

EXFOR Dictionary 25 – units

Action A27

Stanislav Hlavac¹
Naohiko Otsuka²

¹IOP SAS Bratislava (NNDC)
²IAEA NDS Vienna

Basic physical units

Coulomb (C)

		Dictionary 25 usage	
	TOTAL	COUL	C
Occurrence	7	4	3
Example		MBQ/COUL	MBQ/C/MEV

Second (s)

		Dictionary 25 usage	
	TOTAL	SEC	S
Occurrence	15	14	1
Example		CM3/SEC	CM3/S/MOL

Prefixes

milli (m)

		Dictionary 25 usage			
	TOTAL	MILLI-*	MILLI*	MI-*	M*
Occurrence	36	5	1	1	30
Example		MILLI-EV	MB*MILLIEV	B/SR/MI-EV	MB

micro (μ)

		Dictionary 25 usage			
	TOTAL	MICRO-*	MICRO*	MU-*	MU*
Occurrence	33	2	3	2	26
Example		MICRO-B	MICROSEC	MU-B/MEV	MUB/SR2

nano (n)

		Dictionary 25 usage	
	TOTAL	NANO-*	N*
Occurrence	9	1	8
Example		NANO-EV	NB

EXFOR specials

Particles (incident)

		Dictionary 25 usage			
	TOTAL	PART	PT	INC	IN
Occurence	10	2	1	5	2
Example		GAM/PART	G/PT/SR	PC/INC	PRT/IN/MEV

Particles (emitted)

		Dictionary 25 usage				
	TOTAL	PART	PRT	PC	PT	P
Occurence	21	2	10	2	4	3
Example		PART/MUAHR	PRT/INC	PC/FIS	PT/FIS/MEV	P/FS/MEVSR

Gammas

		Dictionary 25 usage	
	TOTAL	GAM	G
Occurence	3	2	1
Example		GAM/PART	G/PT/SR

Mathematical operations

power of two

	Dictionary 25 usage	
	*2	-SQ
Example	MB/SR2MEV2	MB*EV-SQ

division

	Dictionary 25 usage	
	with /	without /
Example	MB/SR2/MEV	MB/SR2MEV2

multiplication

	Dictionary 25 usage	
	with *	without *
Example	B*MEV/SR	MUB/SRGEVC

usually in Nominator

usually in Denominator

Possible actions

What to do

1. Nothing :-)
2. Improve - unify the usage of units

Final solution depends on the future EXFOR developments and EXFOR usage – discussion needed

Partial solution – improve in some simple cases

Proposal to NRDC

- “-SQ” -> 2
- “MICRO-” -> MU
- “MU-” -> MU

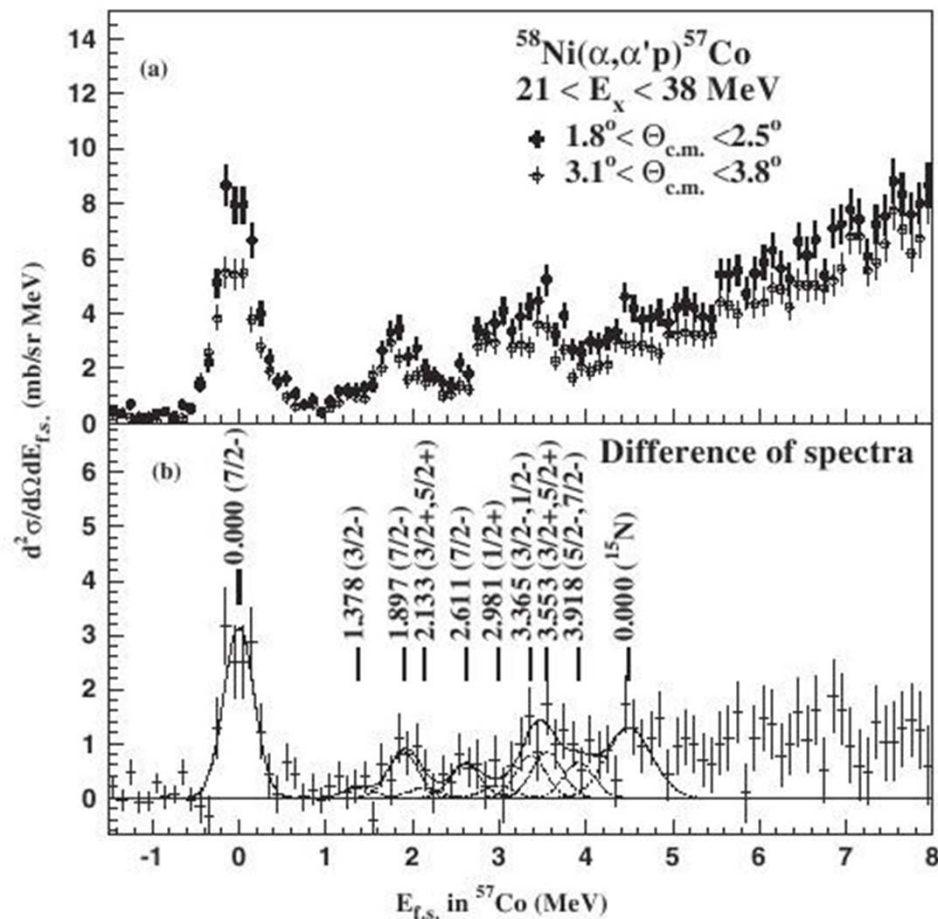
Number of relevant entries

Current code	Expansion	Proposed code	# of data sets
GY*M-SQ	Grey * square meters	GY*M2	69
MICROSEC/M	microseconds per Meter	MUSEC/M	97
FERMI	fermis	FM	821
MILLI-MU	milli-microns	(Delete)	0
MICRO-B	microbarn	MUB	1641
MU-B/MEV	microbarn/MeV	MUB/MEV	125
MU-B/SR	microbarn/sr	MUB/SR	3678
G/CM-SQ	grams per centimeters-squared	G/CM2	185
PRD/MUCOUL	products/micro-Coulomb	PRD/MUC	18
PRT/MUCOUL	particles/micro-Coulomb	PRT/MUC	5
B*EV-SQ	barns * eV-squared	B*EV2	249
MB*EV-SQ	millibarns * eV-squared	(Delete)	0

Compilation of “raw data and negative energies”

Recently in several PR/C papers data described as differential cross section as a function of excitation energy of final nucleus were published.

Example – Fig. 4 from C1759 - Phys. Rev. C 80, 044317, 2009



1. From lower part follows -> Cross section for population of discrete levels with negligible width.
2. Finite detector resolution is reason for
 - Finite peak width
 - Unphysical negative excitation energies

Proposal to NRDC

1. Compile such data as “RAW” i.e. with flag RAW in SF 8
2. Do not compile at all