**Nuclear Data Section**

**International Atomic Energy Agency**

**P.O.Box 100, A-1400 Vienna, Austria**

**Memo CP-D/1042**

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**From:** N. Otsuka

**Subject: Supracumulative cross section**

LEXFOR “Independent and Cumulative Data” introduces the “supracumulative cross section” in the following paragraph:

**Supracumulative Cross Section**

This term is sometimes used for the situation that the observed cross section is bigger than the ‘actual’ cumulative cross section because production of the measured nuclide continues after the end of irradiation. Many relevant publications do not make this distinction and no special EXFOR code for it exists so far; if such data are compiled, explanation in free text is needed.

See e.g., Yu.E. Titarenko et al., Phys. Rev. C65(2002)064610, and INDC(CCP)-434, pp. 7-15 (2003).

I suggest addition a few equations to define the supracumulative cross section more clearly.

**Supracumulative Cross Section**

This term is sometimes used for the situation that the observed cross section is bigger than the ‘actual’ cumulative cross section because production of the measured nuclide continues after the end of irradiation. The supracumulative cross section determined by the ground state activity measured after complete decay of the metastable state is σdir(AgJ)+ *a* σdir(AmJ) with *a*= *f* λm/(λm-λg) when λg < λm and there is no precursor nuclide (*f*: isomeric transition probability). It approximate the ‘actual’ cumulative cross section when σdir(AgJ) >> *f* σdir(AmJ) or λg << λm. Many relevant publications do not make this distinction and no special EXFOR code for it exists so far; if such data are compiled, explanation in free text is needed.

See e.g., Yu.E. Titarenko et al., Phys. Rev. C65(2002)064610, and INDC(CCP)-434, pp. 7-15 (2003).

Two remarks:

* This implies the coefficient *a* defined in LEXFOR can be larger than 1 because of the factor λm/(λm-λg).
* Titarenko et al. mentions in the Phys. Rev. C article that the supracumulative cross section approximates ‘actual’ cumulative cross section when σ2ind <<σ1cumν1, but I believe the inequality symbol must be opposite.

**Distribution:**

a.koning@iaea.org

abhihere@gmail.com

aloks279@gmail.com

daniela.foligno@oecd-nea.org

dbrown@bnl.gov

draj@barc.gov.in

exfor@oecd-nea.org

fukahori.tokio@jaea.go.jp

ganesan555@gmail.com

gezg@ciae.ac.cn

iwamoto.osamu@jaea.go.jp

jmwang@ciae.ac.cn

kaltchenko@kinr.kiev.ua

kimdh@kaeri.re.kr

kimura.atsushi04@jaea.go.jp

l.vrapcenjak@iaea.org

manuel.bossant@oecd-nea.org

masaaki@nucl.sci.hokudai.ac.jp

marina-03-08@yandex.ru

michael.fleming@oecd-nea.org

mmarina@ippe.ru

nicolas.soppera@oecd-nea.org

n.otsuka@iaea.org

nrdc@jcprg.org

odsurenn@gmail.com

ogritzay@ukr.net

ogrudzevich@ippe.ru

otto.schwerer@aon.at

pikulina@expd.vniief.ru

pritychenko@bnl.gov

s.okumura@iaea.org

scyang@kaeri.re.kr

selyankina@expd.vniief.ru

sonzogni@bnl.gov

stakacs@atomki.mta.hu

stanislav.hlavac@savba.sk

sv.dunaeva@gmail.com

tada@nucl.sci.hokudai.ac.jp

taova@expd.vniief.ru

tarkanyi@atomki.hu

v.devi@iaea.org

v.zerkin@iaea.org

vidyathakur@yahoo.co.in

vsemkova@inrne.bas.bg

vvvarlamov@gmail.com

yolee@kaeri.re.kr

zholdybayev@inp.kz

**cc:**

alexander.konobeev@kit.edu

yury.titarenko@itep.ru