

Addition to LEXFOR Entry on Partial Reactions

(O. Schwerer, N. Otsuka, CP-C/425, 2014-04-04)

Partial reactions (in the definition used in Exfor) are always connected with a secondary energy, and the reversal – when we have a secondary energy, this defines a partial reaction – is very often true also. But this is not always the case. Recently we came across several times works where authors give a secondary energy in place of the incident particle energy, without having a partial reaction. Therefore we propose to add a clarifying section on this matter at the end of the LEXFOR page on “Partial Reactions”.

Partial Reactions

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Reactions characterized by a secondary energy which are not partial reactions *(new section)*

While partial reactions are always connected with a secondary energy, the reversal is not always the case. There are data which are characterized by a secondary energy which are not related with a partial reaction.

When such a secondary energy, given by authors, can be coded as an equivalent incident particle energy without numerical conversion by the compiler, such data can be compiled. Otherwise such data are not presently compiled in Exfor.

Examples:

- Photonuclear data characterized by the excitation energy of the initial compound nucleus. (This excitation energy is coded as the incident energy in the laboratory system, e.g., under the heading EN .)
- Proton elastic scattering data characterized by the outgoing proton energy in the centre-of-mass system. (This outgoing proton energy is coded as the centre-of-mass energy, i.e., sum of the kinetic energies of the projectile and target under the heading $EN-CM$.)
- (p,n_0) data characterized by the outgoing neutron energy. (The outgoing neutron energy is uniquely determined from the incident energy by the two-body kinematics. However these data are presently not compiled because a numerical conversion by the compiler is required to determine the incident energy.)