Memo CP-D/215

18 March 1991

To: Distribution

From: H.D. Lemmel and O. Schwerer

Subject: Reply to memo CP-C/198

We appreciate the efforts of memo CP-C/198 to improve the coding of photonuclear data and in principle agree with most of the proposals. In some cases we feel that further clarifications or modifications of the proposed new coding are needed.

Our comments are presented on the following pages. We assume that NNDC will review them and submit a revised proposal which will have to be supplemented also with several new Lexfor entries.

Clearance: J.J. Schmidt

Distribution:

S. Pearlstein, NNDC
N. Tubbs, NEA-DB
V.N. Manokhin, CJD
F.E. Chukreev, CAJAD
A. Hashizume, RIKEN
V. Varlamov, CDFE
M. Chiba, Study Group
Cai Dunjiu, IAE-CP
V. McLane, NNDC

NDS: S. Ganesan
M. Lammer
H.D. Lemmel
D.W. Muir
V. Osorio
A. Pashchenko
J.J. Schmidt
O. Schwerer
Wang Dahai
3 spare copies

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1. Multipolarity

We like the definition as given on the second page of CP-C/198 more than the proposed expansion for dict. 36:

EP,SIG electric multipole component of cross section

because it makes clear that this is some sort of a partial cross section (and therefore the code EP is given in the "branch" subfield). The proposed text for dict. 36: "cross section for electric polarity specified" is not as clear because the word "component" is missing.

2. Treiman-Yang Angular Distribution

- The explanation for LEXFOR and the figure should be improved to be understandable for someone not familiar with this type of kinematics. In particular, is the second plane - (Y,b) or (Y,c) - defined by the reaction coding, or is free text explanation needed? Have the headings ANG-CM and DATA-CM to be used?

- Are these distributions measured directly or derived through some elaborate analysis? If the latter is the case, the data measured directly should be compiled in Exfor, too.

- In the example given, 2-HE-2 must be replaced by 1-H-2.

- In explanatory text for LEXFOR, (G,P) should be spelled (γ,p).

- ,DA/TYA should be approved for photonuclear data only.

3. Secondary Particle Correlations

- EN-SEC (E1,N/P)

  Explanation missing:
  E1... relative energy of neutron and protons

- "For two or more codes, they are separated by a slash ..."

  Replace this text by "The codes of the two particles referred to are separated by a slash ..."

  The formalism makes no sense for more than two particles.

4. Asymmetry

Accepted, but see our comments on the proposed codes for Dict. 36.

5. Mass ratios

Accepted.

6. High- and Low-Energy Components of Cross Section

We propose 2 modifications:

- Since this is a special case of a partial cross section for a specified outgoing particle energy, we propose to combine the new codes with PAR (for the sake of retrievals!). If the new codes are meant to be used without specifying a secondary energy (which so far has to be given when PAR is used), the check programs have to be adjusted accordingly. (To be clarified in LEXFOR.)
  Since EN always stands for incident energy, we propose to use HI and LO, or HE and LE, instead of HEN and LEN.

  Proposed coding:

  PAR/HI,SIG (or PAR/HE,SIG)
  PAR/LO,SIG (or PAR/LE,SIG)

- The wording proposed for dict. 36 is less clear than the explanation under item 6. We propose the expansion

  "partial cross section for high (low) energy component of secondary particle spectrum".

7. Analysis

We believe that free text should be sufficient to give this information, unless the need for numeric coding is explained.

8. Incident Source

Accepted.

9. Dictionary Update

- The new codes for dictionaries 19 and 23 will be labelled "for photonuclear data only".

- Dict. 19, codes HARD and TAGD:

  - Are these really needed as codes, or would free text explanation be sufficient?

- If introduced, explanation in Lexfor is needed.

- Are these codes only valid in combination with another code? If so, this should be mentioned in the Manual and be checked by the check programs.

- Dict. 31: Replace HEN and LEN by codes according to item 6. above.

- Dict. 36.

  - ,DA,,ASY and ,SIG,,ASY: explanation with formula required for Lexfor.

  - ,DA,RSD: we believe this is not necessary because of the use of any nuclide code of the form Z-S-A-X in SF7 was approved at the 1989 NRDC meeting (conclusion 54 in CP-D/200, following a proposal in CP-C/182). This was approved for use in CPND by RIKEN, but it seems that this new feature has not been used yet in any Exfor transmissions.

    This also implies that the individual nuclide codes used in SF7, and combinations of particle and nuclide codes, need not be included as separate codes in dict. 36.

  - ,DA,P/4PI should read ,DA,P,4PI

  - ,DE,N/D etc: we are not sure what the energy spectrum of a neutron/deuteron pair means. Explanation in Lexfor required.

  - PAR,DA,N/P: explanation required.

  - PAR,MCO,N/P: Lexfor entry on momentum correlations required.