EXFOR News (October 2016)

New experimental data available from Nuclear Reaction Data Centres

EXFOR [1] is a world-wide data library for experimental neutron, charged-particle and photon induced reaction data compiled by the International Network of the Nuclear Reaction Data Centres (NRDC)[a] co-ordinated by the IAEA Nuclear Data Section. Regularly updated web retrieval databases are available at IAEA-NDS as well as NNDC, NEADB, JAEA, JCPRG and CDFE.

This News lists newly created EXFOR entries as well as revised EXFOR entries where new data subentries are added. Entries from articles pubslished in past 10 years are flagged by asterisks (*). Please send an email to N.Otsuka (NRDC Coordinator n.otsuka@iaea.org) for inclusion in the EXFOR News distribution list as well as any question on EXFOR.

[1] N.Otuka et al., Nucl.Data.Sheets **120**(2014)272.

Quantity codes

ALF	α-value ($\sigma_{\rm capt}/\sigma_{\rm fis}$)	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	Fission neutron multiplicity $\bar{\nu}$
D3A	Triple differential dΩ_1/dΩ_2/dE'	NUD	Delayed fission neutron multiplicity $\bar{\nu}_d$
D3E	Triple differential dΩ/dE'_1/dE'_2	NUF	Fragment neutrons
D4A	Quadruple diff. dΩ_1/dΩ_2/dE'_1/dE'_2	POL	Polarization
DA	Differential d/dΩ	POD	Differential polarization
DAA	Double differential dΩ_1/dΩ_2	PY	Product yield (other than fission)
DAE	Double differential dΩ/dE'	RI	Resonance integral
DAP	Partial differential d/dΩ	RP	Resonance parameter
DAT	Temperature-dependent Legendre coefficient	RR	Reaction rate
DE	Differential d/dE'	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	η-value $\bar{\nu}\sigma_{\rm fis}/(\sigma_{\rm capt}+\sigma_{\rm fis})$	TTD	Differential thick target yield, d/dΩ
EVL	Evaluation	TTP	Partial thick target yield

Special codes in outgoing particle field

abs	Absorption	fus	Fusion	sct	Scattering	tot	Total
el	Elastic	inel	Inelastic	tcx	Total charge changing		
fis	Fission	non	Nonelastic	ths	Thermal scattering		

Special codes in incident energy field

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

[a] NNDC (USA), NEADB (France), NDS (Austria), CJD (Russia), CNDC (China), ATOMKI (Hungary), NDPCI (India), JAEA (Japan), JCPRG (Japan), KAERI (Korea), CDFE (Russia), CNPD (Russia), UkrNDC (Ukraine)

1 Hydrogen 1

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	d,el	^{1}H	POD	2FR SAC	2.2+07	2.2+07	Rept	CEA-R-3392,1	68	J.Arvieux	A1353

1 Hydrogen 2

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,el	^{2}H	DA	2FR SAC	2.1+06	1.2+07	Rept	CEA-R-3392,1	68	J.Arvieux	A1353
*	t,x+n	inclusive	DAE	1USALAS	6.0+06	1.6+07	Jour	NSE,183,298	16	M.Drosg+	C2201
*	^{26}Al,n	^{27}Si	?	1USAMSU	7.8+08	7.8+08	Jour	EPJ/A,52,6	16	A.Kankainen+	C2215

1 Hydrogen 3

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	t,d	^{4}H	CS	1USALAS	1.6+07	1.9+07	Jour	NSE,184,114	16	M.Drosg+	C2221
*	t,d	^{4}H	DA	1USALAS	1.6+07	1.9+07	Jour	NSE,184,114	16	M.Drosg+	C2221
*	t,n	^{5}He	CS	1USALAS	6.0+06	1.9+07	Jour	NSE,184,114	16	M.Drosg+	C2221
*	t,n	^{5}He	DA	1USALAS	6.0+06	1.9+07	Jour	NSE,184,114	16	M.Drosg+	C2221
*	t,x+n	inclusive	CS	1USALAS	6.0+06	1.9+07	Jour	NSE,184,114	16	M.Drosg+	C2221
*	t,x+n	inclusive	DA	1USALAS	6.0+06	1.9+07	Jour	NSE,184,114	16	M.Drosg+	C2221
*	t,x+n	inclusive	DAE	1USALAS	6.0+06	1.9+07	Jour	NSE,184,114	16	M.Drosg+	C2221

2 Helium 3

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	d,p	^{4}He	CS	1USALAS	3.5+04	9.5+04	Jour	PR,88,159(B9)	52	J.L.Tuck+	A1320
*	α,γ	^{7}Be	CS	1USAWAU		1.2+06	Jour	PR/C,76,055801	07	T.A.D.Brown+	C1610
*	α,x	^{7}Be	CS	1USAWAU			Jour	PR/C,76,055801	07	T.A.D.Brown+	C1610

3 Lithium 6

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,el	^{6}Li	DA	4KASKAZ	6.9+05	1.2+06	Jour	YF,74,1013	11	S.B.Dubovichenko+	A0907
	p,γ	^{7}Be	CS	1USASUI	4.0+05	4.0+05	Jour	PR,97,1245	55	S.Bashkin+	C1588
	p,γ	^{7}Be	CSP	1USASUI	4.2+05	4.2+05	Jour	PR,97,1245	55	S.Bashkin+	C1588
	p,γ	^{7}Be	PY	1USASUI	1.8+05	4.2+05	Jour	PR,97,1245	55	S.Bashkin+	C1588
	d,α	^{4}He	POD	2SWTETH	1.5+06	1.2+07	Jour	NP/A,286,115	77	R.Risler+	A1536

6 Carbon

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,x+n	inclusive	PY	1USAORL	2.0+06	1.0+07	Jour	NSE,31,343	68	R.L.Macklin+	C1062
	α,x+n	inclusive	PY	1USAORL	5.2+06	9.0+06	Jour	NSE,51,83	73	J.K.Bair	C1063

6 Carbon 12

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	α,γ	^{16}O	CS	1USACAL	3.0+05	3.0+05	Jour	NP/A,233,(2),495	74	P.Dyer+	C1589
	α,γ	^{16}O	CSP	1USACAL	1.4+06	2.9+06	Jour	NP/A,233,(2),495	74	P.Dyer+	C1589
*	^{48}Ca,^{11}C	^{49}Ca	CSP	1USAMSU	3.2+09	3.2+09	Jour	PR/C,93,031601	16	A.Gade+	C2216
*	^{48}Ca,^{11}C	^{49}Ca	DAP	1USAMSU	3.2+09	3.2+09	Jour	PR/C,93,031601	16	A.Gade+	C2216

6 Carbon 13

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,γ	^{14}N	CSP	1USALRL	1.0+05	1.4+05	Jour	PR,121,584	61	R.E.Hester+	C1618

6 Carbon 14

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,γ	^{15}N	CSP	1USACAL	2.6+05	7.4+05	Jour	NP/A,517,329	90	J.Goerres+	C0561
	p,γ	^{15}N	DAP	1USACAL	2.6+05	5.5+05	Jour	NP/A,517,329	90	J.Goerres+	C0561

7 Nitrogen 14

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,α	^{11}B	DAP	2FR BOR	1.5+07	1.5+07	Jour	NP/A,116,(1),196	Jul 68	B.Leroux+	21461

8 Oxygen 16

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,α	^{13}C	CSP	2SWTBAS	1.5+07	1.9+07	Jour	HPA,41,573	68	I.Sick+	21674
	n,α	^{13}C	DAP	2SWTBAS	1.5+07	1.9+07	Jour	HPA,41,573	68	I.Sick+	21674

8 Oxygen 17

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,0		RP	1USAANL			Jour	PR/C,18,1962	78	R.J.Holt+	L0196
	γ,n	^{16}O	DA	1USAANL	4.4+06	6.8+06	Jour	PR/C,18,1962	78	R.J.Holt+	L0196

20 Calcium 48

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	p,n	^{48}Sc	DAP	1USAINU	1.3+08	1.6+08	Jour	PR/C,31,1147	Apr 85	B.D.Anderson+	C0134
	p,n	^{48}Sc	DAP	1USAINU	1.6+08	1.6+08	Jour	PRL,45,699	80	B.D.Anderson+	C1612

21 Scandium 45

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	t,^{3}He	^{45}Ca	DAE	1USAMSU	3.4+08	3.4+08	Jour	PR/C,92,024312	15	S.Noji+	C2179

26 Iron 56

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,inel	^{56}Fe	CS	2GERZFK	8.5+05	1.1+07	Jour	NP/A,927,41	14	R.Beyer+	23134
*	n,inel	^{56}Fe	CSP	2GERZFK	2.3+06	1.1+07	Jour	NP/A,927,41	14	R.Beyer+	23134
	n,inel	^{56}Fe	DAP	2NEDAMS	2.5+06	2.5+06	Jour	PHY,32,1397	Aug 66	L.W.Put+	20234

42 Molybdenum

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	d,x	^{90}Nb	TT	3CZRUJV	1.2+07	1.3+07	Jour	ARI,28,555	77	Z.Randa+	B0084
	d,x	^{92}Nb	TT	3CZRUJV	1.2+07	1.3+07	Jour	ARI,28,555	77	Z.Randa+	B0084
	d,x	^{95}Nb	?	3CZRUJV	1.3+07	1.3+07	Jour	ARI,28,555	77	Z.Randa+	B0084
	d,x	^{96}Nb	TT	3CZRUJV	1.2+07	1.3+07	Jour	ARI,28,555	77	Z.Randa+	B0084

58 Cerium 140

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,el	^{140}Ce	CS	1USATNL	5.4+06	8.3+06	Jour	PL/B,756,72	16	B.Loher+	L0215

82 Lead 208

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	^{11}Li,x	^{9}Li	DA	1CANTMF	2.4+07	3.0+07	Jour	PR/C,92,044608	15	J.P.Fernandez-Garcia+	C2195
*	^{11}Li,x	^{9}Li	DAE	1CANTMF	2.4+07	3.0+07	Jour	PR/C,92,044608	15	J.P.Fernandez-Garcia+	C2195
	^{12}C,el	^{208}Pb	DA	4RUSKUR	7.6+07	7.6+07	Jour	IZV,65,56	01	V.P.Rudakov+	A0806
	^{12}C,el	^{208}Pb	DA	2SF JYV	7.6+07	7.6+07	Jour	IZV,65,56	01	V.P.Rudakov+	A0806

92 Uranium 238

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,fis	Many	FY	1USAORU	2.2+07	2.2+07	Jour	NIM/A,821,34	16	X.Wen+	L0214
	n,fis		CS	2ITYCAT	1.7+06	4.6+06	Jour	NP,63,641	Mar 65	V.Emma+	21134

94 Plutonium 239

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,fis	Many	FY	1USAORU	2.2+07	2.2+07	Jour	NIM/A,821,34	16	X.Wen+	L0214
	n,el		RP	2FR SAC	1.5+01	6.6+02	Conf	70HELSINKI,1,495	Jun 70	J.Trochon+	22530

96 Curium 248

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{16}O,x	^{245}Bk	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{246}Bk	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{248}Bk	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{250}Bk	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{251}Bk	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{246}Cf	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{248}Cf	CS	1USABRK	5.0+08	5.0+08	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{249}Cf	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{250}Cf	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{252}Cf	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{253}Cf	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{254}Cf	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{251}Es	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{252}Es	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{253}Es	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{254}Es	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{255}Es	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{251}Fm	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{252}Fm	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{253}Fm	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{254}Fm	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{255}Fm	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173
	^{16}O,x	^{256}Fm	CS	1USABRK	9.8+07	9.8+07	Jour	PR/C,25,286	82	D.Lee+	A0173

^{18}O,x	^{245}Bk	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{246}Bk	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{248}Bk	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{250}Bk	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{251}Bk	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{246}Cf	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{248}Cf	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{249}Cf	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{250}Cf	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{251}Cf	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{252}Cf	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{253}Cf	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{254}Cf	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{251}Es	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{252}Es	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{253}Es	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{254}Es	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{255}Es	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{251}Fm	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{252}Fm	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{253}Fm	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{254}Fm	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{255}Fm	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{256}Fm	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{256}Md	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{18}O,x	^{259}No	CS	1USABRK	9.7+07	9.7+07	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{245}Bk	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{246}Bk	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{248}Bk	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{250}Bk	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{246}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{248}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{249}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{250}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{251}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{252}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{253}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{251}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{252}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{253}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{254}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{255}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{252}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{253}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{254}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{255}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{20}Ne,x	^{256}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{246}Bk	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{248}Bk	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{250}Bk	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{251}Bk	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{246}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{248}Cf	CS	1USABRK	1.2+02	1.2+02	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{249}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{250}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{251}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{252}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173

^{22}Ne,x	^{253}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{254}Cf	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{251}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{252}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{253}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{254}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{255}Es	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{251}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{252}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{253}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{254}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{255}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173
^{22}Ne,x	^{256}Fm	CS	1USABRK	1.2+08	1.2+08	Jour	PR/C,25,286	82	D.Lee+	A0173