

Japan Charged-Particle Nuclear Reaction Data Group

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Memo CP-E/021

Date: April 19, 2003
To: Distribution
From: OTUKA Naohiko and KATŌ Kiyoshi
Subject: Differential cross section with respect to longitudinal momentum

We are compiling two experiments in which fragment longitudinal momentum distributions are measured from the breakup of secondary beam provided by RIKEN Projectile Fragment Separator - RIPS - (R. Kanungo *et al.*, Phys. Rev. Lett. **88** (2002) 142502 and T. Suzuki *et al.*, Phys. Rev. Lett. **89** (2002) 012501). Fragments ^{15}B , ^{22}O and ^{21}O coming from $\text{Be}(^{17}\text{B}, ^{15}\text{B})\text{X}$, $\text{C}(^{23}\text{O}, ^{22}\text{O})\text{X}$, and $\text{C}(^{23}\text{O}, ^{21}\text{O})\text{X}$ are detected. In EXFOR, these detected fragments are treated as residual nuclei. We propose the following code for longitudinal momentum distribution for residual nuclei:

Dictionary 36 (Quantities)

LP, DP, RSD DP Differential cross section with respect to longitudinal secondary momentum

Also we need to add some flags for unstable nuclei used as beam and detected as outgoing fragments:

Dictionary 27 (Nuclides)

5-B-17 Flag 2 at column 14
5-B-15 Flag 3 at column 15
8-O-23 Flag 2 at column 14
8-O-22 Flag 3 at column 15

We attach a coding sample of this quantity.

Distribution:

J.H. Chang, KAERI	M. Chiba, JCPRG	F.E. Chukreev, CAJaD	S. Dunaeva, Sarov
O. Gritzay, KINR	A. Hasegawa, JAERI	K. Kato, JCPRG	M. Kellett, NEADB
M. Lammer, NDS	S. Maev, CJD	V.N. Manokhin, CJD	V. McLane, NNDC
P. Oblozinsky, NNDC	Y. Ohbayasi, JCPRG	N. Otuka, JCPRG	V. Pronyaev, NDS
O. Schwerer, NDS	S. Takacs, ATOMKI	F.T. Tárkányi, ATOMKI	V. Varlamov, CDFE
M. Vlasov, KINR	M. Wirtz, NDS	V. Zerkin, NDS	Y.X. Zhuang, CNDC

Sample of coded entry (E1780.002):

T. Suzuki et al., Phys. Rev. Lett. **89** (2002) 012501 Fig.2 (upper panel)

SUBENT	E1780002	20030312	E178000200001
BIB	6	22	E178000200002
REACTION	(4-BE-9(5-B-17,X)5-B-15,LP,DP,RSD)		E178000200003
	DATA: distribution of 15B longitudinal momentum in the		E178000200004
	projectile rest frame is characterized by a		E178000200005
	FWHM=86+-10MeV/c and 80+-10MeV/c for folding and		E178000200006
	unfolding the system resolution (14MeV/c in 1		E178000200007
	sigma)		E178000200008
	DATA-ERR: uncertainty (22%) due to normalization		E178000200009
	factor (2 neutron separation cross section)		E178000200010
	is not included		E178000200011
MONITOR	experimental data points were normalized to the		E178000200012
	measured 2 neutrons separation cross section value		E178000200013
PART-DET	(5-B-15)		E178000200014
ADD-RES	(COMP)Glauber approximation.(longitudinal momentum		E178000200015
	distribution was calculated by using		E178000200016
	Eqs.(3.5)-(3.18) in [Y.Ogawa et al., Nucl.Phys.		E178000200017
	A571 (1994)784]. Pure 2s1/2, 1d2/5		E178000200018
	conficuratoins and their configuration mixing		E178000200019
	are considered.)		E178000200020
MOM-SEC	(MOM-SEC,5-B-15)longitudinal momentum in the		E178000200021
	projectile rest frame		E178000200022
STATUS	(TABLE)Data (Fig.2-a,p012501-3 in reference) sent by		E178000200023
	author		E178000200024
ENDBIB	22	0	E178000200025
NOCOMMON	0	0	E178000200026
DATA	3	15	E178000200027
MOM-SEC	DATA	DATA-ERR	E178000200028
MEV/C	MB/MEV/C	MB/MEV/C	E178000200029
-140.0	0.19	0.07	E178000200030
-120.0	0.17	0.08	E178000200031
-100.0	0.36	0.09	E178000200032
-80.0	0.46	0.13	E178000200033
-60.0	0.64	0.22	E178000200034
-40.0	1.32	0.31	E178000200035
-20.0	2.11	0.32	E178000200036
0.0	1.62	0.3	E178000200037
20.0	1.52	0.27	E178000200038
40.0	1.07	0.28	E178000200039
60.0	0.64	0.24	E178000200040
80.0	0.2	0.16	E178000200041
100.0	0.37	0.1	E178000200042
120.0	0.18	0.06	E178000200043
140.0	0.18	0.06	E178000200044
ENDDATA	17	0	E178000200045
ENDSUBENT	44	0	E178000299999