Date: August 30, 1979

From: V. McLane & T.W. Burrows

Subject: 1) Energies of gamma lines
            2) Reaction rate

Reference: Memo CP-D/82

Energies of gamma lines

We are presently reluctent to begin coding nuclear structure information into EXFOR. Proposals of this sort will have to be preceded by a discussion of nuclear structure data in general. There is presently a recognized nuclear structure network (IAEA-NSDD Network) which has an agreed upon format for the exchange of nuclear structure data (ENSDF, see ORNL-5054/R1 for description). Therefore, we propose an agenda item for the discussion of nuclear structure and decay data and of a possible interface with the NSDD network.

Related to this, compilers should note that spin (J), parity (π) and angular momentum (ℓ) as coded in EXFOR currently refer only to nuclear resonances, not to nuclear energy levels.

Reaction Rate

The discussion on reaction rate should probably be related to a discussion of spectrum averaged data in general.

We propose the following:

1.) Allow the modifier 'MXW' to apply to any well defined Maxwellian spectrum.

   Change in Dictionary 34:
   MXW   (MAXWELLIAN AVERAGE)

2.) Allow any spectrum to be defined by its temperature.

   Add to Dictionary 24:
   KT   Spectrum temperature

3.) Add a new process code fo $\sigma \times \nu$

   Add to Dictionary 36:
   SGV   Reaction rate (cross section * velocity)

The reaction rate would be coded as:

(-----,SGV,,MXW)

The cross section for the same spectrum would be coded as:

(-----,SIG,,MXW)

As for other spectrum data, it is agreed to enter only experimentally measured data.

Since most reaction rate data is calculated, if a center decided to enter such dat, SF9 of the Reaction keyword should contain the code 'CALC'.

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