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Subject: Memo CP-D/292

Memo CP-D/292
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To: Distribution 28 January 1998

From: O.Schwerer

Subject: Comments on memo CP-C/230 (Polarization quantities)

In fulfillment of Action 32 of the 1997 NRDC meeting, please find below our comments on memo CP-C/230 concerning polarization.

1. We have no specific wishes concerning the coding of such data in general, since we have at present no data of this type to compile. We hope that, if and when more than one center will be compiling such data, consistent REACTION coding for these rather complex data types can be maintained.

2. Therefore our main concern at present is consistency of dictionary codes and coding rules.

a) For dictionary 34 (modifiers - SF8), the code

SS - Difference for spins parallel - antiparallel

is proposed. This code already exists with a different expansion

SS - Spin-spin cross section

Should the old expansion be changed to the new one? Note that SS is used in dictionary 36 combinations

,SIG,,SS spin-spin cross section

and LON,SIG,,SS spin-spin cross section longitudinal to beam direction.

b) In the same memo, SS is introduced also in dictionary 31 (Branch, SF5) meaning there "Target and beam spins perpendicular to beam".

Though it is not illegal to use the same abbreviation in different fields (and having a different meaning), we find this confusing when it occurs in closely related contexts as here, where both cases deal with spin directions. This might confuse both compilers and users. Different codes would have been preferable.

c) For dictionary 36, the quantity
NN/PAR,POL/DA,RCL,K Spin-transfer parameter, K(NN), for recoil nucleus, partial reaction, is introduced.
Since, so far, RCL (recoil nucleus) was not allowed for SF7, we had to update dictionary 33 to make this legal (though this was not requested in memo CP-C/230).
Since all particle and nuclide codes will be legal in SF7 (represented by wildcards in dict.36), we wonder if the use of general codes such as RCL (recoil nucleus) or RSD (residual nucleus) is necessary, or a rather "dangerous" development as far as consistency and retrievability are concerned. Will there be clear rules, when RCL and RSD should be used, as opposed to a specific particle or nucleus? Should they be used only if the nuclide concerned is not known or is variable? Or is this an interim solution only until the wildcards in dictionary 36 are implemented? Or will, for this particular quantity, RCL remain the ONLY legal code in SF7 (i.e. no specific particles or nuclides)?
At the time of implementation of the wildcards for SF7 in dict.36, this should be made clear and be included in LEXFOR and in the explanation of possible usages of RCL and RSD.

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