KARLSRUHE CHARGED PARTICLE GROUP

Information

KERNFORSCHUNGSZENTRUM · D-7500 KARLSRUHE · POSTFACH 3640 · TELEX 7826-484

Memo CP-B/5 8.12.1976

Reference: CP-D/11; CP-D/12
CP-A/1

1. CP-D/11; New coding formalism for products formed by fission, spallation etc.

When adapting the EXFOR-System to integral CPND, the basic rule to specify the main facts describing a specific reaction in one keyword was accepted. This rule was not violated even by the introduction of multiple reaction entries which had the exclusive intention to compress the compilation and to reduce writing and typing efforts. With the proposed formalism for coding element or mass distributions from fission, spallation, or other processes (see below), however, a drastic change of the EXFOR-concept is introduced.

This new formalism has many implementations some of which we want to comment here. We assume that it is only introduced to minimize compilation and writing efforts and not by physical considerations. In the latter case, numerous problems due to unclear border lines and overlappings between the different processes would arise (e.g. compound nuclear reactions, fragmentation, fission, spallation, transfer reactions, etc.).

On the other hand, a condensing formalism should not be restricted to fission and spallation but must be accepted also for all other cases, like fragmentation and transfer reactions, where for a given target-projectile combination many reaction products are investigated in one publication. The only precondition of the application of the formalism is, therefore, a reduction of the effort without giving rise to ambiguous interpretations. Therefore, we would propose the following additions:

cc/ Abbee Okamoto Yaglubian
Lemmel Schmidt
Lessler Schwerer
Lorenz Smith

a) The former concept of coding reactions in individual subentries remains still applicable.

b) The new formalism serves exclusively to compress the compilation and the compiler has to decide, whether he wants to use it or not.

c) In the special (and in general clearly defined) case of mass or element distributions from fission it might be obligatory.

d) The formalism is not restricted to special processes but applicable to all reactions for which several final products were investigated in the publication. Then, all processes, except fission, should be specified by X in SF 3 and only the code (Z)-EL-(A) in SF 4 (applied as proposed in CP-D/11) should indicate that Z and/or A distributions are given in the DATA-section.

Furthermore, we can accept the formalism only, if the programs for handling data coded in this new way (search, indexing, extracting data for individual reactions) are provided to us, for instance by NDS or NNCSC.

Nevertheless, there may be much more implementations in the new concept, which should be thought over and discussed before adding the formalism to EXFOR.

2. CP-D/11; Decay data, Heading ISOMER

In connection with the formalism discussed in 1) we would accept

- the multiple entry under DECAY-DATA without giving a specific reference (pointer, ...) to the data in the DATA-section
- the heading ISOMER in the DATA-section. However, we would like to add the following numerical code:

9 = Ground state including isomeric transition, corresponding to the long form (Z-EL-A(...,...)Z-EL-A,M+,SIG,...)

3. CP-D/11; term fission fragment

Fission fragments are in our opinion such nuclides, which are formed directly in fission, whereas fission products are formed at least partially by radioactive decay from other fragments. To distinguish between the nuclides before and after prompt neutron emission the terms primary and secondary fission fragments are used. However, according to the proposal we will have

also in the future only one code for primary and secondary fragments as well as for products. Because FF has been already used in the KACHAPAG-file, we would prefer to keep this code.

4. CP-D/12; Ratio and Sum

We assume, that the codes RMG, RGM and RMT are used only, if the states involved are specified unambiguously by M and G. In all other cases the long version of the ratio code (....)/(....) should be used.

We see no need for adding BIN, TER, MS, GND,... in SF 5, if a ratio or sum is given. The argument concerning retrievals is not striking, because the search will most probably be done with an index register to which in case of R or S the corresponding codes could be added automatically.

However, Hans Lemmel seems to prefer to cancel all ratio and sum codes for ease in programming. We would also accept this proposal.

5. EXFOR Manual Supplement

We received the supplement and will comment on it not before January 1977.

6. Dictionaries

Dict. 3

✓ 1 USACMU (CARNEGIE-MELLON UNIVERSITY,
PITTSBURGH, PENNSYLVANIA)

Dict. 21

✓ EDE (PARTICLE IDENTIFICATION BY E/DELTA E
MEASUREMENT)

Dict. 31

✓ The line 3000003100035 NOTE = 'CUM = DCUM + M+'
should be deleted.

✓ In line 3000003100039 the words OR 'DCUM' should be deleted.

Dict. 36 Int. Dict. Update 761111

✓ In the lines 30000036 (33)3 and 38(12) replace
SPECIFICALLY by EXPLICITLY.

Add behind (33)5

✓ IND/(M) (INDEPENDENT CROSS-SECTION, BUT INCLUDING/EXCLUDING
FORMATION VIA ISOMERIC TRANSITION REGARDED
BY COMPILER AS UNCERTAIN)

All codes with TTY should be expanded identically to the codes with SIG, replacing the words CROSS-SECTION by THICK-TARGET YIELD.

7. CP-A/1; Bibliography-tapes

The tapes are tested by NDS. If the result is positive,we would like to receive a copy to check it with our machine.

8. CP-A/1; Code PAR

Could we use PART instead of PAR to avoid confusion with the code PAR in Dict. 31?

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