

**Nuclear Data Section
International Atomic Energy Agency
P.O.Box 100, A-1400 Vienna, Austria**

Memo CP-D/681

Date: 4 February 2011
To: Distribution
From: N. Otsuka
Subject: **Fission quantity - Correlation with kinetic energy**

Fission quantities are often given as functions of continuous secondary energies (typically total kinetic energy) but not differentiated by them.

EXFOR 22464.007 [1] gives “multiplicity of fission neutron emitted from a specific fragment mass *at a given total kinetic energy*”. (upper figure). This quantity is regarded as useful for prompt fission neutron spectrum evaluation. This data set is now coded as

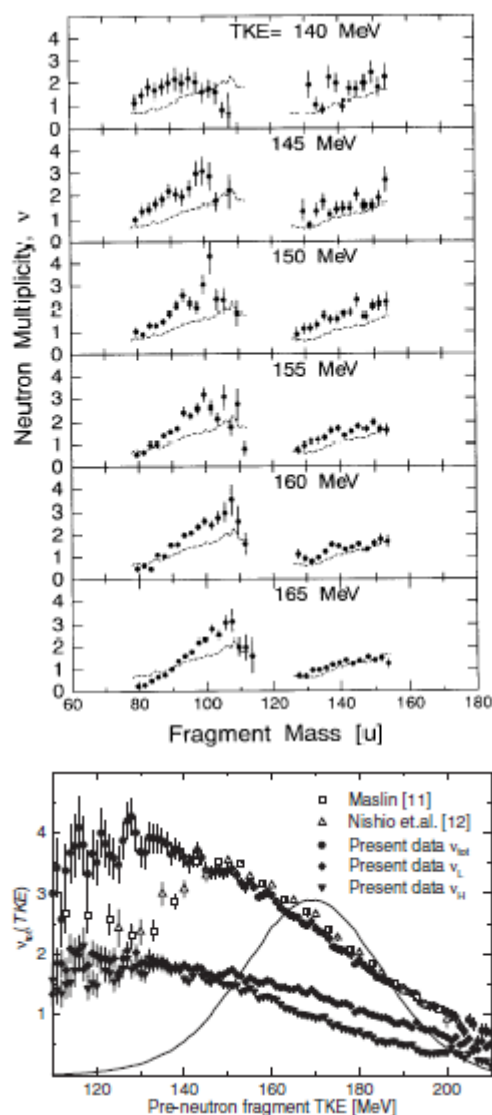
92-U-235(N,F)MASS,PR,NU/DE,FF,FCT/MXW

Use of DE is however strange because this is not a multiplicity NU differentiated by the kinetic energy.

Instead of DE, the branch code PAR (e.g., 41516.014 in PRELIM.4151, lower figure [2]) is often used for the purpose. However PAR is for a quantity labelled by a discrete secondary energy (e.g., level energy, transition energy) or a quantity integrated over a continuous secondary energy.

In order to solve this problem, a new parameter code (say, DKE) is proposed for observable correlated with kinetic energy and neither DE nor PAR are applicable. Note that D in my proposal is symbolic to express continuous kinetic energy dependence, but not express differential for kinetic energy. By using this parameter code, EXFOR 22464.007 and 41516.014 are coded with

- 22464.007 (upper figure): **92-U-235(N,F)MASS,PR,NU/DKE,LF+HF,MXW**
- 41516.014 (lower figure): **92-U-235(N,F),PR,NU/DKE,LF+HF**



References

- [1] K. Nishio *et al.*, Nucl. Phys. **A632** (1998) 540.
[2] A.S. Vorobyev *et al.*, EPJ Web Conf. **8** (2010)03004.

Distribution:

blokhin@ippe.ru
cgc@ciae.ac.cn
chiba@earth.sgu.ac.jp
claes.nordborg@oecd.org
emmeric.dupont@oecd.org
fukahori.tokio@jaea.go.jp
ganesan@barc.gov.in
gezg@ciae.ac.cn
hongwei@ciae.ac.cn
jhchang@kaeri.re.kr
j.roberts@iaea.org
kaltchenko@kinr.kiev.ua
katakura.junichi@jaea.go.jp
kato@nucl.sci.hokudai.ac.jp
kiralyb@atomki.hu
l.vrapcenjak@iaea.org
manuel.bossant@oecd.org
manokhin@ippe.ru
mmarina@ippe.ru
mwherman@bnl.gov
nicolas.soppera@oecd.org
nklimova@kinr.kiev.ua
n.otsuka@iaea.org

nrdc@jcprg.org
oblozinsky@bnl.gov
ogritzay@kinr.kiev.ua
otto.schwerer@aon.at
pronyaev@ippe.ru
r.forrest@iaea.org
samaev@obninsk.ru
s.babykina@polyn.kiae.su
scyang@kaeri.re.kr
s.simakov@iaea.org
stakacs@atomki.hu
stanislav.hlavac@savba.sk
sv.dunaeva@gmail.com
taova@expd.vniief.ru
tarkanyi@atomki.hu
varlamov@depni.sinp.msu.ru
vlasov@kinr.kiev.ua
vmclane@optonline.net
v.semkoval@iaea.org
v.zerkin@iaea.org
yolee@kaeri.re
zhuangyx@ciae.ac.cn