**Nuclear Data Section**

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**Date:** 2023-07-17

**To:** Distribution

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**Subject: Dictionary 236 (Quantities): -L,SIG and -L,SIG,,SFC**

EXFOR O0316.006 and 007 provide the “ground state” and quasi-metastable state (13.98 ms) production cross sections of 87Sr(p,γ)88Y in Table III of S. Harissopulos+, J,PR/C,104,02504,2021:



The “ground state” production provided in this table is the cross section excluding the quasi-metastable state production cross section. The nuclide does not have a metastable state, and we cannot define the ground state production cross section (The isomeric flag -G is legal only when the nuclide has a metastable state.).

This reminds us of discussion on gamma production cross section excluding cascade involving a quasi-metastable state in the NRDC 2023 meeting (WP2023-26). We found the branch code approved in the meeting L- (Excluding formation via quasi-metastable state production) is useful. We propose the following new quantity codes for compilation of the “ground state” production cross section and corresponding S-factor:

***Example*** (O0316.006):

SUBENT O0316006 20230313 O0316 6 1

BIB 8 13 O0316 6 2

REACTION 1(38-SR-87(P,G)39-Y-88,**L-**,SIG) O0316 6 3

 2(38-SR-87(P,G)39-Y-88,**L-**,SIG,,SFC) O0316 6 4

DECAY-DATA (39-Y-88,106.626D) O0316 6 5

…

ENDBIB 13 0 O0316 6 16

COMMON 2 3 O0316 6 17

EN-ERR ERR-2 O0316 6 18

MEV PER-CENT O0316 6 19

 0.0075 10. O0316 6 20

ENDCOMMON 3 0 O0316 6 21

DATA 6 10 O0316 6 22

EN-CM DATA 1ERR-T 1DATA 2ERR-T 2MISC O0316 6 23

MEV MICRO-B MICRO-B B\*MEV B\*MEV NO-DIM O0316 6 24

 2.566 549. 186. 2.1060E+07 4.775E+06 1.053 O0316 6 25

 2.764 940. 318. 1.6531E+07 3.749E+06 1.048 O0316 6 26

 2.962 1540. 522. 1.3487E+07 3.059E+06 1.043 O0316 6 27

…

**Dictionary 236 (Quantities)**

L-,SIG Cross section excluding quasi-metastable state production

L-,SIG,,SFC S-factor excluding quasi-metastable state production

Use of multiple reaction formalism for cross section and S-factor

We also propose the pair of the cross section and S-factor as a combination allowed to be together in the same subentry with the multiple reaction formalism.

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