Japan Charged-Particle Nuclear Reaction Data Group (JCPRG)

EXFOR : Recent Compilation List (Added in Feb 2004)

EXFOR is a world-wide database for experimental neutron induced, charged-particle induced and photonuclear reaction compiled by Nuclear Reaction Data Centres Network coordinated by IAEA Nuclear Data Section. This list gives newly compiled data to EXFOR. *List consists of tables titled by target nuclide*.

Retrieval service is available at:
`http://www.jcprg.org/exfor/`

Quantity code

ALF	Alpha	FY	Fission product yield
AMP	Length or amplitude	INT	Cross section integral over incident energy
CHG	Fragment charge	KE	Kinetic energy
CS	Cross section	KER	Kerma factor
CSN	Differential with respect to number of particles	MLT	Multiplicity
CSP	Partial cross section	NQ	Nuclear quantity
CST	Temperature dependent cross section	NU	Nu
D3A	Triple differential $\mathrm{d}\Omega_1/\mathrm{d}\Omega_2/\mathrm{d}E'$	NUD	Nu delayed
D3E	Triple differential $\mathrm{d}\Omega/\mathrm{d}E'_1/\mathrm{d}E'_2$	NUF	Fragment neutrons
D4A	Quadruple diff. $\mathrm{d}\Omega_1/\mathrm{d}\Omega_2/\mathrm{d}E'_1/\mathrm{d}E'_2$	POL	Polarization
DA	Differential $\mathrm{d}/\mathrm{d}\Omega$	POD	Differential polarization
DAA	Double differential $\mathrm{d}\Omega_1/\mathrm{d}\Omega_2$	PY	Product yield (other than fission)
DAE	Double differential $\mathrm{d}\Omega/\mathrm{d}E'$	RI	Resonance integral
DAP	Partial differential $\mathrm{d}/\mathrm{d}\Omega$	RP	Resonance parameter
DAT	Temperature-dependent Legendre coefficient	RR	Reaction rate
DE	Differential $\mathrm{d}/\mathrm{d}E'$	SIF	Self indication
DEP	Energy spectrum for specific group	SPC	Gamma spectrum
DP	Diff. by linear momentum of outgoing part.	TSL	Thermal scattering
DT	Diff. by 4-momentum transfer squared	TT	Thick target yield
ETA	Eta	TTD	Differential thick target yield, $\mathrm{d}/\mathrm{d}\Omega$
EVL	Evaluation	TT	Partial thick target yield

Special codes in outgoing particle field

abs	Absorption	fus	Fusion	non	Nonelastic	ths	Thermal scattering
el	Elastic	inel	Inelastic	sct	Scattering	tot	Total
f	Fission	incl	Inclusive	tcc	Total charge changing		

Special codes in incident energy field

Fast	Fast reactor spectrum average	Maxw	Maxwellian spectrum average
Fiss	Fission spectrum average	Spont	Spontaneous (for fission)

1 Hydrogen 1

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,el	^{1}H	POD	1USAINU	0.0+00		Jour	PR/C,58,1897	Oct 98	B.V.Przewoski+	C0948
p,el	^{1}H	POD	1CANTMF	2.2+08		Jour	PR/C,68,034004	03	A.R.Berdoz+	C0952
p,el	^{1}H	POD	1USAINU	2.5+08	4.5+08	Jour	PR/C,58,1897	Oct 98	B.V.Przewoski+	C0948
p,el	^{1}H	POD	1USALAS	3.2+08	8.0+08	Jour	PR/C,24,1778	Oct 81	M.W.Mcnaughton+	C0938
p,n+π^+	^{1}H	CS	1USAINU	2.9+08	3.2+08	Jour	PR/C,56,20	Jul 97	J.G.Hardie+	C0939
p,n+π^+	^{1}H	DA	1USAINU	2.9+08	3.2+08	Jour	PR/C,56,20	Jul 97	J.G.Hardie+	C0939

1 Hydrogen 2

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,n	^{2}He	DAE	1USALAS	5.0+08		Jour	PR/C,47,2159	May 93	X.Y.Chen+	C0823
p,n	^{2}He	POD	1USALAS	5.0+08		Jour	PR/C,47,2159	May 93	X.Y.Chen+	C0823
d,n+p	^{2}H	POD	1USATNL	1.2+07		Jour	PR/C,48,2855	Dec 93	C.R.Howell+	C0892

2 Helium 3

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
d,p	^{4}He	POD	1USATNL	5.2+05	1.5+06	Jour	PR/C,66,057601	02	K.A.Fletcher+	C0943

5 Boron 10

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,p	^{13}C	DAP	1USAHOU	1.4+06	5.3+06	Jour	NIM/B,211,1	03	H.Chen+	C0949

6 Carbon

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,x	^{10}Be	CS	1USAHRV	1.6+08		Jour	NIM/B,196,239	02	K.J.Kim+	C0941
p,x	^{10}Be	CS	1CANTMF	2.0+08	5.0+08	Jour	NIM/B,196,239	02	K.J.Kim+	C0941
p,x	^{10}Be	CS	1USADAV	4.1+07	6.7+07	Jour	NIM/B,196,239	02	K.J.Kim+	C0941

6 Carbon 12

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #

p,n	^{12}N	DAE	1USALAS	5.0+08		Jour	PR/C,47,2159	May 93	X.Y.Chen+	C0823
p,n	^{12}N	POD	1USALAS	5.0+08		Jour	PR/C,47,2159	May 93	X.Y.Chen+	C0823
d,n	^{13}N	TT	1USAMIT	1.5+06		Jour	NIM/B,195,442	02	D.B.Cassidy+	C0946
^{3}He,p	^{14}N	DAP	1USABRK	2.0+07		Jour	NP/A,117,161	68	N.F.Mangelson+	C0933

8 Oxygen 16

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
^{3}He,p	^{18}F	DAP	1USABRK	2.0+07		Jour	NP/A,119,79	68	N.F.Mangelson+	C0917
α,d	^{18}F	DAP	1USABRK	4.0+07		Jour	NP/A,119,79	68	N.F.Mangelson+	C0917

13 Aluminium 27

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,x	^{7}Be	CS	1USAWAU	3.0+07	4.2+07	Jour	PR,116,160	Oct 59	G.H.Bouchardjr+	C0947
α,x	^{22}Na	CS	1USAWAU	4.0+07		Jour	PR,116,160	Oct 59	G.H.Bouchardjr+	C0947

14 Silicon 28

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,x	Many	CS	1USAINU	1.2+08	2.0+08	Jour	PR/C,47,267	Jan 93	L.W.Woo+	C0928

20 Calcium 40

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,n	^{40}Sc	DAE	1USALAS	5.0+08		Jour	PR/C,47,2159	May 93	X.Y.Chen+	C0823
p,n	^{40}Sc	POD	1USALAS	5.0+08		Jour	PR/C,47,2159	May 93	X.Y.Chen+	C0823

22 Titanium 48

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,n	^{51}Cr	CS	1USAOSU	5.0+06	1.1+07	Jour	NIM,109,327	73	C.N.Chang+	C0951

24 Chromium

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,x	^{52}Mn	?	1USABNL	3.3+07		Jour	PR,98,1197	55	J.M.Miller+	C0945

26 Iron 58

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,x	^{56}Co	?	1USAOHO	6.3+06		Jour	PR,87,216(Q8)	52	C.J.Avery+	C0944
p,x	^{58}Co	CS	1USAOHO	6.3+06		Jour	PR,87,216(Q8)	52	C.J.Avery+	C0944

29 Copper

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,x	^{7}Be	CS	1USAWAU	3.7+07	4.1+07	Jour	PR,116,160	Oct 59	G.H.Bouchardjr+	C0947

32 Germanium 72

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,n	^{72}As	?	1USAOHO	6.3+06		Jour	PR,87,216(Q8)	52	C.J.Avery+	C0944

32 Germanium 73

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,γ	^{74}As	?	1USAOHO	6.3+06		Jour	PR,87,216(Q8)	52	C.J.Avery+	C0944

32 Germanium 74

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,n	^{74}As	?	1USAOHO	6.3+06		Jour	PR,87,216(Q8)	52	C.J.Avery+	C0944

47 Silver

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,x	^{7}Be	CS	1USAWAU	4.1+07		Jour	PR,116,160	Oct 59	G.H.Bouchardjr+	C0947

67 Holmium 165

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,f	Many	CS	1USACHI	4.5+08		Jour	PR,99,1459	Sep 55	P.Kruger+	C0942

70 Ytterbium 176

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
^{9}Be,x	^{178}Hf	CS	1USASTB	6.5+07		Jour	HI,143,55	02	J.P.Farrell+	C0953
^{9}Be,x	^{178}Hf	CSP	1USASTB	6.0+07	7.5+07	Jour	HI,143,55	02	J.P.Farrell+	C0953
^{9}Be,x	^{180}W	CSP	1USASTB	6.5+07		Jour	HI,143,55	02	J.P.Farrell+	C0953

79 Gold 197

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,f	Many	CS	1USACHI	4.5+08		Jour	PR,99,1459	Sep 55	P.Kruger+	C0942

82 Lead

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
α,x	^{7}Be	CS	1USAWAU	4.0+07	4.1+07	Jour	PR,116,160	Oct 59	G.H.Bouchardjr+	C0947

90 Thorium 232

Reaction	Product	Quantity	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
p,f	Many	CS	1USACHI	4.5+08		Jour	PR,99,1459	Sep 55	P.Kruger+	C0942