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**Memo CP-C/289**

**DATE:** June 28, 2001  
**TO:** Distribution  
**FROM:** V. McLane  
**SUBJECT:** 4-momentum transfer

I have come across some data given in three old references given as  $d\sigma/dt$  (4-momentum transfer). Data for 2 of these are given as a function of angle as well as 4-momentum transfer ( $-t$ ), where  $-t = q^2$ . Since these are old data and I did not find any new data in this form, I could compile them as DA,,MSC. The third set, however, is given as a function of  $-t$  in units of  $(\text{Gev } c)^2$ . (If anyone else has encountered such data, please let me know).

Therefore, I propose we add a new code DT to Dictionary 32 for such data, and a field heading  $-t$  or  $q^2$  to Dictionary 24. Appropriate units will also be needed.

Proposed dictionary additions follow.

**Distribution:**

M. Chiba, Sapporo  
F. E. Chukreev, CAJaD  
S. Dunaeva, Sarov  
O. Gritzay, KINR  
K. Kato, JCPDG  
M. Kellett, NEADB  
V. N. Manokhin, CJD

S. Maev, CJD  
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F. T. Tárkányi, ATOMKI  
V. Varlamov, CDFE  
Zhuang Youxiang, CNDC  
NNDC File

Dictionary 24 (Data Headings)

-t                      4-momentum transfer squared (=  $q^{*2}$ )

Dictionary 25 (UNITS)

GEV <sup>2</sup> /C <sup>2</sup>	(GeV/c) <sup>**2</sup>	EC2
MB/GEV <sup>2</sup> /C <sup>2</sup>	Miilibarns/(GeV*c) <sup>**2</sup>	D4

Dictionary 32 (Parameters)

DT                      Differential with 4-momentum transfer squared of outgoing particles

Dictionary 36 (Quantities)

,DT                      Differential c/s with respect to 4-momentum transfer squared.

I have attached a sample coded entry.

TRANS		20010711		10000	0	0
ENTRY	C0128	20010711		C0128	0	1
SUBENT	C0128001	20010711		C0128	1	1
BIB	15	25		C0128	1	2
INSTITUTE	(1USACLA,1USATEX,1USALAS,1USAMIN,1USABNL)			C0128	1	3
REFERENCE	(J,PL/B,78,205,197809)			C0128	1	4
AUTHOR	(J.Fong,T.S.Bauer,G.Igo,G.Pauletta,R.Ridge,R.Rolfe,			C0128	1	5
	J.Soukup,C.A.Whitten Jr,G.W.Hoffmann,N.M.Hintz,			C0128	1	6
	M.A.Oothoudt,G.S.Blanpied,R.P.Liljestrand,T.Kozlowski)			C0128	1	7
TITLE	p-4He elastic scattering at 788 MeV.			C0128	1	8
FACILITY	(MESON,1USALAS) LAMPF.			C0128	1	9
INC-SOURCE	(POLIS)			C0128	1	10
SAMPLE	Liquid helium in cylindrical flask.			C0128	1	11
METHOD	(PHD,TOF)			C0128	1	12
DETECTOR	(MAGSP) High resolution spectrometer.			C0128	1	13
	(TELES) Beam-target interaction monitored by			C0128	1	14
	scintillator telescopes placed at 45 and 115 degrees			C0128	1	15
	with respect to beam direction.			C0128	1	16
	Beam intensity monitored by 3 ionization chambers and			C0128	1	17
	a secondary emission monitor.			C0128	1	18
	Horizontal beam profile monitored by multiwire chamber			C0128	1	19
	at backward angles.			C0128	1	20
MONITOR	(2-HE-4(P,EL)2-HE-4,,DA)			C0128	1	21
MONIT-REF	(.R.KLEM+,J,PL/B,70,155,1977)			C0128	1	22
CORRECTION	Corrected for background.			C0128	1	23
ERR-ANALYS	(ERR-S) Statistical uncertainty.			C0128	1	24
	Scale accuracy 20%.			C0128	1	25
STATUS	Data received by email from L. Ray, 12 August 1999.			C0128	1	26
HISTORY	(19990816C) VM			C0128	1	27
ENDBIB	25	0		C0128	1	28
COMMON	1	3		C0128	1	29
EN				C0128	1	30
MEV				C0128	1	31
788.				C0128	1	32
ENDCOMMON	3	0		C0128	1	33
ENDSUBENT	32	0		C0128	199999	
SUBENT	C0128002	20010711		C0128	2	1
BIB	2	3		C0128	2	2
REACTION	(2-HE-4(P,EL)2-HE-4,,DT)			C0128	2	3
EN-SEC	Momentum given corresponds to angles of 13.3 - 165.5			C0128	2	4
	degrees.			C0128	2	5
ENDBIB	3	0		C0128	2	6
NOCOMMON	0	0		C0128	2	7
DATA	3	267		C0128	2	8
-t	DATA-CM	ERR-S		C0128	2	9
GEV2/C2	MB/GEV2/C2	MB/GEV2/C2		C0128	2	10
0.111	0.394E+02	0.79E+00		C0128	2	11
0.114	0.364E+02	0.73E+00		C0128	2	12
0.118	0.330E+02	0.66E+00		C0128	2	13
0.121	0.307E+02	0.61E+00		C0128	2	14
0.124	0.271E+02	0.54E+00		C0128	2	15
0.127	0.247E+02	0.49E+00		C0128	2	16
0.131	0.223E+02	0.45E+00		C0128	2	17
0.134	0.195E+02	0.39E+00		C0128	2	18
0.137	0.178E+02	0.36E+00		C0128	2	19
...						
4.192	0.632E-04	0.57E-05		C0128	2	277
ENDDATA	269	0		C0128	2	278
ENDSUBENT	277	0		C0128	299999	
ENDENTRY	2	0		C0128999999999		
ENDTRANS	1	0		Z9999999999999		

