EXFOR News (December 2017)

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 2

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,n	^{1}H	CS	4RUSRUS	3.6+06	3.6+06	Jour	YF,80,189	17	I.N.Tsymbalov+	M0939

3 Lithium 7

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	d,x	^{6}He	DAE	4UKRIJD	3.7+07	3.7+07	Jour	YFE,7,(1/17),24	06	Yu.N.Pavlenko+	D5135

13 Aluminium 27

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	^{7}Li,el	^{27}Al	DA	3INDTRM	8.0+06	1.6+07	Jour	PRM,81,587	13	D.Patel+	D6280
*	^{7}Li,x+α	inclusive	DAE	3INDTRM	8.0+06	1.6+07	Jour	PRM,81,587	13	D.Patel+	D6280

27 Cobalt 59

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,2n	^{57}Co	CS	4RUSMOS	2.0+07	3.7+07	Jour	EPJ/A,53,180	17	V.V.Varlamov+	M0942
*	γ,2n	^{57}Co	INT	4RUSMOS		3.6+07	Jour	EPJ/A,53,180	17	V.V.Varlamov+	M0942
*	γ,3n	^{56}Co	CS	4RUSMOS	3.4+07	3.7+07	Jour	EPJ/A,53,180	17	V.V.Varlamov+	M0942
*	γ,n	^{58}Co	CS	4RUSMOS	1.0+07	3.7+07	Jour	EPJ/A,53,180	17	V.V.Varlamov+	M0942
*	γ,n	^{58}Co	INT	4RUSMOS		3.6+07	Jour	EPJ/A,53,180	17	V.V.Varlamov+	M0942
*	γ,x+n	inclusive	CS	4RUSMOS	1.0+07	3.7+07	Jour	EPJ/A,53,180	17	V.V.Varlamov+	M0942
*	γ,x+n	inclusive	INT	4RUSMOS		3.6+07	Jour	EPJ/A,53,180	17	V.V.Varlamov+	M0942

37 Rubidium 85

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{84}Rb	CS	4UZ NUU		2.6+07	Jour	AE/T,98,230	05	S.R.Palvanov+	G0057

37 Rubidium 87

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	γ,n	^{86}Rb	CS	4UZ NUU		2.5+07	Jour	AE/T,98,230	05	S.R.Palvanov+	G0057

50 Tin 120

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	^{7}Li,^{6}Li	^{121}Sn	DAP	3BZLUSP	2.0+07	2.6+07	Jour	PR/C,95,064614	17	V.A.B.Zagatto+	D0847
*	^{7}Li,el	^{120}Sn	DA	3BZLUSP	2.0+07	2.6+07	Jour	PR/C,95,064614	17	V.A.B.Zagatto+	D0847
*	^{7}Li,inel	^{120}Sn	DAP	3BZLUSP	2.0+07	2.6+07	Jour	PR/C,95,064614	17	V.A.B.Zagatto+	D0847

58 Cerium 138

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,n	^{137}Ce	CS	4UKRIEP		2.2+07	Jour	IMP/E,25,1650070	16	V.M.Mazur+	G4057

59 Praseodymium 141

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	γ,3n	^{138}Pr	INT	4RUSMOS		3.0+07	Jour	EPJ/A,53,180	17	V.V.Varlamov+	M0942

60 Neodymium 146

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{16}O,inel	^{146}Nd	DAP	3INDTRM	5.2+07	6.6+07	Jour	PRM,61,507	03	B.S.Narasingh+	D6279

60 Neodymium 148

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{16}O,inel	^{148}Nd	DAP	3INDTRM	6.3+07	6.6+07	Jour	PRM,61,507	03	B.S.Narasingh+	D6279

60 Neodymium 150

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Energy (eV) Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	^{16}O,inel	^{150}Nd	DAP	3INDTRM	6.3+07	6.6+07	Jour	PRM,61,507	03	B.S.Narasingh+	D6279

66 Dysprosium 156

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

*	n,2n	^{155}Dy	CS	3CPRNPC	1.4+07	1.5+07	Jour	JRN,308,649	16	Junhualuo+	32733

66 Dysprosium 158

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	n,2n	^{157}Dy	CS	3CPRNPC	1.4+07	1.5+07	Jour	JRN,308,649	16	Junhualuo+	32733

75 Rhenium 185

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,α	^{182}Ta	CS	3CPRLNZ	1.5+07	1.5+07	Jour	JRN,218,127	97	Xiangzhongkong+	32734

75 Rhenium 187

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
	n,2n	^{186}Re	CS	3CPRLNZ	1.4+07	1.5+07	Jour	JRN,218,127	97	Xiangzhongkong+	32734
	n,α	^{184}Ta	CS	3CPRLNZ	1.5+07	1.5+07	Jour	JRN,218,127	97	Xiangzhongkong+	32734
	n,p	^{187}W	CS	3CPRLNZ	1.4+07	1.5+07	Jour	JRN,218,127	97	Xiangzhongkong+	32734

82 Lead

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,x	^{201}Bi	CS	3KORKAE	7.6+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{202}Bi	CS	3KORKAE	7.6+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{203}Bi	CS	3KORKAE	7.6+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{204}Bi	CS	3KORKAE	7.6+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{205}Bi	CS	3KORKAE	7.6+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{206}Bi	CS	3KORKAE	7.6+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022

83 Bismuth 209

	Reaction	Product	Quant.	Lab.	Energy (eV) Min	Max	Type	Documentation Ref Vol Page	Date	Author	Data #
*	p,3n	^{207}Po	CS	3KORKAE	6.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,4n	^{206}Po	CS	3KORKAE	7.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,5n	^{205}Po	CS	3KORKAE	6.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,6n	^{204}Po	CS	3KORKAE	7.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,7n	^{203}Po	CS	3KORKAE	8.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{202}Bi	CS	3KORKAE	9.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{203}Bi	CS	3KORKAE	8.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{204}Bi	CS	3KORKAE	7.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{205}Bi	CS	3KORKAE	6.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022

*	p,x	^{206}Bi	CS	3KORKAE	7.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022
*	p,x	^{207}Bi	CS	3KORKAE	6.2+07	1.0+08	Jour	PR/C,95,044609	17	L.Mokhtarioranj+	D7022

92 Uranium 238

Reaction	Product	Quant.	Lab.	Energy (eV)		Type	Documentation	Date	Author	Data #
				Min	Max		Ref Vol Page			
d,fis	Many	FY	4UKRIJD	3.5+07	7.0+07	Jour	YFE,7,(1/17),30	06	Yu.V.Kibkalo+	D5136