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DATE: October 27, 1988
TO: Distribution
FROM: N. E. Holden
SUBJECT: CINDA Coding Manual Sections for Isotope Production and Bremsstrahlung Production.

Bremsstrahlung Production

I proposed the use of the DNG code for bremsstrahlung production, particularly for the case of n-p scattering in 4C-1/190. This was formally approved at the NRDC meeting at Brookhaven in October 1987. Checking codes should continue to point out a possible error in the use of DNG for hydrogen.

Page II.2.15 - At the end of the definition under DNG, add "This code is used in the case of hydrogen only when bremsstrahlung production is involved". Note: the comment "Bremsstrahlung production" should be included in the comment field.

Isotope Production

In the case of isotope production, it was pointed out in memo 4C-1/197 that all possible reactions must presently be coded. For high energy reactions on a natural element target, this could lead to a large number of reactions coded, but corresponding to a single cross section value. I proposed the code (N,X) to indicate an unspecified reaction with the nuclide produced given in the comment field.

Page II.2.16 - Following the description of emission cross sections, add

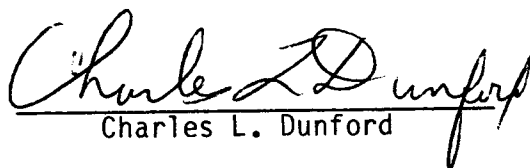
<u>Reaction</u>	<u>Code</u>	<u>Expansion</u>
$\sigma_{n,x}(E)$	NX	(n,x)
$\sigma_{n,x}(\theta)$		
$\sigma_{n,x}(E,\theta)$		
etc.		

This quality refers to the sum of processes from which a given nuclide is produced.

Note: The given nuclide should be specified in the comment field.

Example: Coleman and Tewes, P.R. 99 288 (1955). Reaction is 29-Cu-0 (N,X) 26-FE-53 at 90 MeV incident energy. This entry includes the following partial cross section reactions:

Cu63 (N,3P 8N)	Cu65 (N,3P 10N)
(N,D 2P 7N)	(N,D 2P 9N)
(N,2D P 6N)	(N,2D P 8N)
(N,3D 5N)	(N,3D 7N)
(N,T 2P 6N)	(N,T 2P 8N)
(N,2T P 4N)	(N,2T p 6N)
(N,3T 2N)	(N,3T 4N)
(N,T D P 5N)	(N,T D P 7N)
(N,2T D 3N)	(N,2T D 5N)
(N,T 2D 4N)	(N,T 2D 6N)
(N, He3 P 7N)	(N, He3 P 9N)
(N, He3 D 6N)	(N, He3 D 8N)
(N, He3 T 5N)	(N, He3 T 7N)
(N, α P 6N)	(N, α P 8N)
(N, α D 5N)	(N, α D 7N)
(N, α T 4N)	(N, α T 6N)
(N, Li6 5N)	(Li6, 7N)
(N, Li7 4N)	(Li7, 6N)


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