CD-110(P,N)49-IN-110,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425011	9
48-CD-112(P,D)48-CD-111,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416006	15
48-CD-112(P,D)48-CD-111,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416007	16
48-CD-114(P,D)48-CD-113,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416008	18
48-CD-114(P,D)48-CD-113,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416009	18
48-CD-114(P,N)49-IN-114,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425003	13
48-CD-114(P,N)49-IN-114,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425006	13
48-CD-114(P,N)49-IN-114,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425009	13
48-CD-114(P,N)49-IN-114,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425012	13
48-CD-116(P,N)49-IN-116,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425004	13
48-CD-116(P,N)49-IN-116,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425007	13
48-CD-116(P,N)49-IN-116,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425010	13
48-CD-116(P,N)49-IN-116,PAR,DA	2.50+07	2JPNTOH	82	MURAKAMI+	J,NP/A,377,163,82	E1425013	13
50-SN-118(P,D)50-SN-117,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416010	16
50-SN-118(P,D)50-SN-117,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416014	16
50-SN-118(P,D)50-SN-117,PAR,DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416030	16
50-SN-118(P,D)50-SN-117,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416011	17
50-SN-118(P,D)50-SN-117,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416015	17
50-SN-118(P,D)50-SN-117,PAR,POL/DA	2.20+07	2JPNTSU	83	AOKI+	J,NP/A,393,52,83	E1416031	17
60-ND-142(P,D)60-ND-141,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420014	20
60-ND-142(P,D)60-ND-141,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420016	20
60-ND-142(P,D)60-ND-141,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420018	15
60-ND-142(P,D)60-ND-141,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420015	20
60-ND-142(P,D)60-ND-141,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420017	20
60-ND-142(P,D)60-ND-141,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420019	15
60-ND-144(P,D)60-ND-143,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420020	18
60-ND-144(P,D)60-ND-143,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420022	18
60-ND-144(P,D)60-ND-143,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420021	18
60-ND-144(P,D)60-ND-143,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420023	17
82-PB-208(A,A)82-PB-208,PAR,DA	7.00+07	2JPNOSA	92	FUJITA+	J,PR/C,45,993,92	E1376002	18
82-PB-208(A,A)82-PB-208,PAR,DA	7.00+07	2JPNOSA	92	FUJITA+	J,PR/C,45,993,92	E1376003	14
82-PB-208(A,A)82-PB-208,PAR,DA	7.00+07	2JPNOSA	92	FUJITA+	J,PR/C,45,993,92	E1376004	11
82-PB-208(A,A)82-PB-208,PAR,DA	7.00+07	2JPNOSA	92	FUJITA+	J,PR/C,45,993,92	E1376005	12
82-PB-208(A,A)82-PB-208,PAR,DA	7.00+07	2JPNOSA	92	FUJITA+	J,PR/C,45,993,92	E1376006	11
82-PB-208(P,D)82-PB-207,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420002	18
82-PB-208(P,D)82-PB-207,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420003	15
82-PB-208(P,D)82-PB-207,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420006	18
82-PB-208(P,D)82-PB-207,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420007	18
82-PB-208(P,D)82-PB-207,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420010	18
82-PB-208(P,D)82-PB-207,PAR,DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420012	9
82-PB-208(P,D)82-PB-207,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420004	18
82-PB-208(P,D)82-PB-207,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420005	15
82-PB-208(P,D)82-PB-207,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420008	18
82-PB-208(P,D)82-PB-207,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420009	18
82-PB-208(P,D)82-PB-207,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420011	18
82-PB-208(P,D)82-PB-207,PAR,POL/DA	2.20+07	2JPNTSU	81	TOBA+	J,NP/A,359,76,81	E1420013	9

REACTION-UNIT	ENERGY RANGE (EV)	LAB	YR	AUTHOR	REFERENCE	ACC.#	PTS
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379002	21
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379003	21
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379004	14
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379005	14
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379006	17
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379007	20
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379008	21
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379009	19
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379010	19
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379011	17
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379012	15
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379013	17
6-C-12(D,P)6-C-13, PAR, DA	3.00+07	2JPN	85	OHNUMA+	J, NP/A, 448, 205, 85	E1379014	16
8-0-16(A,D)9-F-18, PAR, DA	6.53+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378111	18
8-0-16(A,D)9-F-18, PAR, DA	6.53+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378112	19
8-0-16(A,D)9-F-18, PAR, DA	6.53+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378113	18
8-0-16(A,D)9-F-18, PAR, DA	6.53+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378114	22
8-0-16(A,D)9-F-18, PAR, DA	6.53+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378115	12
8-0-16(A,D)9-F-18, PAR, DA	6.53+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378116	12
8-0-16(A,D)9-F-18, PAR, DA	6.53+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378117	14
8-0-16(A,D)9-F-18, PAR, DA	6.53+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378118	14
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378085	14
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378086	11
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378087	11
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378088	6
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378089	21
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378090	20
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378091	21
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378092	14
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378093	16
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378094	7
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378095	14
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378096	7
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378097	10
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378098	20
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378099	21
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378100	21
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378101	17
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378102	10
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378103	21
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378104	18
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378105	12
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378106	19
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378107	17
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378108	15
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378109	12
8-0-18(A,D)9-F-20, PAR, DA	6.44+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378110	9
10-NE-20(A,D)11-NA-22, PAR, DA	6.43+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378053	19
10-NE-20(A,D)11-NA-22, PAR, DA	6.43+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378054	14
10-NE-20(A,D)11-NA-22, PAR, DA	6.43+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378055	19
10-NE-20(A,D)11-NA-22, PAR, DA	6.43+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378056	20
10-NE-20(A,D)11-NA-22, PAR, DA	6.43+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378057	20
10-NE-20(A,D)11-NA-22, PAR, DA	6.43+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378058	12
10-NE-20(A,D)11-NA-22, PAR, DA	6.43+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378059	20
10-NE-20(A,D)11-NA-22, PAR, DA	6.43+07	2JPN	86	KADOTA+	J, NP/A, 458, 523, 86	E1378060	19

REACTION-UNIT	ENERGY RANGE(EV)	LAB	YR	AUTHOR	REFERENCE	ACC.#	PTS
7-N-14 (P,P) 7-N-14, PAR, POL/DA	3.50+07	2JPNTIT	90	IEKI+	J,PR/C,42,457,90	E1316010	20
7-N-15 (P,N) 8-0-15, PAR, DA	3.50+07	2JPNTOH	87	ORIHARA+	J,PL/B,187,240,87	E1362004	22
8-0-16 (P,N) 9-F-16, PAR, DA	3.50+07	2JPNTIT	87	OHNUMA+	J,NP/A,467,61,87	E1372008	15
8-0-16 (P,N) 9-F-16, PAR, DA	3.50+07	2JPNTIT	87	OHNUMA+	J,NP/A,467,61,87	E1372009	15
8-0-16 (P,N) 9-F-16, PAR, DA	3.50+07	2JPNTIT	87	OHNUMA+	J,NP/A,467,61,87	E1372010	15
8-0-16 (P,N) 9-F-16, PAR, DA	3.50+07	2JPNTIT	87	OHNUMA+	J,NP/A,467,61,87	E1372011	16
8-0-16 (P,N) 9-F-16, PAR, DA	3.50+07	2JPNTIT	87	OHNUMA+	J,NP/A,467,61,87	E1372012	11
8-0-16 (P,N) 9-F-16, PAR, DA	4.00+07	2JPNTIT	87	OHNUMA+	J,NP/A,467,61,87	E1372013	9
8-0-16 (P,P) 8-0-16, PAR, DA	4.00+07	2JPNTIT	87	OHNUMA+	J,NP/A,467,61,87	E1372012	11
8-0-16 (P,P) 8-0-16, PAR, DA	4.00+07	2JPNTIT	87	OHNUMA+	J,NP/A,467,61,87	E1372013	9
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317003	17
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317004	19
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317005	20
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317006	20
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317007	21
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317008	20
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317009	20
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317010	21
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317011	20
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317012	21
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317013	20
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317014	21
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317015	21
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317016	21
8-0-16 (P,P) 8-0-16, PAR, DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317017	17
8-0-16 (P,P) 8-0-16, PAR, POL/DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317018	2
8-0-16 (P,P) 8-0-16, PAR, POL/DA	3.50+07	2JPNTIT	90	OHNUMA+	J,NP/A,514,273,90	E1317018	2
10-NE-20 (HE3, T) 11-NA-20, PAR, DA	5.53+07	2JPNTOK	88	KUBONO+	J,ZP/A,331,359,88	E1359002	16
10-NE-20 (HE3, T) 11-NA-20, PAR, DA	5.53+07	2JPNTOK	88	KUBONO+	J,ZP/A,331,359,88	E1359003	16
10-NE-22 (P,N) 11-NA-22, PAR, DA	5.53+07	2JPNTOH	90	ORIHARA+	J,PR/C,41,2414,90	E1360002	15
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	7.97+06	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319002	210
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	7.95+06	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319003	193
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	8.50+06	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319004	34
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	9.52+06	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319005	32
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	9.95+06	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319006	34
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	1.03+07	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319007	35
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	1.09+07	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319008	36
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	1.16+07	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319009	35
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	1.50+07	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319010	37
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	1.58+07	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319011	37
11-NA-23 (P,6-C-12) 6-C-12, PAR, DA	1.72+07	2JPNKYU	87	KIMURA+	J,PL/B,199,331,87	E1319012	38
12-MG-24 (A,D) 13-AL-26, PAR, DA	6.47+07	2JPNOSA	91	YASUE+	J,PR/C,43,510,91	E1355002	9
12-MG-24 (A,D) 13-AL-26, PAR, DA	6.47+07	2JPNOSA	91	YASUE+	J,PR/C,43,510,91	E1355003	8
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325002	17
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325003	17
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325004	17
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325005	15
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325006	16
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325007	17
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325008	12
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325009	15
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325010	16
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325011	10
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325012	16
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325013	16
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325014	15
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325015	16
12-MG-24 (P,N) 13-AL-24, PAR, DA	3.50+07	2JPNTOH	89	KIANG+	J,NP/A,499,339,89	E1325016	17

REACTION-UNIT	ENERGY RANGE(EV)	LAB	YR	AUTHOR	REFERENCE	ACC.#	PTS
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371019	16
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371020	17
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371021	18
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371022	19
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371023	19
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371024	19
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371025	20
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371026	20
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371027	20
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371028	20
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371029	16
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371030	17
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371031	18
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371032	18
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371033	18
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371034	18
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371035	17
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371036	18
15-P-31(D,N)16-S-32, PAR, DA	2.50+07	2JPNJPN	87	MIURA+	J,NP/A,467,79,87	E1371037	19
16-S-34(P,N)17-CL-34, PAR, DA	3.50+07	2JPNTOH	87	FURUKAWA+	J,PR/C,36,1686,87	E1361002	15
16-S-34(P,N)17-CL-34, PAR, DA	3.50+07	2JPNTOH	87	FURUKAWA+	J,PR/C,36,1686,87	E1361003	15
16-S-34(P,N)17-CL-34, PAR, DA	3.50+07	2JPNTOH	87	FURUKAWA+	J,PR/C,36,1686,87	E1361004	16
16-S-34(P,N)17-CL-34, PAR, DA	3.50+07	2JPNTOH	87	FURUKAWA+	J,PR/C,36,1686,87	E1361005	16
16-S-34(P,N)17-CL-34, PAR, DA	3.50+07	2JPNTOH	87	FURUKAWA+	J,PR/C,36,1686,87	E1361006	15
16-S-34(P,N)17-CL-34, PAR, DA	3.50+07	2JPNTOH	87	FURUKAWA+	J,PR/C,36,1686,87	E1361007	8
16-S-34(P,N)17-CL-34, PAR, DA	3.50+07	2JPNTOH	87	FURUKAWA+	J,PR/C,36,1686,87	E1361008	16
16-S-34(P,N)17-CL-34, PAR, DA	3.50+07	2JPNTOH	87	FURUKAWA+	J,PR/C,36,1686,87	E1361009	14
16-S-34(P,N)17-CL-34, PAR, DA	3.50+07	2JPNTOH	87	FURUKAWA+	J,PR/C,36,1686,87	E1361010	16
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,41,2421,90	E1313002	11
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,41,2421,90	E1313003	8
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314002	8
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314003	4
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314004	7
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314005	5
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314006	10
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314007	8
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314008	7
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314009	6
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314010	8
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314011	10
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314012	9
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314013	7
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314014	8
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314015	6
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314016	7
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314017	9
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314018	8
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314019	5
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314020	7
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314021	6
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314022	7
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314023	8
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314024	9
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314025	9
20-CA-40(3-LI-6,D)22-TI-44, PAR, DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C,42,1935,90	E1314026	7

REACTION-UNIT	ENERGY RANGE(EV)	LAB	YR	AUTHOR	REFERENCE	ACC.#	PTS
20-CA-40(3-LI-6,D)22-TI-44,PAR,DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C.42,1935,90	E1314027	9
20-CA-40(3-LI-6,D)22-TI-44,PAR,DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C.42,1935,90	E1314028	7
20-CA-40(3-LI-6,D)22-TI-44,PAR,DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C.42,1935,90	E1314029	11
20-CA-40(3-LI-6,D)22-TI-44,PAR,DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C.42,1935,90	E1314030	9
20-CA-40(3-LI-6,D)22-TI-44,PAR,DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C.42,1935,90	E1314031	9
20-CA-40(3-LI-6,D)22-TI-44,PAR,DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C.42,1935,90	E1314032	8
20-CA-40(3-LI-6,D)22-TI-44,PAR,DA	5.00+07	2JPNTOH	90	YAMAYA+	J,PR/C.42,1935,90	E1314033	11
40-ZR-90(D,A)39-Y-88,PAR,DA	2.20+07	2JPNTSU	87	HASHIMOTO+	J,NP/A.471,520,87	E1367011	21
40-ZR-90(D,A)39-Y-88,PAR,DA	2.20+07	2JPNTSU	87	HASHIMOTO+	J,NP/A.471,520,87	E1367012	21
40-ZR-90(D,HE3)39-Y-89,PAR,DA	2.20+07	2JPNTSU	87	HASHIMOTO+	J,NP/A.471,520,87	E1367010	21
40-ZR-90(D,T)40-ZR-89,PAR,DA	2.20+07	2JPNTSU	87	HASHIMOTO+	J,NP/A.471,520,87	E1367009	15
42-MO-94(P,T)42-MO-92,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363020	16
42-MO-94(P,T)42-MO-92,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363002	16
42-MO-96(P,T)42-MO-94,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363021	14
42-MO-96(P,T)42-MO-94,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363003	13
42-MO-98(P,T)42-MO-96,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363022	20
42-MO-98(P,T)42-MO-96,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363004	20
44-RU-100(P,T)44-RU-98,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363023	15
44-RU-100(P,T)44-RU-98,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363005	14
44-RU-102(P,T)44-RU-100,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363024	16
44-RU-102(P,T)44-RU-100,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363006	15
44-RU-104(P,T)44-RU-102,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363025	15
44-RU-104(P,T)44-RU-102,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363007	15
46-PD-104(P,T)46-PD-102,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363026	13
46-PD-104(P,T)46-PD-102,PAR,DA	5.22+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363040	20
46-PD-104(P,T)46-PD-102,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363008	13
46-PD-104(P,T)46-PD-102,PAR,POL/DA	5.22+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363038	20
46-PD-106(P,P)46-PD-106,,DA/DE	1.20+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323002	13
46-PD-106(P,P)46-PD-106,,DA/DE	1.20+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323003	13
46-PD-106(P,P)46-PD-106,,DA/DE	1.20+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323004	13
46-PD-106(P,P)46-PD-106,,DA/DE	1.20+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323005	13
46-PD-106(P,P)46-PD-106,,DA/DE	1.40+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323006	14
46-PD-106(P,P)46-PD-106,,DA/DE	1.40+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323007	14
46-PD-106(P,P)46-PD-106,,DA/DE	1.40+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323008	14
46-PD-106(P,P)46-PD-106,,DA/DE	1.40+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323009	14
46-PD-106(P,P)46-PD-106,,DA/DE	1.60+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323010	14
46-PD-106(P,P)46-PD-106,,DA/DE	1.60+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323011	13
46-PD-106(P,P)46-PD-106,,DA/DE	1.60+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323012	14
46-PD-106(P,P)46-PD-106,,DA/DE	1.60+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323013	11
46-PD-106(P,P)46-PD-106,,DA/DE	1.80+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323014	14
46-PD-106(P,P)46-PD-106,,DA/DE	1.80+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323015	14
46-PD-106(P,P)46-PD-106,,DA/DE	1.80+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323016	14
46-PD-106(P,P)46-PD-106,,DA/DE	1.80+07	2JPNKYU	90	WATANABE+	J,ZP/A.336,63,90	E1323017	14
46-PD-106(P,T)46-PD-104,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363027	16
46-PD-106(P,T)46-PD-104,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363009	16
46-PD-108(P,T)46-PD-106,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363028	16
46-PD-108(P,T)46-PD-106,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363010	16
46-PD-110(P,T)46-PD-108,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363029	18
46-PD-110(P,T)46-PD-108,PAR,DA	5.22+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363041	22
46-PD-110(P,T)46-PD-108,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363011	20
46-PD-110(P,T)46-PD-108,PAR,POL/DA	5.22+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363039	22
48-CD-112(P,T)48-CD-110,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363030	16
48-CD-112(P,T)48-CD-110,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363012	15
48-CD-114(P,T)48-CD-112,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363031	16
48-CD-114(P,T)48-CD-112,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363013	17

REACTION-UNIT	ENERGY RANGE(EV)	LAB	YR	AUTHOR	REFERENCE	ACC.#	PTS
48-CD-116(P,T)48-CD-114,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363032	16
48-CD-116(P,T)48-CD-114,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363014	14
50-SN-118(P,T)50-SN-116,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363033	16
50-SN-118(P,T)50-SN-116,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363015	17
52-TE-122(P,T)52-TE-120,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363034	16
52-TE-122(P,T)52-TE-120,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363016	13
52-TE-128(P,T)52-TE-126,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363035	15
52-TE-128(P,T)52-TE-126,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363017	15
52-TE-130(P,T)52-TE-128,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363036	13
52-TE-130(P,T)52-TE-128,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363018	13
56-BA-138(P,T)56-BA-136,PAR,DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363037	15
56-BA-138(P,T)56-BA-136,PAR,POL/DA	2.20+07	2JPNTSU	87	NAGANO+	J,JPJ,56,1974,87	E1363019	16
76-OS-187(HE3,T)77-IR-187,PAR,DA	5.00+07	2JPNJPN	90	KATO+	J,PR/C,42,1918,90	E1354003	1
82-PB-208(D,A)81-TL-206,PAR,DA	2.15+07	2JPNTSU	87	HASHIMOTO+	J,NP/A,471,520,87	E1367004	47
82-PB-208(D,HE3)81-TL-207,PAR,DA	2.15+07	2JPNTSU	87	HASHIMOTO+	J,NP/A,471,520,87	E1367003	6
82-PB-208(D,T)82-PB-207,PAR,DA	2.15+07	2JPNTSU	87	HASHIMOTO+	J,NP/A,471,520,87	E1367002	24
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310002	9
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310003	11
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310004	10
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310005	10
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310006	8
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310007	11
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310008	9
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310009	10
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310010	9
82-PB-208(P,P)82-PB-208,PAR,DA	8.00+07	2JPNOSA	90	FUJITA+	J,PL/B,247,219,90	E1310011	8
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365002	13
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365004	13
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365006	13
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365007	13
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365008	13
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365009	13
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365010	13
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365016	11
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365017	11
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365018	11
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365019	11
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365020	11
82-PB-208(P,T)82-PB-206,PAR,DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365021	12
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365003	13
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365005	13
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365011	13
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365012	13
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365013	13
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365014	13
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365015	13
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365022	11
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365023	11
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365024	11
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365025	11
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365026	11
82-PB-208(P,T)82-PB-206,PAR,POL/DA	2.20+07	2JPNTSU	87	KUROKAWA+	J,NP/A,470,377,87	E1365027	12