**Nuclear Data Section**

**International Atomic Energy Agency**

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**Memo CP-D/1130**

**Date:** 7 April 2025

**To:** Distribution

**From:** N. Otsuka

**Subject: Partial scattering quantity expressed by REACTION sum**

It is now our practice to express the elastic scattering data including unresolved contribution of inelastic scattering portion as “partial scattering” without REACTION sum:

***Example***

(94-PU-239(N,SCT)94-PU-239,PAR,SIG)

rather than

(94-PU-239(N,EL)94-PU-239,,SIG)+(94-PU-239(N,INL)94-PU-239,PAR,SIG)

for 239Pu(n,n0)239Pu + 239Pu(n,n1)239Pu cross section (Ex=7.9 keV for the first excitation level of 239Pu.)

There are still 45 datasets of partial scattering data coded by the REACTION sum, and I would like to suggest NNDC and NEA DB its cancellation.

|  |  |  |
| --- | --- | --- |
| **Data #** | **REACTION (current)** | **REACTION (suggested)** |
| 10284.002 | (74-W-0(N,EL)74-W-0,,DA)+  (74-W-0(N,INL)74-W-0,PAR,DA) | (74-W-0(N,SCT)74-W-0,PAR,DA) |
| 10284.003 | (74-W-0(N,EL)74-W-0,,DA,,LEG/2L2)+  (74-W-0(N,INL)74-W-0,PAR,DA,,LEG/2L2) | (74-W-0(N,SCT)74-W-0,PAR,DA,,LEG/2L2) |
| 10284.005 | (74-W-0(N,EL)74-W-0,,SIG)+  (74-W-0(N,INL)74-W-0,PAR,SIG) | (74-W-0(N,SCT)74-W-0,PAR,SIG) |
| 10285.014 | (22-TI-0(N,EL)22-TI-0,,DA)+  (22-TI-48(N,INL)22-TI-48,PAR,DA,,A) | (22-TI-0(N,SCT)22-TI-0,PAR,DA) |
| 10286.002 | (92-U-238(N,EL)92-U-238,,DA)+  (92-U-238(N,INL)92-U-238,PAR,DA) | (92-U-238(N,SCT)92-U-238,PAR,DA) |
| 10286.003 | (92-U-238(N,EL)92-U-238,,DA,,LEG/2L2)+  (92-U-238(N,INL)92-U-238,PAR,DA,,LEG/2L2) | (92-U-238(N,SCT)92-U-238,,DA,,LEG/2L2) |
| 10286.004 | (92-U-238(N,EL)92-U-238,,SIG)+  (92-U-238(N,INL)92-U-238,PAR,SIG) | (92-U-238(N,SCT)92-U-238,PAR,SIG) |
| 10418.007 | (51-SB-0(N,EL)51-SB-0,,SIG)+  (51-SB-0(N,INL)51-SB-121,PAR,SIG) | (51-SB-0(N,SCT)51-SB-0,PAR,SIG) |
| 10418.008 | (51-SB-0(N,EL)51-SB-0,,DA,,LEG/RS)+  (51-SB-0(N,INL)51-SB-121,PAR,DA,,LEG/RS) | (51-SB-0(N,SCT)51-SB-0,PAR,DA,,LEG/RS) |
| 10631.002 | (73-TA-0(N,EL)73-TA-0,,SIG)+  (73-TA-0(N,INL)73-TA-181,PAR,SIG) | (73-TA-0(N,SCT)73-TA-0,PAR,SIG) |
| 10631.003 | (73-TA-0(N,EL)73-TA-0,,DA,,LEG/RS)+  (73-TA-0(N,INL)73-TA-181,PAR,DA,,LEG/RS) | (73-TA-0(N,SCT)73-TA-0,PAR,DA,,LEG/RS) |
| 10854.010 | (3-LI-7(N,EL)3-LI-7,,DA)+  (3-LI-7(N,INL)3-LI-7,PAR,DA) | (3-LI-7(N,SCT)3-LI-7,PAR,DA) |
| 10854.013 | (3-LI-7(N,EL)3-LI-7,,SIG)+  (3-LI-7(N,INL)3-LI-7,PAR,SIG) | (3-LI-7(N,SCT)3-LI-7,PAR,SIG) |
| 11022.002 | (3-LI-0(N,EL)3-LI-0,,DA)+  (3-LI-0(N,INL)3-LI-7,PAR,DA) | (3-LI-0(N,SCT)3-LI-0,PAR,DA) |
| 11022.007 | (3-LI-7(N,EL)3-LI-7,,DA)+  (3-LI-7(N,INL)3-LI-7,PAR,DA) | (3-LI-7(N,SCT)3-LI-7,PAR,DA) |
| 11442.003 | (9-F-19(N,EL)9-F-19,,DA)+  (9-F-19(N,INL)9-F-19,PAR,DA) | (9-F-19(N,SCT)9-F-19,PAR,DA) |
| 12378.002 | (92-U-0(N,EL)92-U-0,,DA)+  (92-U-0(N,INL),PAR,DA) | (92-U-0(N,SCT)92-U-0,PAR,DA) |
| 12378.003 | (92-U-0(N,EL)92-U-0,,DA)+  (92-U-0(N,INL),PAR,DA) | (92-U-0(N,SCT)92-U-0,PAR,DA) |
| 12658.006 | (3-LI-6(N,EL)3-LI-6,,SIG)+  (3-LI-6(N,INL)3-LI-6,PAR,SIG) | (3-LI-6(N,SCT)3-LI-6,PAR,SIG) |
| 12658.007 | (3-LI-7(N,EL)3-LI-7,,SIG)+  (3-LI-7(N,INL)3-LI-7,PAR,SIG) | (3-LI-7(N,SCT)3-LI-7,PAR,SIG) |
| 12762.002 | (47-AG-0(N,EL),,DA,,AV)+  (47-AG-0(N,INL),PAR,DA,,AV) | (47-AG-0(N,SCT)47-AG-0,PAR,DA,,AV) |
| 12805.003 | (51-SB-0(N,EL),,DA,,AV)+  (51-SB-0(N,INL),PAR,DA,,AV) | (51-SB-0(N,SCT)51-SB-0,PAR,DA,,AV) |
| 12805.004 | (51-SB-0(N,EL),,DA)+  (51-SB-0(N,INL),PAR,DA) | (51-SB-0(N,SCT)51-SB-0,PAR,DA) |
| 12986.006 | (5-B-10(N,EL)5-B-10,,DA)+  (5-B-10(N,INL)5-B-10,PAR,DA) | (5-B-10(N,SCT)5-B-10,PAR,DA) |
| 13161.004 | (3-LI-7(N,EL)3-LI-7,,DA)+  (3-LI-7(N,INL)3-LI-7,PAR,DA) | (3-LI-7(N,SCT)3-LI-7,PAR,DA) |
| 13506.006 | (92-U-235(N,EL)92-U-235,,DA)+  (92-U-235(N,INL)92-U-235,PAR,DA) | (92-U-235(N,SCT)92-U-235,PAR,DA) |
| 13585.002 | (48-CD-0(N,EL)48-CD-0,,DA)+  (48-CD-0(N,INL)48-CD-0,PAR,DA) | (48-CD-0(N,SCT)48-CD-0,PAR,DA) |
| 13637.003 | (46-PD-0(N,EL)46-PD-0,,DA)+  (46-PD-0(N,INL)46-PD-0,PAR,DA) | (46-PD-0(N,SCT)46-PD-0,PAR,DA) |
| 13638.002 | (47-AG-0(N,EL)47-AG-0,,DA)+  (47-AG-0(N,INL)47-AG-0,PAR,DA) | (47-AG-0(N,SCT)47-AG-0,PAR,DA) |
| 13984.002 | (94-PU-239(N,EL)94-PU-239,,DA)+  (94-PU-239(N,INL)94-PU-239,PAR,DA) | (94-PU-239(N,SCT)94-PU-239,PAR,DA) |
| 13984.004 | (94-PU-239(N,EL)94-PU-239,,DA)+  (94-PU-239(N,INL)94-PU-239,PAR,DA) | (94-PU-239(N,SCT)94-PU-239,PAR,DA) |
| 13984.007 | (94-PU-239(N,EL)94-PU-239,,SIG)+  (94-PU-239(N,INL)94-PU-239,PAR,SIG) | (94-PU-239(N,SCT)94-PU-239,PAR,SIG) |
| 20268.004 | (3-LI-7(N,EL)3-LI-7,,DA)+  (3-LI-7(N,INL)3-LI-7,PAR,DA) | (3-LI-7(N,SCT)3-LI-7,PAR,DA) |
| 20270.002 | (5-B-10(N,EL)5-B-10,,DA)+  (5-B-10(N,INL)5-B-10,PAR,DA) | (5-B-10(N,SCT)5-B-10,PAR,DA) |
| 20491.002 | (11-NA-23(N,EL)11-NA-23,,DA)+  (11-NA-23(N,INL)11-NA-23,PAR,DA) | (11-NA-23(N,SCT)11-NA-23,PAR,DA) |
| 20661.002 | (11-NA-23(N,EL)11-NA-23,,DA)+  (11-NA-23(N,INL)11-NA-23,PAR,DA) | (11-NA-23(N,SCT)11-NA-23,PAR,DA) |
| 20661.006 | (11-NA-23(N,EL)11-NA-23,,DA)+  (11-NA-23(N,INL)11-NA-23,PAR,DA) | (11-NA-23(N,SCT)11-NA-23,PAR,DA) |
| 21089.017 | (11-NA-23(N,EL)11-NA-23,,SIG)+  (11-NA-23(N,INL)11-NA-23,PAR,SIG) | (11-NA-23(N,SCT)11-NA-23,PAR,SIG) |
| 21147.045 | (3-LI-7(N,EL)3-LI-7,,SIG)+  (3-LI-7(N,INL)3-LI-7,PAR,SIG) | (3-LI-7(N,SCT)3-LI-7,PAR,SIG) |
| 21161.002 | (9-F-19(N,EL)9-F-19,,DA)+  (9-F-19(N,INL)9-F-19,PAR,DA) | (9-F-19(N,SCT)9-F-19,PAR,DA) |
| 21162.011 | (3-LI-7(N,EL)3-LI-7,,DA)+  (3-LI-7(N,INL)3-LI-7,PAR,DA) | (3-LI-7(N,SCT)3-LI-7,PAR,DA) |
| 21162.012 | (3-LI-7(N,EL)3-LI-7,,DA)+  (3-LI-7(N,INL)3-LI-7,PAR,DA) | (3-LI-7(N,SCT)3-LI-7,PAR,DA) |
| 21162.016 | (3-LI-7(N,EL)3-LI-7,,SIG)+  (3-LI-7(N,INL)3-LI-7,PAR,SIG) | (3-LI-7(N,SCT)3-LI-7,PAR,SIG) |
| 21439.002 | (90-TH-232(N,EL)90-TH-232,,DA)+  (90-TH-232(N,INL)90-TH-232,PAR,DA) | (90-TH-232(N,SCT)90-TH-232,PAR,DA) |
| 21439.004 | (92-U-238(N,EL)92-U-238,,DA)+  (92-U-238(N,INL)92-U-238,PAR,DA) | (92-U-238(N,SCT)92-U-238,PAR,DA) |

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