Japan Charged-Particle Nuclear Reaction Data Group

Division of Physics, Graduate School of Science
Hokkaido University
060-0810 Sapporo, JAPAN

E-mail: nrdf@jcprg.org
Internet: http://www.jcprg.org/

Telephone +81(JPN)-11-706-2684
Facsimile +81(JPN)-11-706-4850

Memo CP-E/037

Date: April 7, 2004
To: Distribution
From: OTSUKA Naohiko and KATŌ Kiyoshi
Subject: Differential cross sections for excitation energy of residual nuclei

Now we are compiling one paper (Y.Satou *et al*., Phys. Lett. **B521**(2001)153), in which double differential cross sections with respect to the angle of emitted particle and the excitation energy of residual nucleus are given for ^{12}C(*d*,*d*)^{12}C inelastic scattering. In another paper (S.Takeuchi *et al*., Phys. Lett. **B515**(2001)255), differential cross sections with respect to the excitation energy of residual nucleus are given for ^{1}H(^{14}Be,^{14}B)*n* scattering. We propose the following two reaction codes:

Dictionary 36 (Quantities)

,DA/DE,D/RSD	Double-differential cross section with respect to angle of deuteron and energy of residual nucleus
,DE,RSD	Energy spectrum of residual nucleus

Note: So far RSD to refer excitation energy of residual nucleus is often omitted in compilations.

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Sample of coded entry (E1781.002):

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SUBENT        E1781002   20040323                                    E178100200001
BIB                  3          6                                    E178100200002
REACTION    (6-C-12(D,INL)6-C-12,,DA/DE,D/RSD)                       E178100200003
EN-SEC      ANG is polar angle between beam and deuteron in          E178100200004
            laboratory system                                        E178100200005
            (E-EXC,6-C-12)                                           E178100200006
STATUS      (TABLE)Data sent by Y.Sato, corresponding figure is      E178100200007
                   Fig.1(a), p155 in reference                       E178100200008
ENDBIB               6          0                                    E178100200009
COMMON               2          3                                    E178100200010
ANG-MIN     ANG-MAX                                                  E178100200011
ADEG        ADEG                                                     E178100200012
 2.5         7.5                                                     E178100200013
ENDCOMMON            3          0                                    E178100200014
DATA                 4         35                                    E178100200015
E-EXC       E-EXC-ERR  DATA       DATA-ERR                          E178100200016
MEV         MEV        MB/SR/MEV  MB/SR/MEV                         E178100200017
 4.5         0.5        19.9175092 0.00952647                        E178100200018
 5.4         0.4        0.91986242 0.00915569                        E178100200019
 6.2         0.4        0.76676465 0.00835912                        E178100200020
…
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Sample of coded entry (E1797.002):

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SUBENT        E1797002   20040324                                    E179700200001
BIB                  6         21                                    E179700200002
REACTION    (1-H-1(4-BE-14,N)5-B-14,,DE,RSD)                         E179700200003
EN-SEC      (E-EXC,5-B-14)Excitation energy of 14B calculated by     E179700200004
                          E(d) + 16.77 MeV where E(d) is decay      E179700200005
                          energy defined in Eq. (1) of the          E179700200006
                          reference. Threshold energy is 16.77 MeV  E179700200007
                          for the 12Be + p + n channel.             E179700200008
MISC-COL    (MISC1)Decay energy E(d) defined in Eq.(1) of the        E179700200009
                   reference                                         E179700200010
            (MISC2)Energy spectra which are not corrected by         E179700200011
                   acceptance                                        E179700200012
SAMPLE      - Chemical-form of target is CH2. (CH2)n and C target    E179700200013
              are used, C target was used to subtract the           E179700200014
              contributions of carbon nuclei in the (CH2)n target.  E179700200015
            - Target-thickness: 187 and 152 mg/cm2 for (CH2)n and    E179700200016
              C target, respectively.                               E179700200017
ERR-ANALYS  (ERR-1)Uncertainties for corrected and uncorrected       E179700200018
                   spectra due to neutron detection efficiency and  E179700200019
                   the reaction losses of the charged particles in  E179700200020
                   hodoscope.                                       E179700200021
STATUS      (TABLE)Data sent by S.Takeuchi, corresponding figure     E179700200022
                   is Fig.2 (a) and (c), p258 in reference          E179700200023
ENDBIB              21          0                                    E179700200024
COMMON               1          3                                    E179700200025
ERR-1                                                               E179700200026
PER-CENT                                                            E179700200027
 10.0                                                               E179700200028
ENDCOMMON            3          0                                    E179700200029
DATA                 6         19                                    E179700200030
E-EXC       MISC1      DATA       ERR-S      MISC2      MISC2-ERR   E179700200031
MEV         MEV        MB/MEV     MB/MEV     MB/MEV     MB/MEV      E179700200032
 16.845      0.075      -0.442      0.442      -0.023      0.023      E179700200033
 16.895      0.125      0.627       0.362      0.058       0.034      E179700200034
 16.945      0.175      0.432       0.35       0.056       0.045      E179700200035
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