Status of HPRL entries

This SG-C working document collects information on HPRL entries in view of updating the website and eventually adding a status flag to each entry. There is no plan to publish this document, at least not in its current form.

Links to HPRL entries are included but information already available online are not repeated here (with the exception of the target uncertainty). The additional information below are collected to facilitate the review of entries and to make a decision on a possible status flag:

- Main recent references in the fields of measurement, theory/evaluation, and validation
- Plots of the evaluated data and uncertainties for the main recent libraries (essentially ENDF/B-VIII.0, JEFF-3.3, JENDL-4.0, ENDF/B-VII.1)

Options for the status flag:

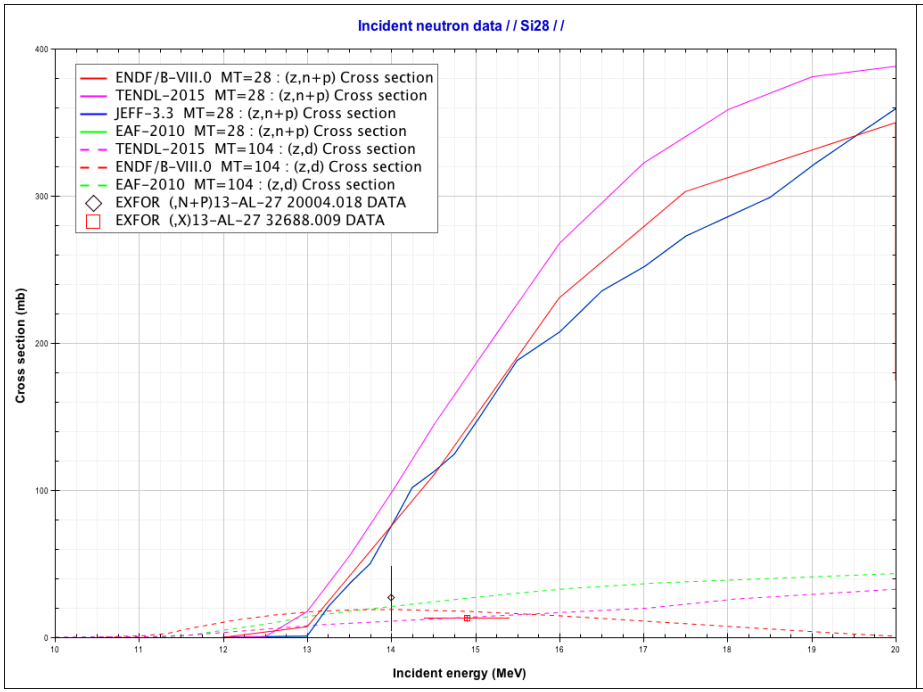
(1) Work in progress
(2) Pending new evaluation/validation
(3) Completed
(4) Archived

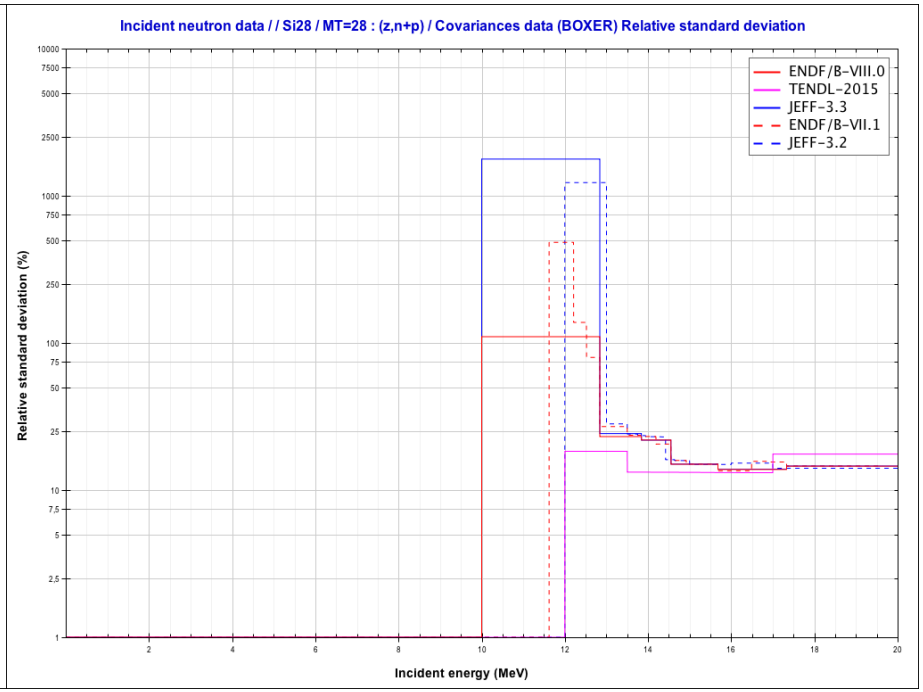
Option (1) covers all experimental and theoretical activities;
Option (2) is for entries that have stimulated a lot of activities, but are not completed yet because of the lack of new evaluation or validation;
Option (3) is for entries that have been satisfied (consensus required)
Option (4) is for entries that are no longer relevant or didn't stimulate any significant activities (consensus required)

Request ID1: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=416

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
1	14-Si-28(n,np) Cross section	12 MeV-20 MeV	21 Sept 2005	*Experiments* • Hong-Yu Zhou et al., NIM A 648 (2011) 192 (http://doi.org/10.1016/j.nima.2011.04.014) – EXFOR 32688 (http://www-nds.iaea.org/EXFOR/32688) *Theory/Evaluation* • M. Herman et al., COMMARA-2.0 Neutron Cross Section Covariance Library, Report BNL- 94830-2011, Brookhaven National Laboratory (2011) *Validation* • …

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Si28/MT28 (no data as of March 26, 2018)





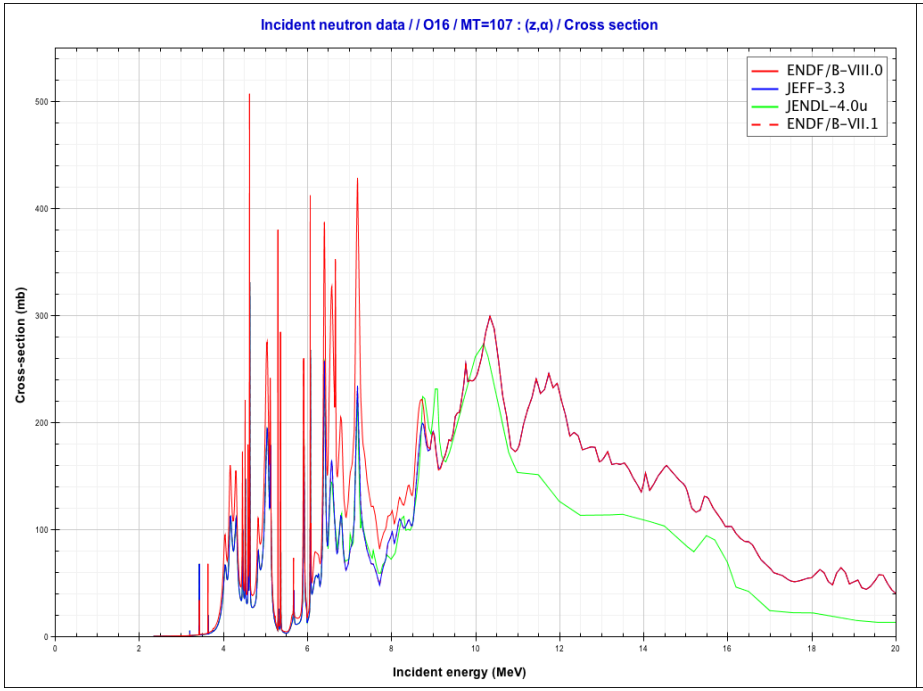
Requested uncertainty: 20%
Present evaluated uncertainty: 15%-25% above 13 MeV

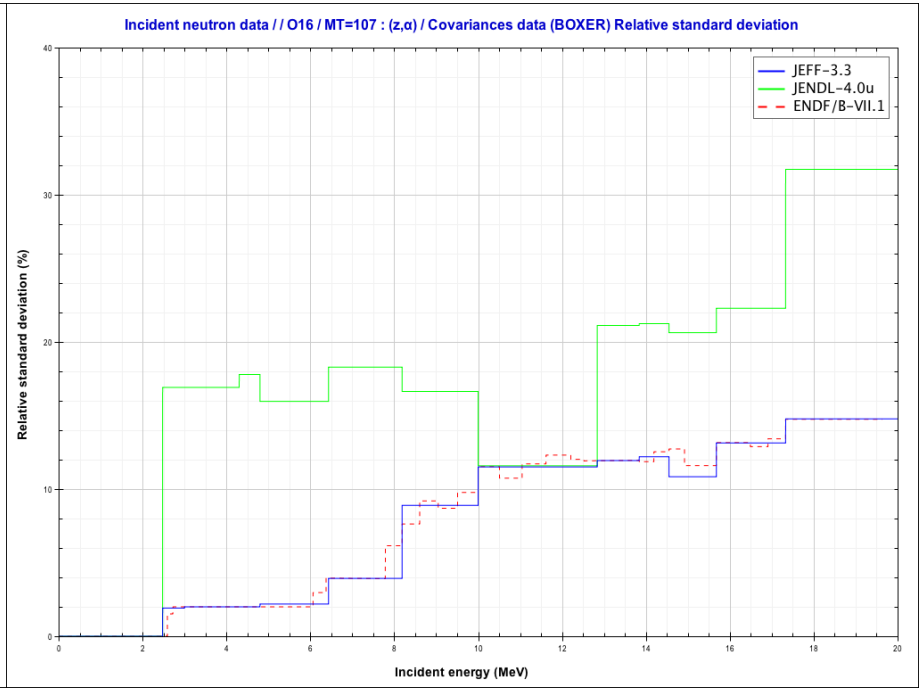
Requester: Edward T. CHENG (deceased, a new request "owner" should be found; contact with Mohamed SAWAN and Ulrich FISCHER)
Status proposal: (SGC review) Completed

Request ID2: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=417

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
2	8-O-16(n,a),(n,abs) Cross section	2 MeV-20 MeV	21 Sept 2005	*Experiments* • G. Giorginis, et al., The cross section of the 16O(n,α)13C reaction in the MeV energy range, ND2007 (http://doi.org/10.1051/ndata:07481) – EXFOR 23040 (http://www-nds.iaea.org/EXFOR/23040) • V.A. Khryachkov, et al., Study of (n,α) Reaction Cross Section on a Set of Light Nuclei, ISINN-18, Sept. 2011, Dubna, Russia (http://isinn.jinr.ru/proceedings/isinn-18/pdf/Khryachkov.pdf) – EXFOR 41575 (http://www-nds.iaea.org/EXFOR/41575) • V.A. Khryachkov, et al., (n,a) reaction cross section research at IPPE, CNR*11, EPJ Web of Conferences 21 (2012) 03005 (http://doi.org/10.1051/epjconf/20122103005) – EXFOR 41575 (http://www-nds.iaea.org/EXFOR/41575) • Planned (n,a) measurements at LANL, Demokritos and n_TOF *Theory/Evaluation* • G. Hale and M. Paris, Status and plans for 1H and 16O evaluations by R-matrix analyses of the N-N and 17O systems, NEMEA-7/CIELO, NEA/NSC/DOC(2014)13, page 13, (https://www.oecd-nea.org/science/docs/2014/nsc-doc2014-13.pdf) • S. Kunieda, et al., R-matrix Analysis for n +16O Cross-sections up to En = 6.0 MeV with Covariances, NDS 118 (2014) 250-253 (http://dx.doi.org/10.1016/j.nds.2014.04.050) • L. Leal, et al., Resonance parameter and covariance evaluation for 16O up to 6 MeV, EPJ N 2 (2016) 43 (http://doi.org/10.1051/epjn/2016036) • M.B. Chadwick et al., CIELO Collaboration Summary Results: International Evaluations of Neutron Reactions on Uranium, Plutonium, Iron, Oxygen and Hydrogen, NDS 148 (2018) 189 (http://doi.org/10.1016/j.nds.2018.02.003) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/O16/MT107





Requested uncertainty: 5% or 10% depending on the application (see details in the request)
Present evaluated uncertainty: from 2% to 14% between 2 MeV and 20 MeV (CIELO file)

Requester: Arnaud COURCELLE (CEA) and Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID3: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=421

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
3	94-Pu-239(n,f) Prompt gammas (PFGS)	Thermal, Fast	28 April 2006	*Experiments* • A. Chyzh, et al., Total prompt γ-ray emission in fission of U-235, Pu-239,241, and Cf-252, PRC 90 (2014) 014602 (http://dx.doi.org/10.1103/PhysRevC.90.014602) – EXFOR 14361 (http://www-nds.iaea.org/EXFOR/14361) • S. Oberstedt, et al., Future research program on prompt γ-ray emission in nuclear fission, Eur. Phys. J. A (2015) 51: 178 (http://dx.doi.org/10.1140/epja/i2015-15178-8) • A. Gatera, et al., PRC 95 (2017) 064609 (http://doi.org/10.1103/PhysRevC.95.064609) *Theory/Evaluation* • O. Serot et al., Prompt Fission Gamma Spectra and Multiplicities for JEFF-3.3, JEF/DOC-1828, JEFF Meeting, OECD, Paris (2017) • D. Brown et al., ENDF/B-VIII.0: The 8th Major Release of the Nuclear Reaction Data Library with CIELO-project Cross Sections, New Standards and Thermal Scattering Data, NDS 148 (2018) 1 (http://doi.org/10.1016/j.nds.2018.02.001) *Validation* • …

JANIS Book: N/A

Requested uncertainty: 7.5%
Present evaluated uncertainty: ???

Requester: Gerald RIMPAULT (CEA)
Status proposal: (SGC review) Work in progress

Request ID4: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=422

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
4	92-U-235(n,f) Prompt gammas (PFGS)	Thermal, Fast	10 May 2006	*Experiments* • E. Kwan, et al., Prompt energy distribution of 235U(n,f)γ at bombarding energies of 1–20 MeV, NIM A 688 (2012) 55 (http://dx.doi.org/10.1016/j.nima.2012.06.003) – EXFOR 14413 (http://www-nds.iaea.org/EXFOR/14413) • A. Oberstedt et al., Improved values for the characteristics of prompt-fission γ-ray spectra from the reaction 235U(nth,f), PRC 87 (2013) 051602(R) (https://doi.org/10.1103/PhysRevC.87.051602) – EXFOR 31729 (http://www-nds.iaea.org/EXFOR/31729) • A. Chyzh, et al., Total prompt γ-ray emission in fission of U-235, Pu-239,241, and Cf-252, PRC 90 (2014) 014602 (http://doi.org/10.1103/PhysRevC.90.014602) – EXFOR 14361 (http://www-nds.iaea.org/EXFOR/14361) • M. Lebois, et al., Comparative measurement of prompt fission γ-ray emission from fast-neutron-induced fission of U-235 and U-238, PRC 92 (2015) 034618 (http://doi.org/10.1103/PhysRevC.92.034618) – EXFOR 23299 (http://www-nds.iaea.org/EXFOR/23299) • Ongoing work at IRMM-IPNO, S. Oberstedt, et al., Future research program on prompt γ-ray emission in nuclear fission, Eur. Phys. J. A (2015) 51:178 (http://doi.org/10.1140/epja/i2015-15178-8) • Ongoing work at JAEA, see H. Makii et al., Measurement of High-Energy Prompt γ-rays from Neutron-Induced Fission of 235U, FIESTA 2017 (http://t2.lanl.gov/fiesta2017/Talks/Makii.pdf) *Theory/Evaluation* • O. Serot et al., Prompt Fission Gamma Spectra and Multiplicities for JEFF-3.3, JEF/DOC-1828, JEFF Meeting, OECD, Paris (2017) • D. Brown et al., ENDF/B-VIII.0: The 8th Major Release of the Nuclear Reaction Data Library with CIELO-project Cross Sections, New Standards and Thermal Scattering Data, NDS 148 (2018) 1 (http://doi.org/10.1016/j.nds.2018.02.001) *Validation* • …

JANIS Book: N/A

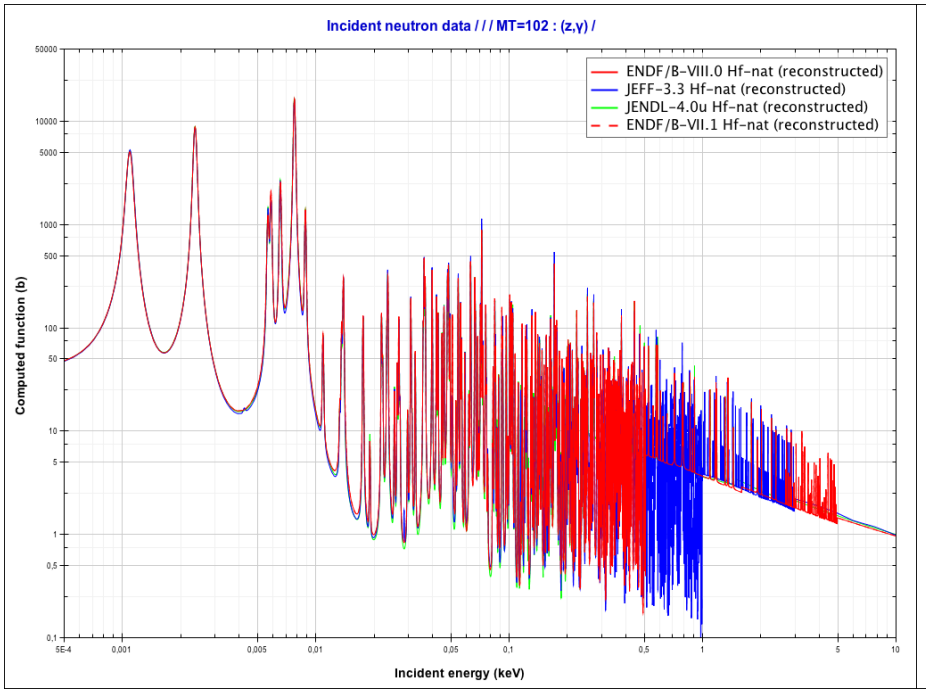
Requested uncertainty: 7.5%
Present evaluated uncertainty: ???

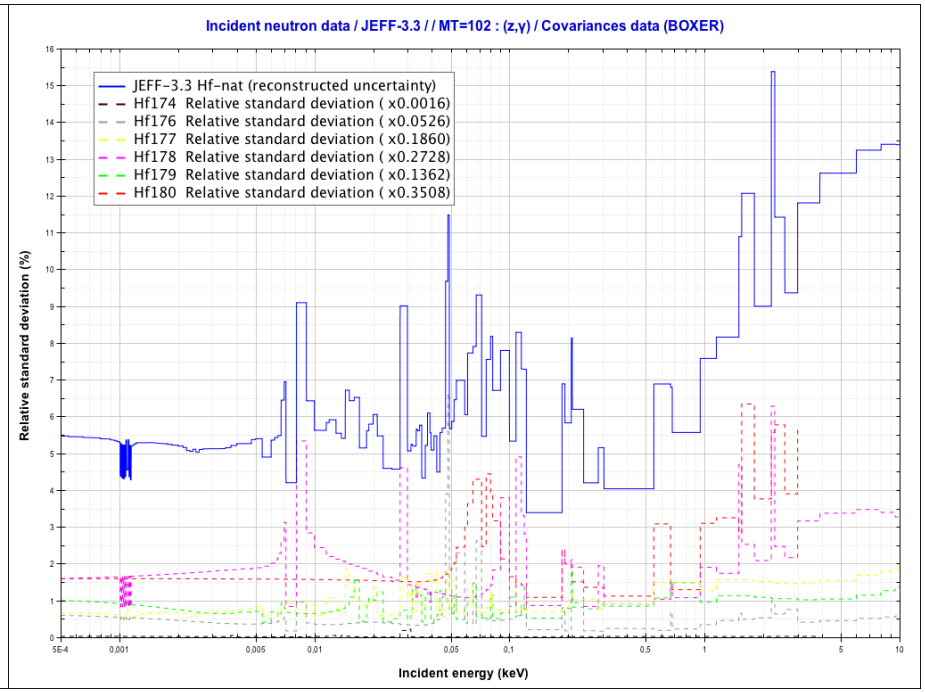
Requester: Gerald RIMPAULT (CEA)
Status proposal: (SGC review) Work in progress

Request ID5: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=419

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
5	72-Hf-nat(n,g) Cross section	0.5 eV-5 keV	28 April 2006	*Experiments* • A.K.M. Meaze et al. (G.N. Kim), Measurement of the Total Neutron Cross-Sections and the Resonance Parameters of Natural Hafnium at the Pohang Neutron Facility, J. Korean Phy. Soc. 46 (2005) 401 (http://www.jkps.or.kr/journal/archives.html) – EXFOR 31689 (http://www-nds.iaea.org/EXFOR/31689) • K. Wisshak, et al., Fast neutron capture on the Hf isotopes: Cross sections, isomer production, and stellar aspects, PRC 73 (2006) 045807 (http://doi.org/10.1103/PhysRevC.73.045807) – EXFOR 22926 (http://www-nds.iaea.org/EXFOR/22926) • M.J. Trbovich, et al., Hafnium resonance parameter analysis using neutron capture and transmission experiments, NSE 161 (2009) 303 (http://doi.org/10.13182/NSE161-303) – EXFOR 14239 (http://www-nds.iaea.org/EXFOR/14239) • M. Budak, et al., Experimental determination of effective resonance energies for 158Gd(n,γ)159Gd and 179Hf(n,γ)180mHf reactions, ANE 38 (2011) 2550 (http://doi.org/10.1016/j.anucene.2011.07.014) *Theory/Evaluation* • G. Noguere, et al., Average neutron parameters for hafnium, NPA 831 (2009) 106 (http://doi.org/10.1016/j.nuclphysa.2009.08.011) • G. Noguere, et al., Group-average covariance matrices for the hafnium isotopes of interest for light water reactor applications, Annals of Nucl. Energy 36 (2009) 1059 (http://doi.org/10.1016/j.anucene.2009.06.001) • C. Dean et al., Evaluation of Neutron Cross Sections for Hafnium in the Resolved Resonance Range, Journal of the Korean Physical Society 59 (2011) 1884 (http://dx.doi.org/10.3938/jkps.59.1884) *Validation* • …

JANIS Book: N/A (isotopic data only)





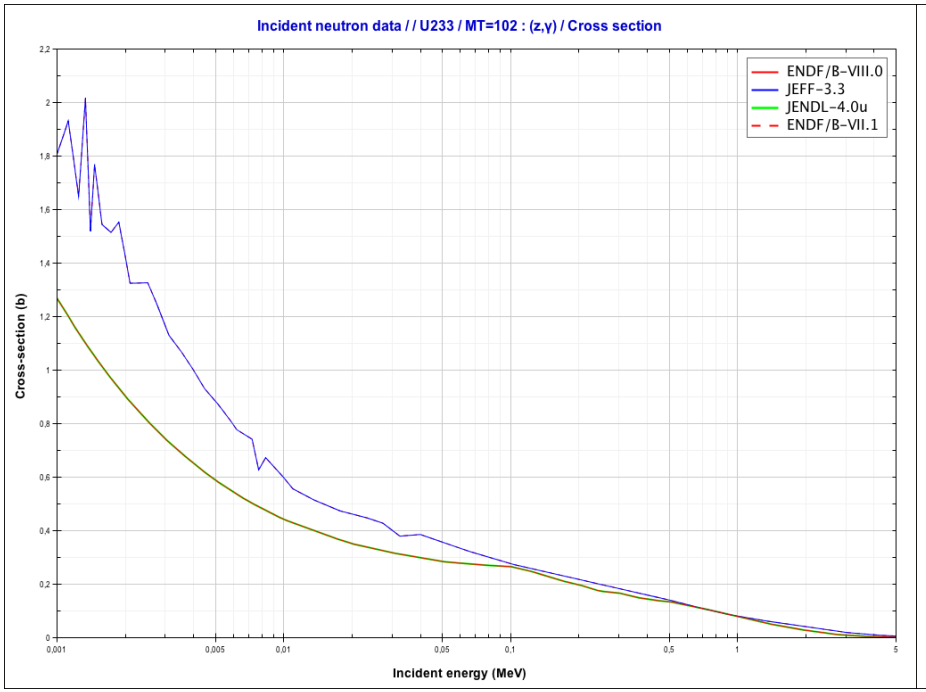
Requested uncertainty: 4% on the resonance integral
Present evaluated uncertainty: 5-6% (uncertainty available in JEFF-3.3 only)

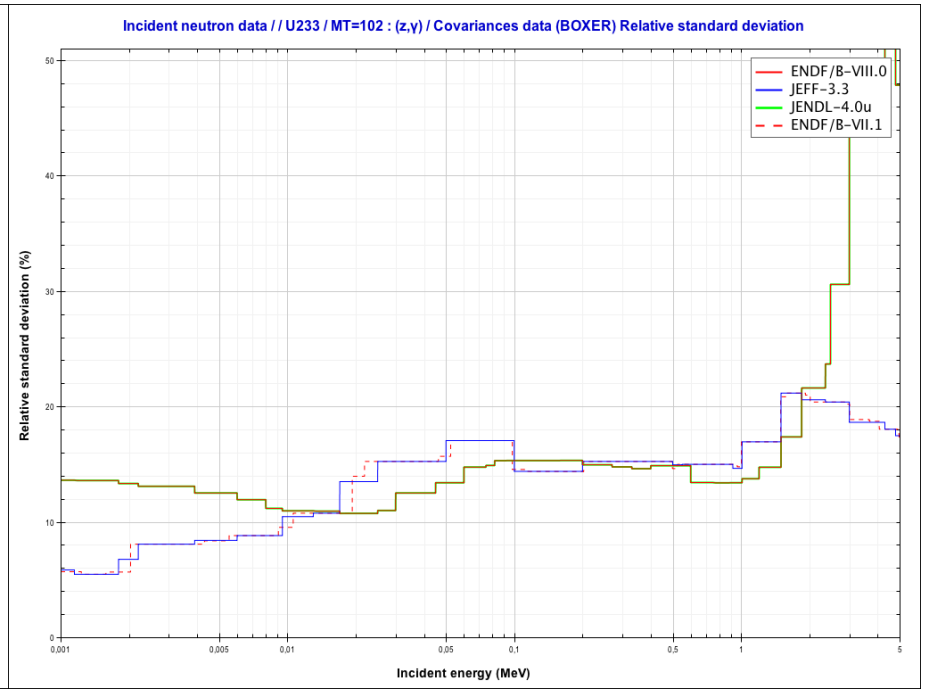
Requester: Gilles NOGUERE (CEA)
Status proposal: (SGC review) Completed

Request ID6: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=420

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
6	92-U-233(n,g) Cross section	10 keV-1 MeV	28 April 2006	*Experiments* • C. Carrapiço, E. Berthoumieux, et al., Neutron induced capture and fission discrimination using calorimetric shape decomposition, NIM A 704 (2013) 60-67 (http://doi.org/10.1016/j.nima.2012.11.082) – EXFOR 23071 (http://www-nds.iaea.org/EXFOR/23071) • M. Bacak, et al., A compact multi-plate fission chamber for the simultaneous measurement of 233U capture and fission cross-sections, ND2016, EPJ Conferences 146 (2017) 03027 (http://doi.org/10.1051/epjconf/201714603027) *Theory/Evaluation* • A. Trkov, et al., Evaluated nuclear data for nuclides within the Thorium-Uranium fuel cycle, IAEA Report STI/PUB/1435, 2010 (http://www-nds.iaea.org/publications/tecdocs/sti-pub-1435) *Validation* • …

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/U233/MT102





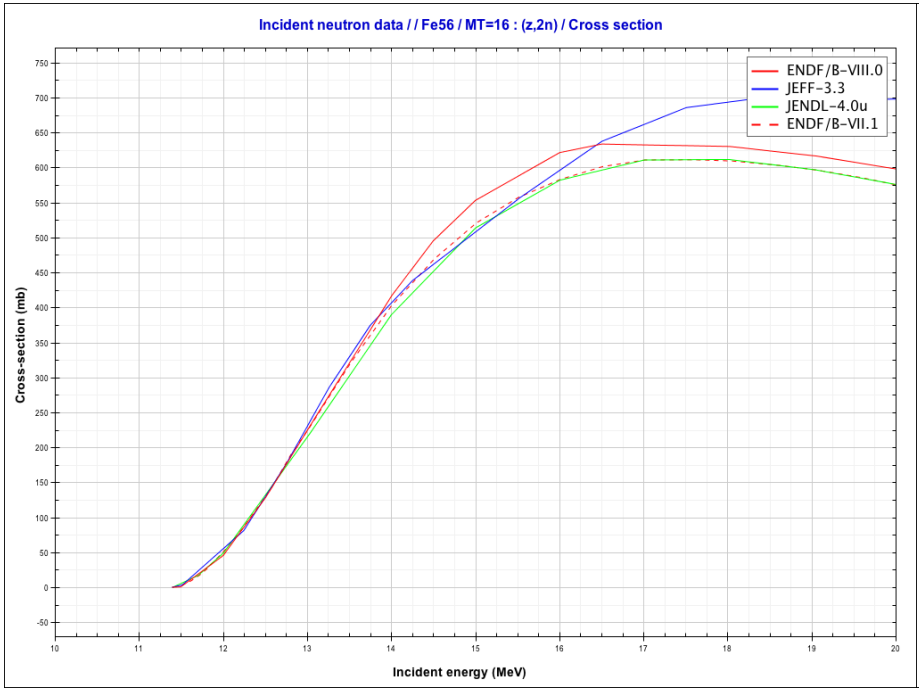
Requested uncertainty: <10%
Present evaluated uncertainty: ~15%

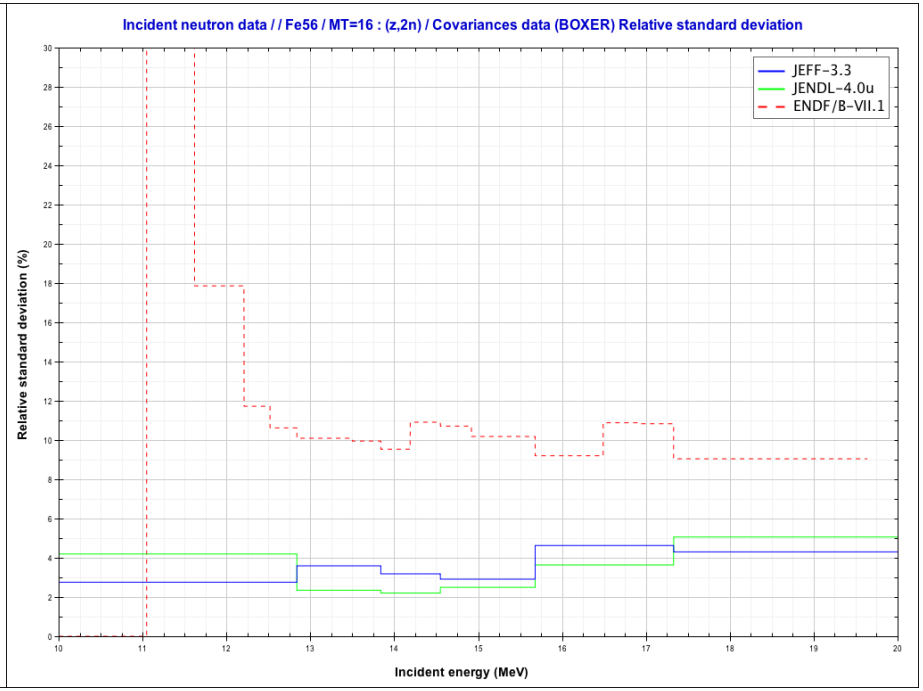
Requester: Gilles NOGUERE (CEA)
Status proposal: (SGC review) Work in progress

Request ID7: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=423

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
7	26-Fe-56(n,xn) Cross section, DDX	7 MeV-20 MeV	13 July 2006	*Experiments* • … *Theory/Evaluation* • M. Herman et al., Evaluation of Neutron Reactions on Iron Isotopes for CIELO and ENDF/B-VIII.0, NDS 148 (2018) 214 (http://doi.org/10.1016/j.nds.2018.02.004) *Validation* • …

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Fe56/MT16





Requested uncertainty: 30%
Present evaluated uncertainty: < 10% (cross section)

Requester: Arjan KONING (IAEA)
Status proposal: (SGC review) Completed

Request ID8: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=425

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
8	1-H-2(n,el) DDX	100 keV-1 MeV	25 July 2006	*Experiments* • J.A. Frenje, et al., Measurements of the Differential Cross Sections for the Elastic n−3H and n−2H Scattering at 14.1 MeV by Using an Inertial Confinement Fusion Facility, PRL 107 (2011) 122502 (http://doi.org/10.1103/PhysRevLett.107.122502) – EXFOR 14305 (http://www-nds.iaea.org/EXFOR/14305) • M. Stanoiu, et al., Neutron-Deuteron Elastic Scattering Measurements, Journal of the Korean Physical Society 59 (2011) 1825 (http://doi.org/10.3938/jkps.59.1825) • N. Nankov, et al., The Angular Distribution of Neutrons Scattered from Deuterium below 2 MeV, ND2013, NDS 119 (2014) 98 (http://doi.org/10.1016/j.nds.2014.08.028) • R. Nolte, et al., Measurement of the differential neutron-deuteron scattering cross section in the energy range from 100 keV to 600 keV using a proportional counter, ERINDA workshop, CERN Proceedings 2014-002, p.187 (http://cds.cern.ch/record/1975515) • G.J. Weisel, et al., Neutron-deuteron analyzing power data at En=22.5 MeV (of interest to theoretical models for evaluations), PRC 89 (2014) 054001 (https://doi.org/10.1103/PhysRevC.89.054001) – EXFOR 14395 (http://www-nds.iaea.org/EXFOR/14395) • E. Pirovano, et al., Backward-forward reaction asymmetry of neutron elastic scattering on deuterium, PRC 95 (2017) 024601 (http://doi.org/10.1103/PhysRevC.95.024601) – EXFOR 23335 (http://www-nds.iaea.org/EXFOR/23335) *Theory/Evaluation* • J.P. Svenne, et al., Re-evaluating low-energy neutron-deuteron elastic scattering using three-nucleon theory, ND2007, EDP Sciences p.243 (http://doi.org/10.1051/ndata:07208) • D. Brown et al., ENDF/B-VIII.0: The 8th Major Release of the Nuclear Reaction Data Library with CIELO-project Cross Sections, New Standards and Thermal Scattering Data, NDS 148 (2018) 1 (http://doi.org/10.1016/j.nds.2018.02.001) *Validation* • D. Roubtsov, et al., Reactivity Impact of 2H and 16O Elastic Scattering Nuclear Data on Critical Systems with Heavy Water, ND2013, NDS 118 (2014) 414

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
				(http://doi.org/10.1016/j.nds.2014.04.094)

JANIS Book: N/A

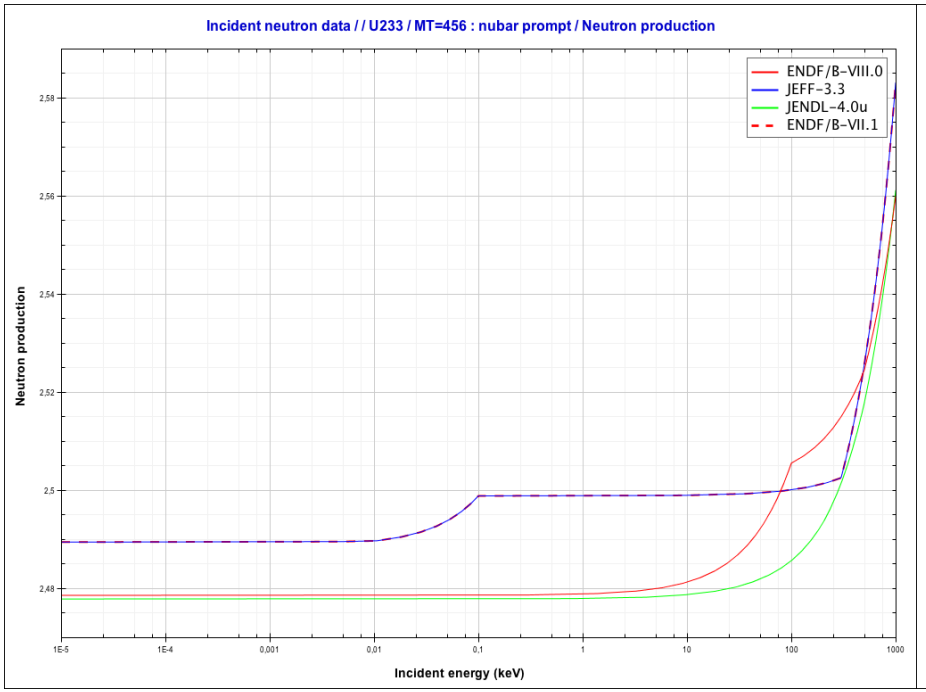
Requested uncertainty: 5%
Present evaluated uncertainty: ???

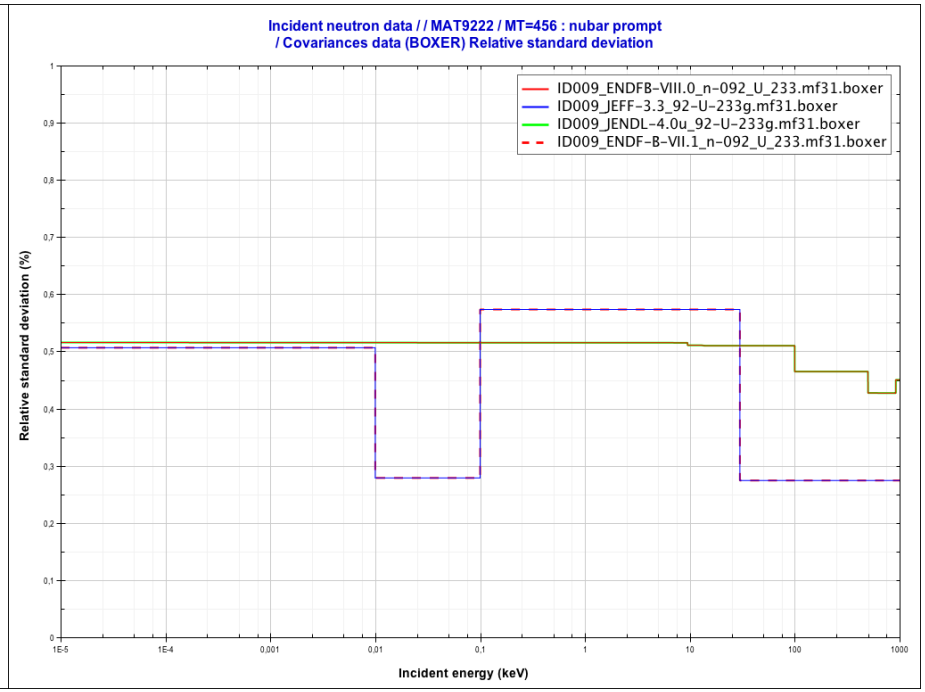
Requester: Kenneth KOZIER (retired, Dan ROUBTSOV contacted for request ownership)
Status proposal: (SGC review) Work in progress

Request ID9: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=426

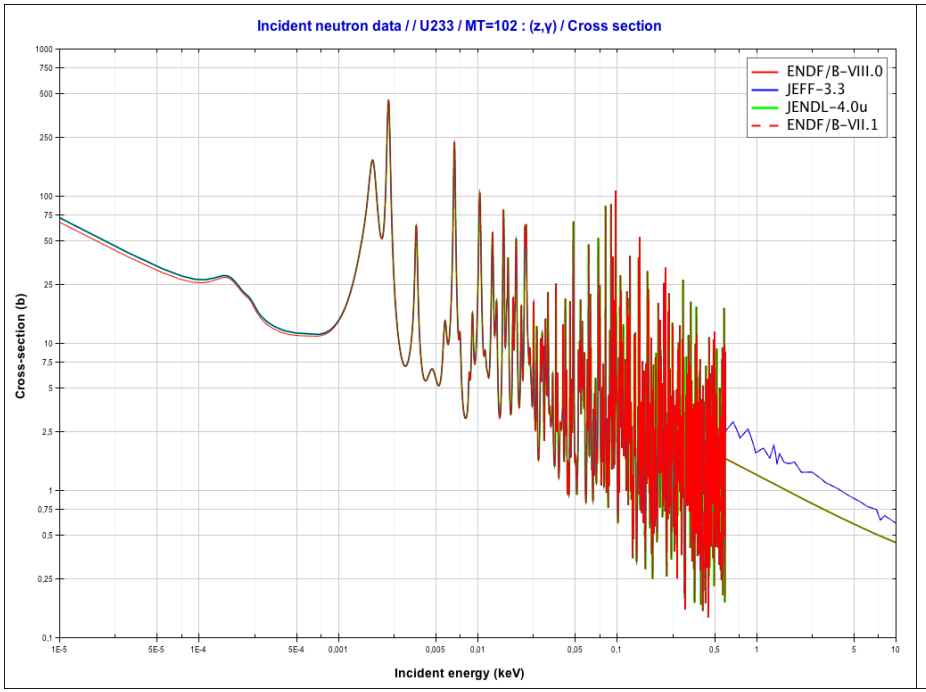
ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
9	92-U-233 (n,g) cross section, nubar	Thermal-10 keV	19 April 2007	*Experiments* • J.E. Escher and F.S. Dietrich, Cross sections for neutron capture from surrogate measurements: An examination of Weisskopf-Ewing and ratio approximations, PRC 81 (2010) 024612 (https://doi.org/10.1103/PhysRevC.81.024612) • C. Carrapiço, E. Berthoumieux, et al., NIM A 704 (2013) 60-67 (http://doi.org/10.1016/j.nima.2012.11.082) – EXFOR 23071 (http://www-nds.iaea.org/EXFOR/23071) • M. Bacak, et al., A compact multi-plate fission chamber for the simultaneous measurement of 233U capture and fission cross-sections, ND2016, EPJ Conferences 146 (2017) 03027 (https://doi.org/10.1051/epjconf/201714603027) *Theory/Evaluation* • A. Trkov, et al., Evaluated nuclear data for nuclides within the Thorium-Uranium fuel cycle, IAEA Report STI/PUB/1435, 2010 (http://www-nds.iaea.org/publications/tecdocs/sti-pub-1435) *Validation* • …

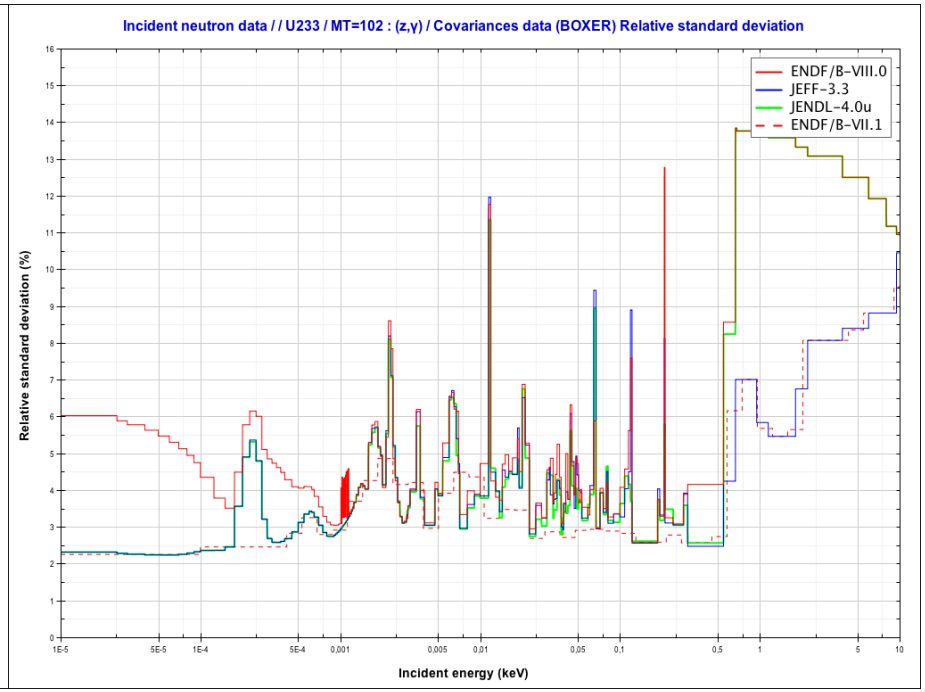
JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/U233/MT102





Requested uncertainty (nubar): 0.5%
Present evaluated uncertainty (nubar): ~0.5%





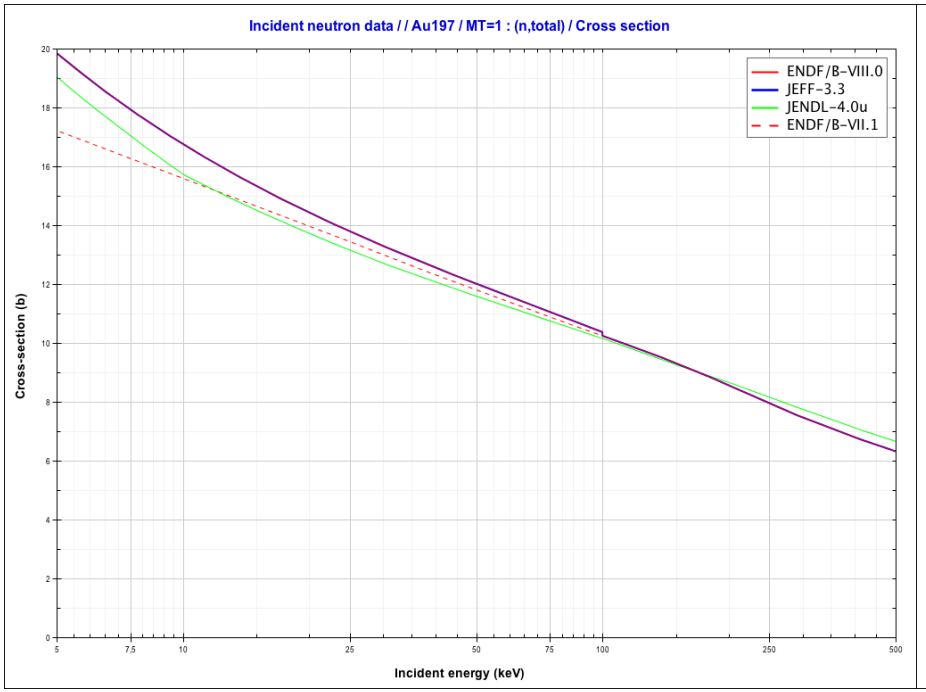
Requested uncertainty (cross section): 5%
Present evaluated uncertainty (cross section): depending on the evaluation at thermal energy, but > 5% in the keV region

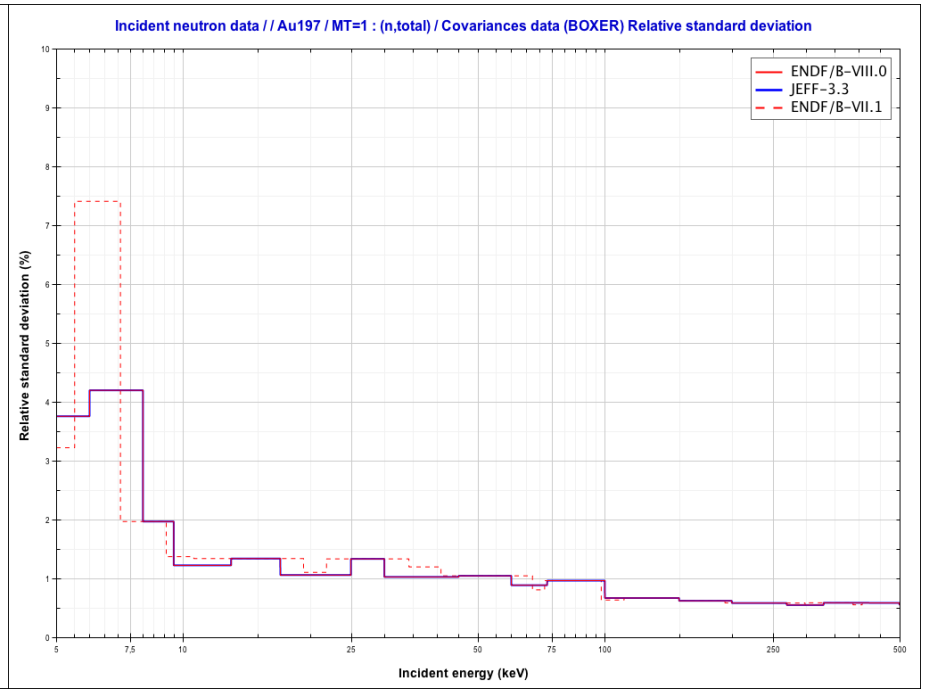
Requester: Adrien BIDAUD (CNRS/IN2P3)
Status proposal: (SGC review) Work in progress

Request ID10: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=428

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
10	79-Au-197(n,tot) Cross section	5 keV-200 keV	18 May 2007	*Experiments* • R. Hannaske, et al., Neutron total cross section measurements of gold and tantalum at the nELBE photoneutron source, EPJA 49 (2013) 137 (http://doi.org/10.1140/epja/i2013-13137-1) – EXFOR 23199 (http://www-nds.iaea.org/EXFOR/23199) • I. Sirakov, et al., Results of total cross section measurements for 197Au in the neutron energy region from 4 to 108 keV at GELINA, EPJA 49 (2014) 144 (http://doi.org/10.1140/epja/i2013-13144-2) – EXFOR 23222 (http://www-nds.iaea.org/EXFOR/23222) • C. Massimi et al., Neutron capture cross section measurements for 197Au from 3.5 to 84 keV at GELINA, EPJA 50 (2014) 124 (http://doi.org/10.1140/epja/i2014-14124-8) – EXFOR 23253 (http://www-nds.iaea.org/EXFOR/23253) *Theory/Evaluation* • A.B. Smith, Neutron Scattering from the Standard 197Au, ANL/NDM-161, 2005 (http://www.ne.anl.gov/capabilities/nd/reports/) • B. Becker, et al., Evaluation of the Covariance Matrix of Estimated Resonance Parameters, NDS 118 (2014) 381 (http://doi.org/10.1016/j.nds.2014.04.086) • A.D. Carlson et al., Evaluation of the Neutron Data Standards, NDS 148 (2018) 143 (http://doi.org/10.1016/j.nds.2018.02.002) *Validation* • G. Zerovnik et al., Use of the Grenoble lead slowing-down experiment for cross section validation, IAEA Consultants Meeting, 8-10 October 2013 (http://www-nds.iaea.org/index-meeting-crp/CM-RF-2013)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Au197/MT1





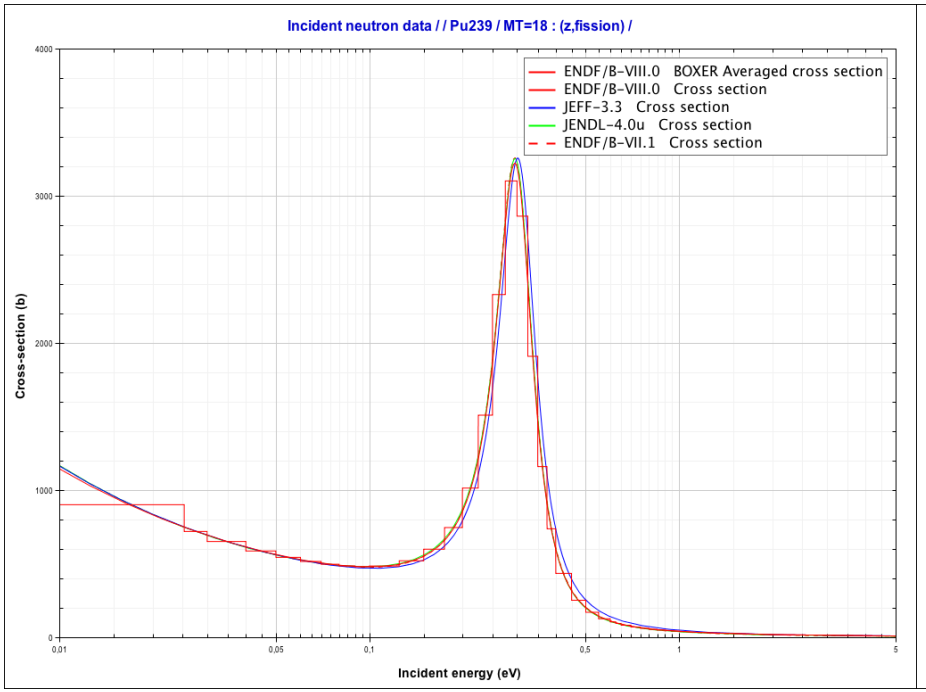
Requested uncertainty: 5%
Present evaluated uncertainty: <5%

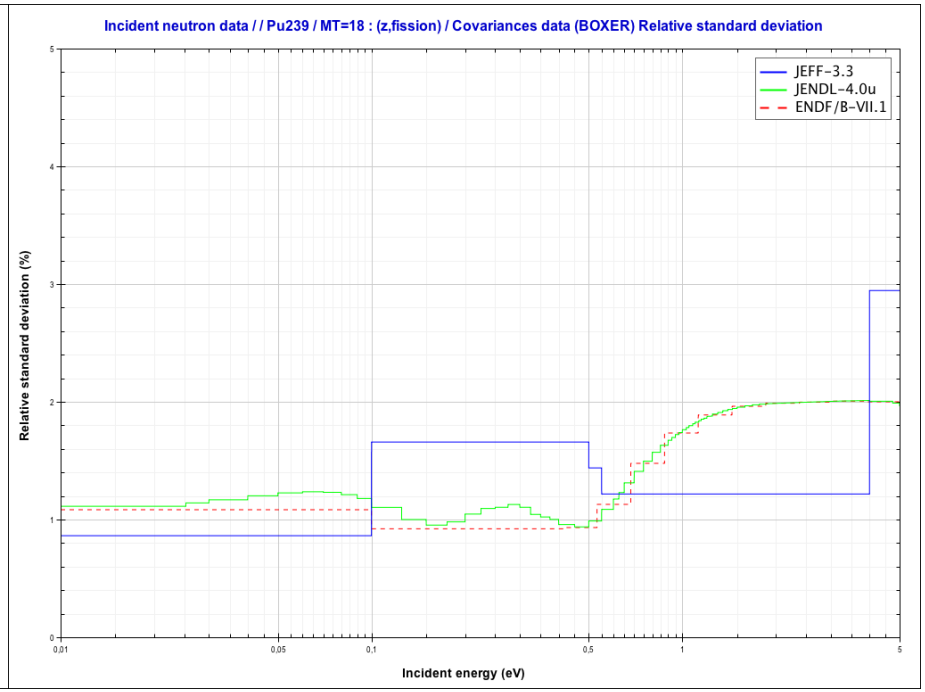
Requester: Roberto CAPOTE NOY (IAEA)
Status proposal: (SGC review) Completed

Request ID11: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=427

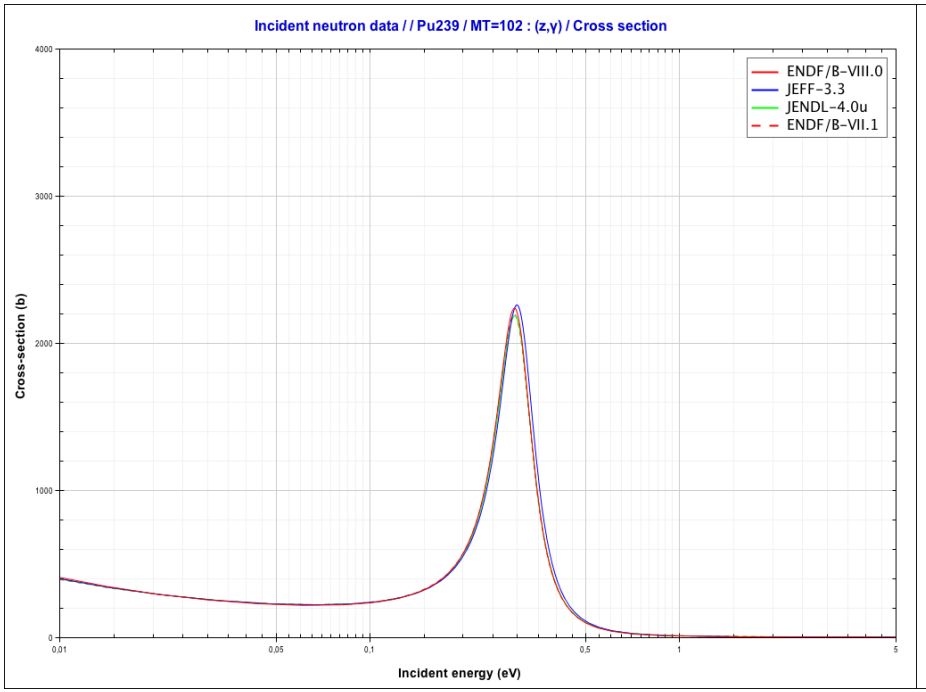
ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
11	94-Pu-239(n,f),(n,g) Cross section, eta, alpha	1 meV-1 eV	9 May 2007	*Experiments* • D. Rochman et al., Cross-section measurements for 239Pu(n,f) and 6Li(n,α) with a lead slowing-down spectrometer, NIM A 564 (2006) 400 (http://doi.org/10.1016/j.nima.2006.03.032) – EXFOR 14108 (http://www-nds.iaea.org/EXFOR/14108) • F. Tovesson, T.S. Hill, Cross Sections for 239Pu(n,f) and 241Pu(n,f) in the Range En = 0.01 eV to 200 MeV, Nuclear Science and Engineering 165 (2010) 224 (http://doi.org/10.13182/NSE09-41) – EXFOR 14271 (http://www-nds.iaea.org/EXFOR/14271) • S. Mosby et al., Improved neutron capture cross section of Pu-239, PRC 89 (2014) 034610 (http://doi.org/10.1103/PhysRevC.89.034610) – EXFOR 14383 (http://www-nds.iaea.org/EXFOR/14383) • S. Mosby et al., 239Pu(n,g) from 10 eV to 1.3 MeV, NDS 148 (2018) 312 (http://doi.org/10.1016/j.nds.2018.02.007) *Theory/Evaluation* • C. De Saint Jean et al., Coordinated Evaluation of Plutonium-239 in the Resonance Region, International Evaluation Cooperation, Volume 34, NEA/WPEC-34, OECD (2014) • M.B. Chadwick et al., CIELO Collaboration Summary Results: International Evaluations of Neutron Reactions on Uranium, Plutonium, Iron, Oxygen and Hydrogen, NDS 148 (2018) 189 (http://doi.org/10.1016/j.nds.2018.02.003) *Validation* • …

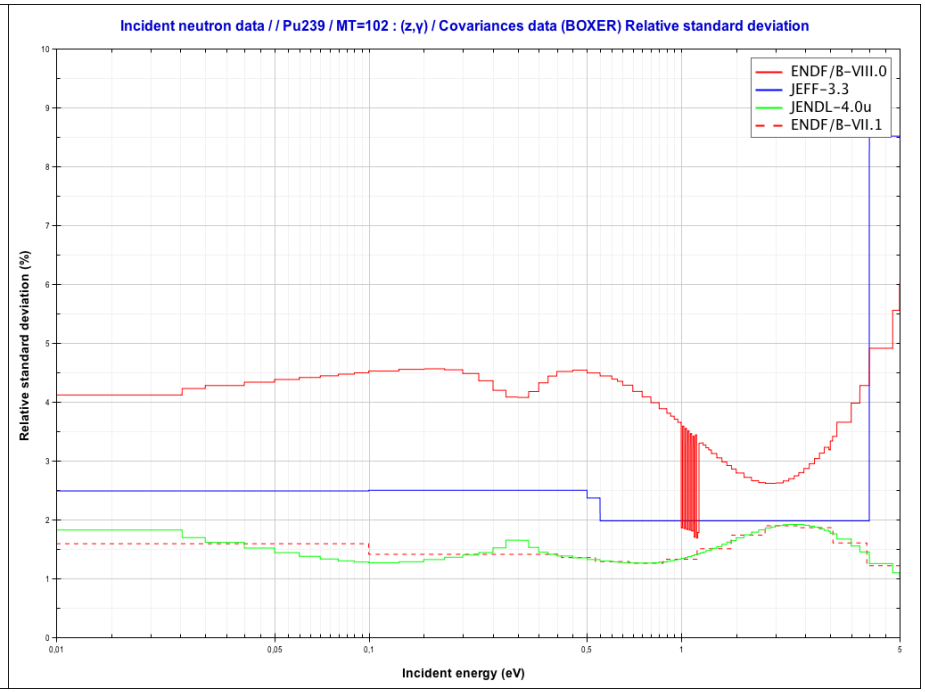
JANIS Book (n,f): http://www.oecd-nea.org/janisweb/book/neutrons/Pu239/MT18
JANIS Book (n,g): http://www.oecd-nea.org/janisweb/book/neutrons/Pu239/MT102





Requested uncertainty (fission): < 1%
Present evaluated uncertainty (fission): 1-2%





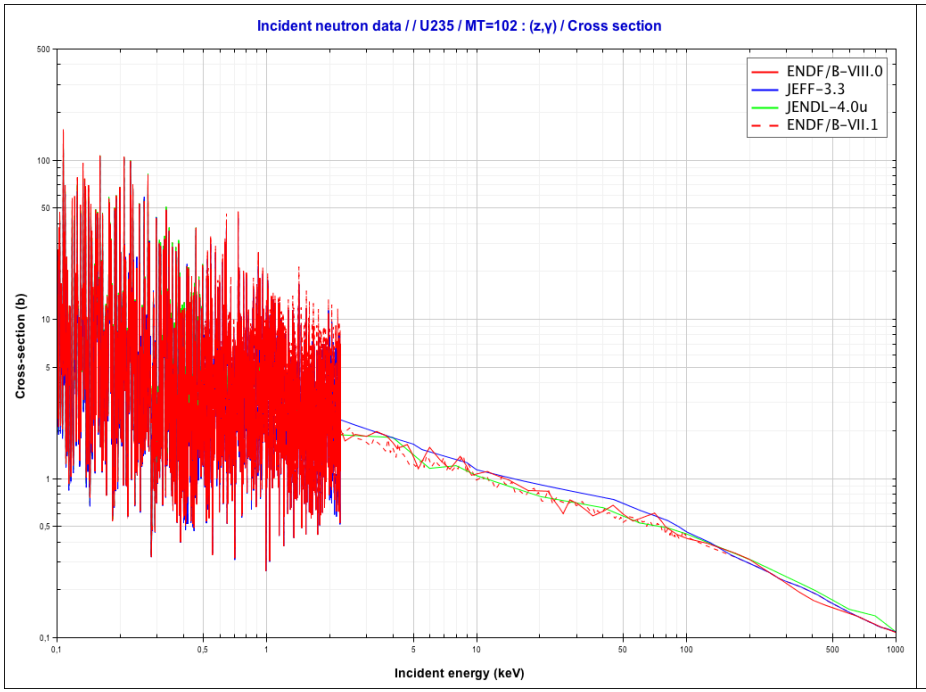
Requested uncertainty (capture): < 2%
Present evaluated uncertainty (capture): strongly depending on the evaluation, 1-2% (ENDF/B-VII.1, JENDL-4.0), 2-3% (JEFF-3.3), 4-5% (ENDF/B-VIII.0)

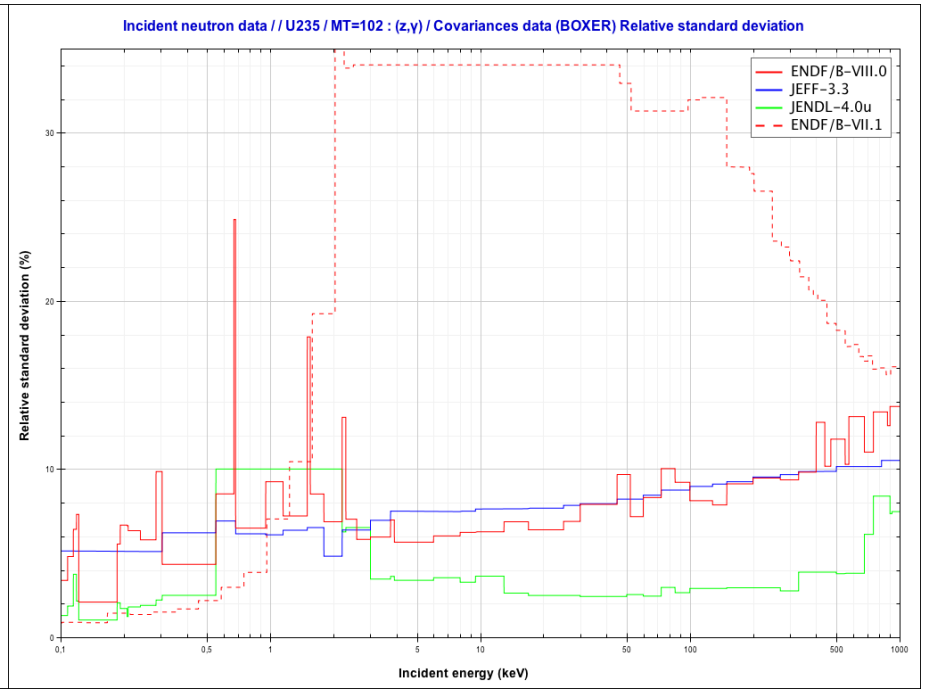
Requester: Luiz Carlos LEAL (IRSN)
Status proposal: (SGC review) Work in progress

Request ID12: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=430

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
12	92-U-235(n,g) Cross section	100 eV-1 MeV	29 August 2007	*Experiments* • M. Jandel et al., New Precision Measurements of the 235U(n,g) Cross Section, PRL 109 (2012) 202506 (http://doi.org/10.1103/PhysRevLett.109.202506) – EXFOR 14149 (http://www-nds.iaea.org/EXFOR/14149) • A. Wallner et al., Novel Method to Study Neutron Capture of 235U and 238U Simultaneously at keV Energies, Phys. Rev. Lett. 112 (2014) 192501 (http://doi.org/10.1103/PhysRevLett.112.192501) – EXFOR 23170 (http://www-nds.iaea.org/EXFOR/23170) • J. Balibrea et al., Measurement of the neutron capture cross section of the fissile isotope 235U with the CERN n_TOF Total Absorption Calorimeter and a fission tagging based on Micromegas detectors, NDS 119 (2014) 10 (http://dx.doi.org/10.1016/j.nds.2014.08.005) • Y. Danon, et al., Simultaneous measurement of ^{235}U fission and capture cross sections from 0.01 eV to 3 keV using a gamma multiplicity detector, Nucl. Sci. and Eng. 187 (2017) 191 (http://doi.org/10.1080/00295639.2017.1312937) *Theory/Evaluation* • R. Capote et al., IAEA CIELO Evaluation of Neutron-induced Reactions on 235U and 238U Targets, NDS 148 (2018) 254 (http://doi.org/10.1016/j.nds.2018.02.005) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/U235/MT102





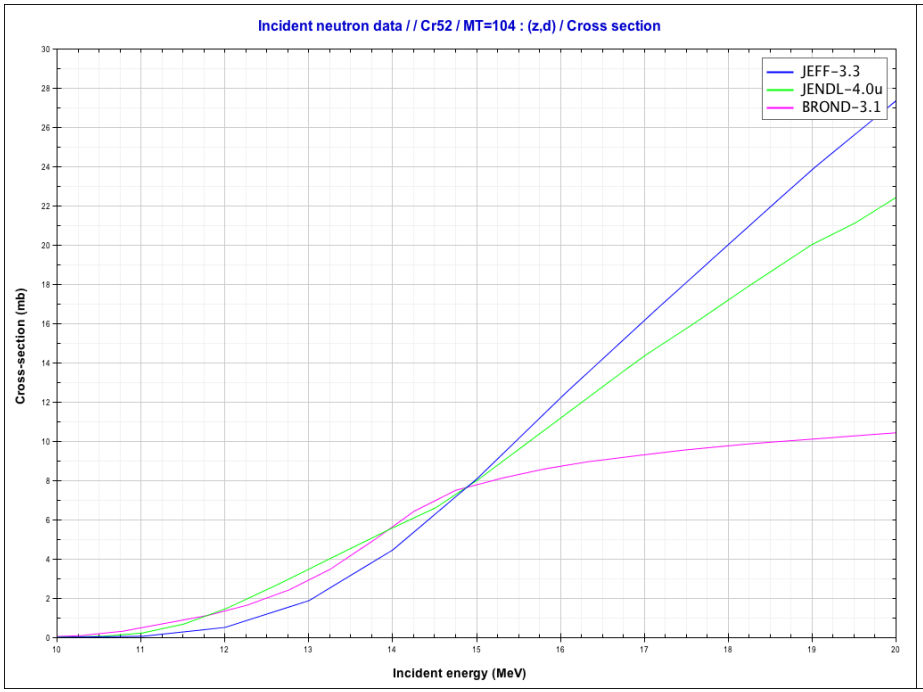
Requested uncertainty: 3-8%, depending on the energy range (see details in the request)
Present evaluated uncertainty: depending on the evaluation; 5-10% depending on the energy range for CIELO files

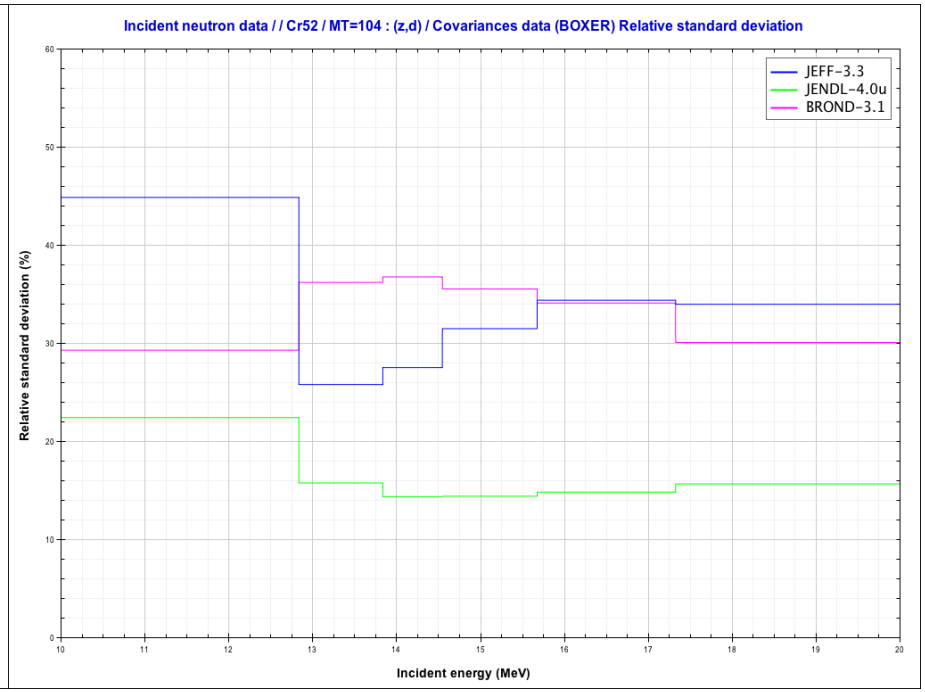
Requester: Yasunobu NAGAYA (JAEA)
Status proposal: (SGC review) Work in progress

Request ID13: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=431

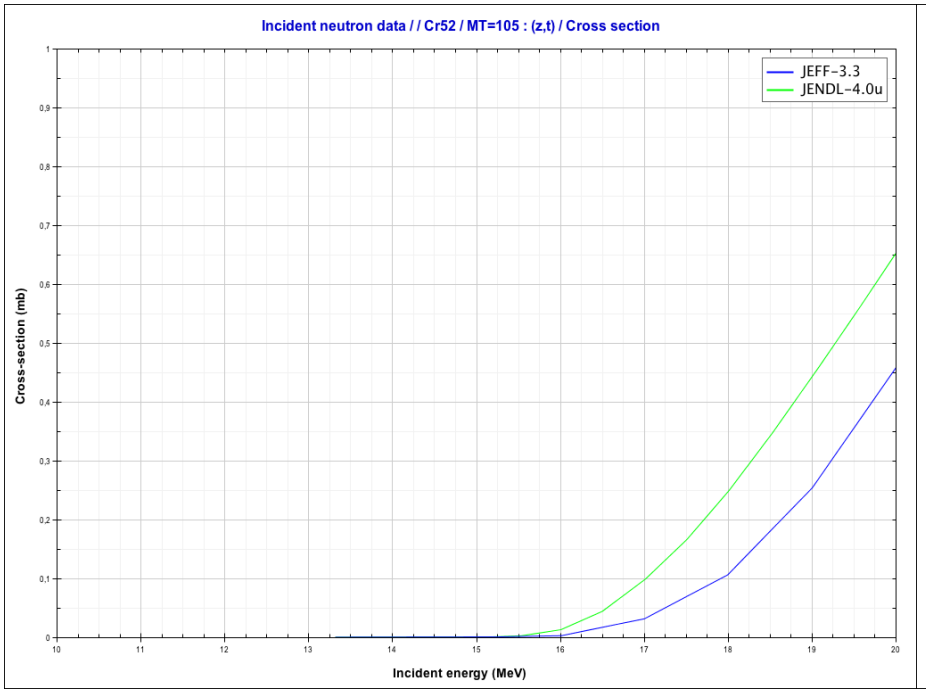
ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
13	24-Cr-52(n,xd),(n,xt) Cross section	Threshold -65 MeV	23 Oct. 2007	*Experiments* • … *Theory/Evaluation* • P. Pereslavtsev et al., Evaluation of 50Cr, 52Cr, 53Cr, 54Cr Neutron Cross Section Data for Energies up to 200 MeV, Journal of the Korean Physical Society 59 (2011) 931 (http://doi.org/10.3938/jkps.59.931) *Validation* • …

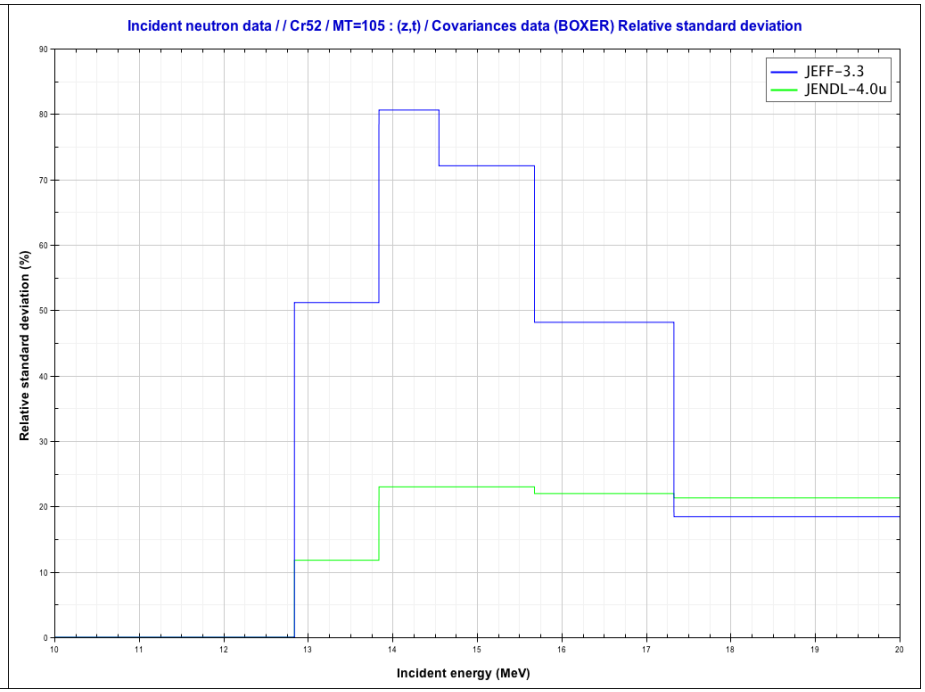
JANIS Book (n,d)V-51: http://www.oecd-nea.org/janisweb/book/neutrons/Cr52/MT104
JANIS Book (n,t)V-50: http://www.oecd-nea.org/janisweb/book/neutrons/Cr52/MT105 (no data as of April 17, 2018)





Requested uncertainty (n,d): 20%
Present evaluated uncertainty (n,d): depending on the evaluation, ~15% (JENDL-4.0) or ~35% (JEFF-3.3, BROND-3.1) below 20 MeV





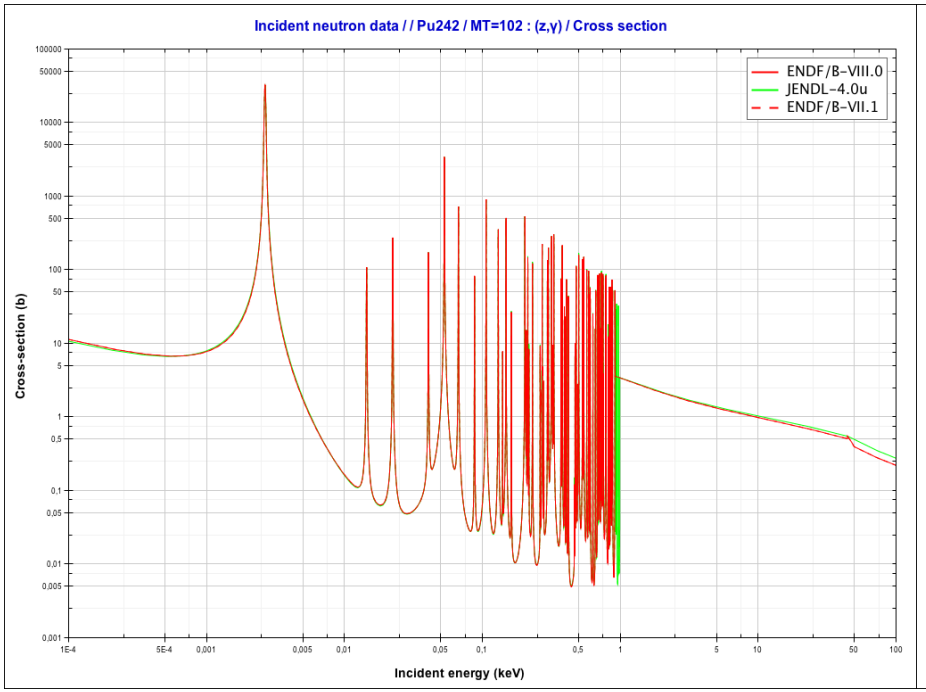
Requested uncertainty (n,t): 20%
Present evaluated uncertainty (n,t): ~20% beyond threshold (and below 20 MeV)

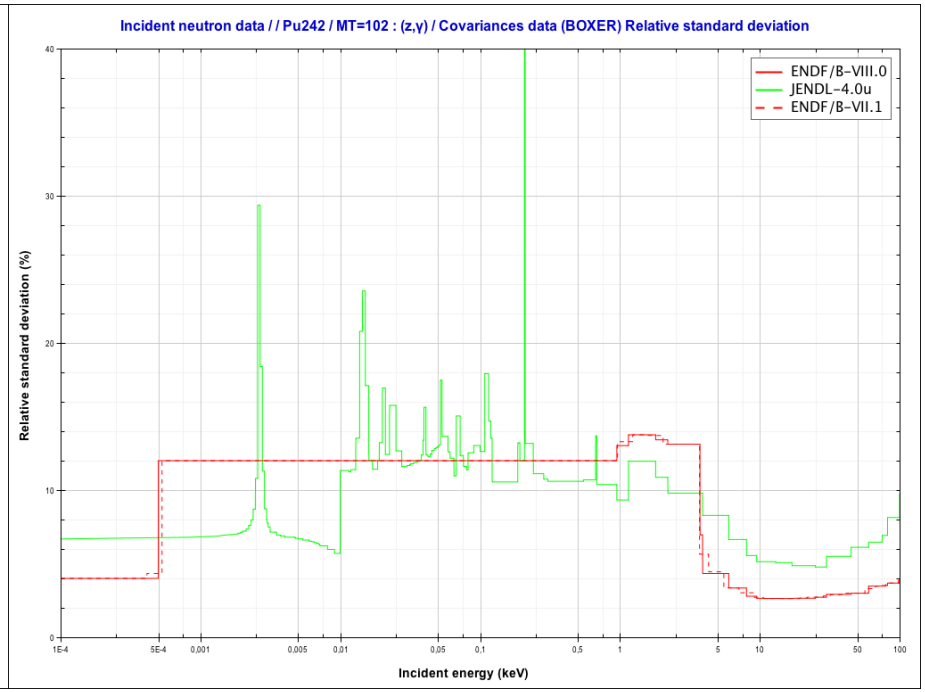
Requester: Robin A. FORREST (retired, a new request "owner" should be found; contact with Ulrich FISCHER)
Status proposal: (SGC review) Completed

Request ID14: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=429

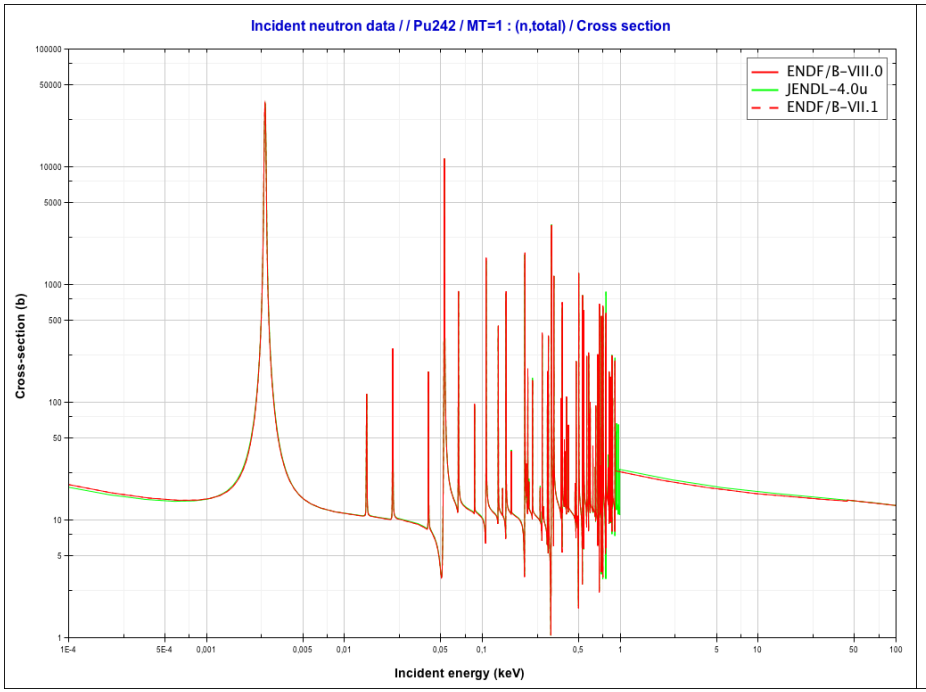
ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
14	94-Pu-242(n,g),(n,tot) Cross section	0.5 eV-2 keV	6 July 2007	*Experiments* • M.Q. Buckner et al., Absolute measurement of the 242Pu neutron-capture cross section, PRC 93 (2016) 044613 (http://doi.org/10.1103/PhysRevC.93.044613) – EXFOR 14456 (http://www-nds.iaea.org/EXFOR/14456) • J. Lerendegui, et al., Radiative neutron capture on 242Pu in the resonance region at the CERN n_TOF-EAR1 facility, PRC 97 (2018) 024605 (http://doi.org/10.1103/PhysRevC.97.024605) *Theory/Evaluation* • M. Herman et al., COMMARA-2.0 Neutron Cross Section Covariance Library, Report BNL- 94830-2011, Brookhaven National Laboratory (2011) • Pu-242 evaluation was proposed to be part of INDEN (CIELO follow-up) initial program of work (as of Dec. 2017) *Validation* • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

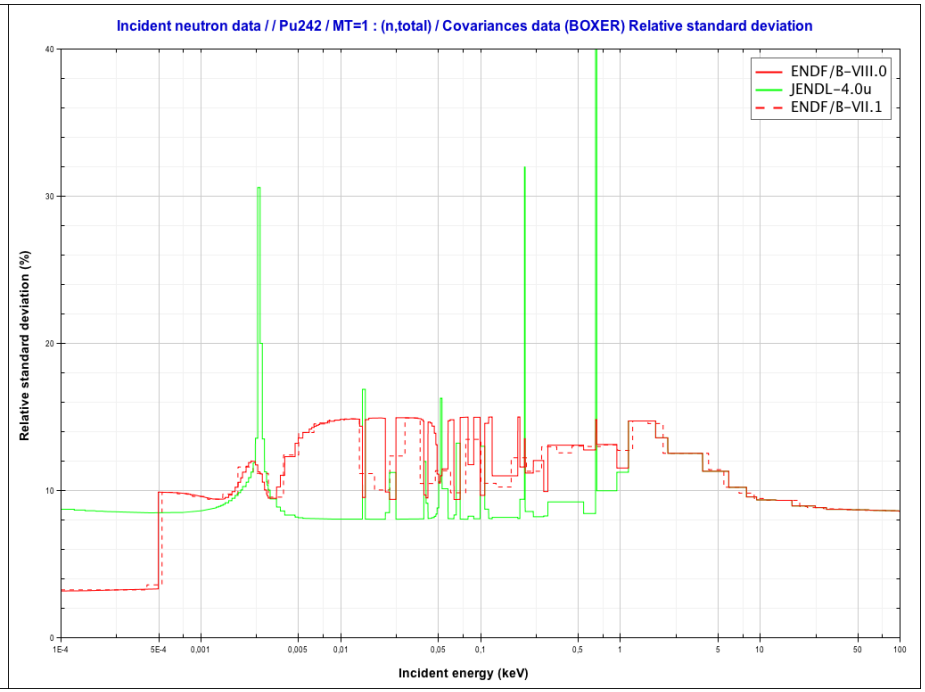
JANIS Book (n,g): http://www.oecd-nea.org/janisweb/book/neutrons/Pu242/MT102
JANIS Book (n,tot): http://www.oecd-nea.org/janisweb/book/neutrons/Pu242/MT1





Requested uncertainty (capture): < 8%
Present evaluated uncertainty (capture): 12-14%





Requested uncertainty (total): undefined, required to constrain the capture cross section
Present evaluated uncertainty (total): ~10%

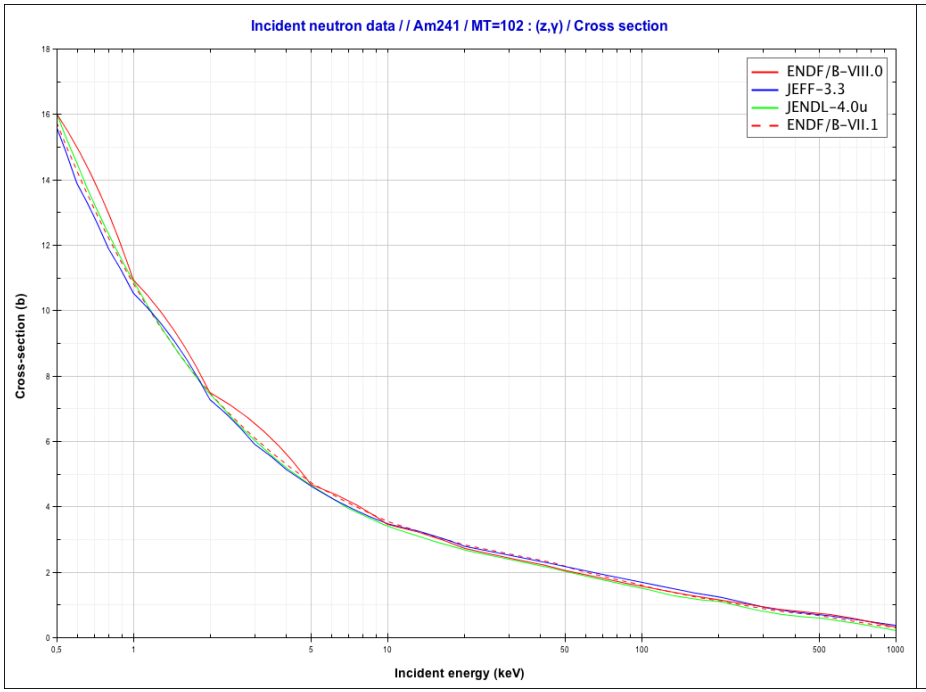
Requester: Gilles NOGUERE (CEA)
Status proposal: (SGC review) Work in progress

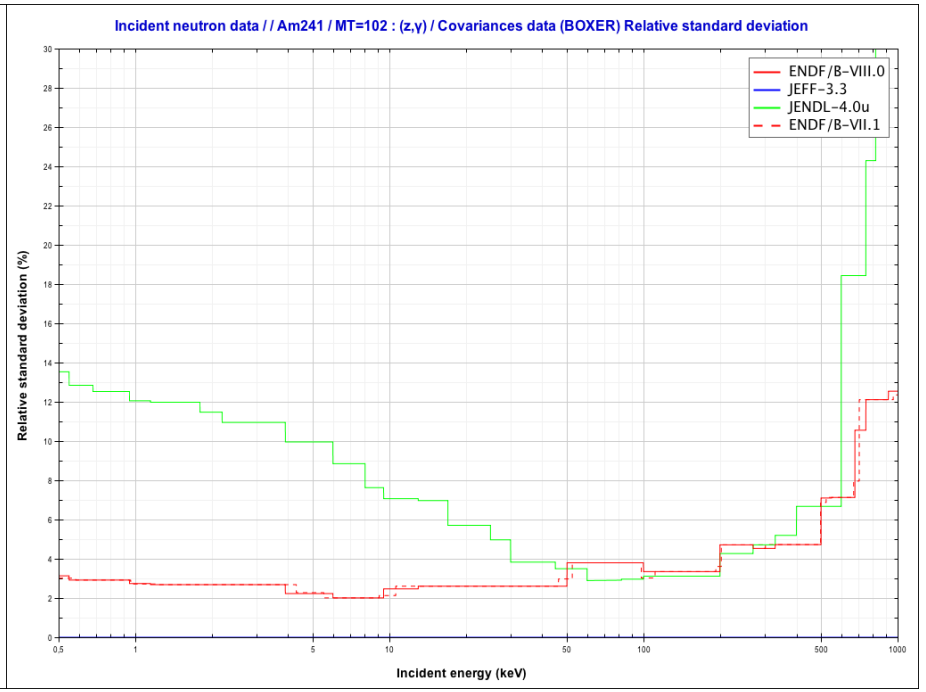
Request ID15: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=432

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
15	95-Am-241(n,g),(n,tot) Cross section	Thermal, Fast	8 Nov. 2007	*Experiments* • S. Nakamura et al., Thermal-Neutron Capture Cross Section and Resonance Integral of Americium-241, JNST 44 (2007) 1500 (http://doi.org/10.1080/18811248.2007.9711399) – EXFOR 22998 (http://www-nds.iaea.org/EXFOR/22998) • M. Jandel et al., Neutron capture cross section of 241Am, PRC 78 (2008) 034609 (http://doi.org/10.1103/PhysRevC.78.034609) – EXFOR 14209 (http://www-nds.iaea.org/EXFOR/14209) • C. Lampoudis et al., Neutron transmission and capture cross section measurements for 241Am at the GELINA facility, Eur. Phys. J. Plus (2013) 128:86 (http://doi.org/10.1140/epjp/i2013-13086-0) – EXFOR 23139 (http://www-nds.iaea.org/EXFOR/23139) • K. Fraval et al., Measurement and analysis of the 241Am(n,γ) cross section with liquid scintillator detectors using time-of-flight spectroscopy at the n_TOF facility at CERN, PRC 89 (2014) 044609 (http://doi.org/10.1103/PhysRevC.89.044609) – EXFOR 23237 (http://www-nds.iaea.org/EXFOR/23237) • H. Harada et al., Capture Cross-section Measurement of 241Am(n,g) at J-PARC/MLF/ANNRI, NDS 119 (2014) 61 (http://doi.org/10.1016/j.nds.2014.08.019) – EXFOR 23172 (http://www-nds.iaea.org/EXFOR/23172) • K. Terada et al., Measurements of gamma-ray emission probabilities of 241,243Am and 239Np, JNST 53 (2016) 1881 (http://doi.org/10.1080/00223131.2016.1174167) • K. Hirose et al., Simultaneous measurement of neutron-induced fission and capture cross sections for 241Am at neutron energies below fission threshold, NIM A 856 (2017) 133 (http://doi.org/10.1016/j.nima.2016.12.021) – EXFOR 23338 (http://www-nds.iaea.org/EXFOR/23338) • K. Terada et al., Measurements of neutron total and capture cross sections of 241Am with ANNRI at J-PARC (tentative title), to be submitted to JNST • E. Mendoza et al., Measurement and analysis of the 241Am neutron capture cross section at the n_TOF facility at CERN, PRC xx (2018) accepted 2 May (http://journals.aps.org/prc/accepted/eb072P64A9810a0ef59e67c6633e055652987c2e6)

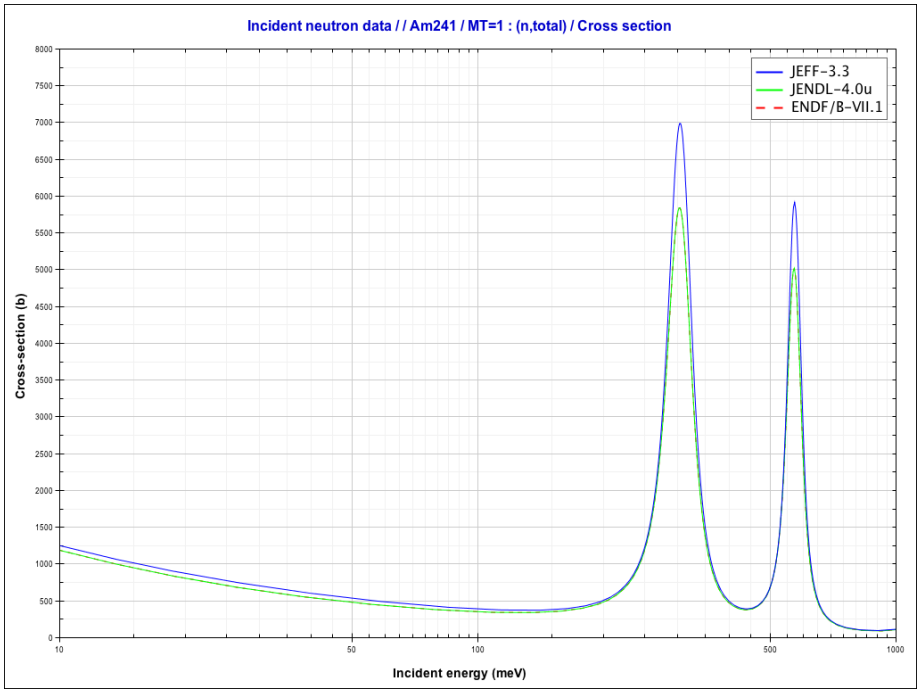
ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
				• New capture measurement performed in 2017 at n_TOF EAR2 *Theory/Evaluation* • G. Noguere et al., Partial-wave analysis of n+Am-241 reaction cross sections in the resonance region, PRC 92 (2015) 014607 (http://doi.org/10.1103/PhysRevC.92.014607) • K. Mizuyama et al., Correction of the thermal neutron capture cross section of 241Am obtained by the Westcott convention, JNST 54 (2017) 74 (http://doi.org/10.1080/00223131.2016.1208593) • H. Harada, Improving nuclear data accuracy of Am-241 and Np-237 capture cross-sections, International Evaluation Cooperation, NEA/WPEC-41, see also G. Zerovnik et al., EPJ Conferences 146 (2017) 11035 (https://doi.org/10.1051/epjconf/201714611035) *Validation* • …

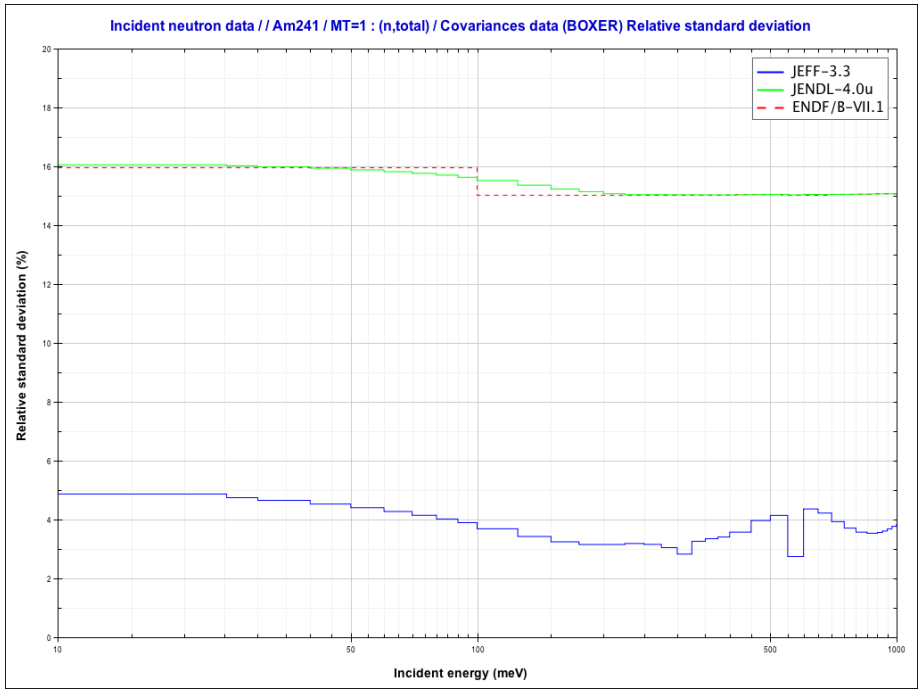
JANIS Book (n,g): http://www.oecd-nea.org/janisweb/book/neutrons/Am241/MT102
JANIS Book (n,tot): http://www.oecd-nea.org/janisweb/book/neutrons/Am241/MT1

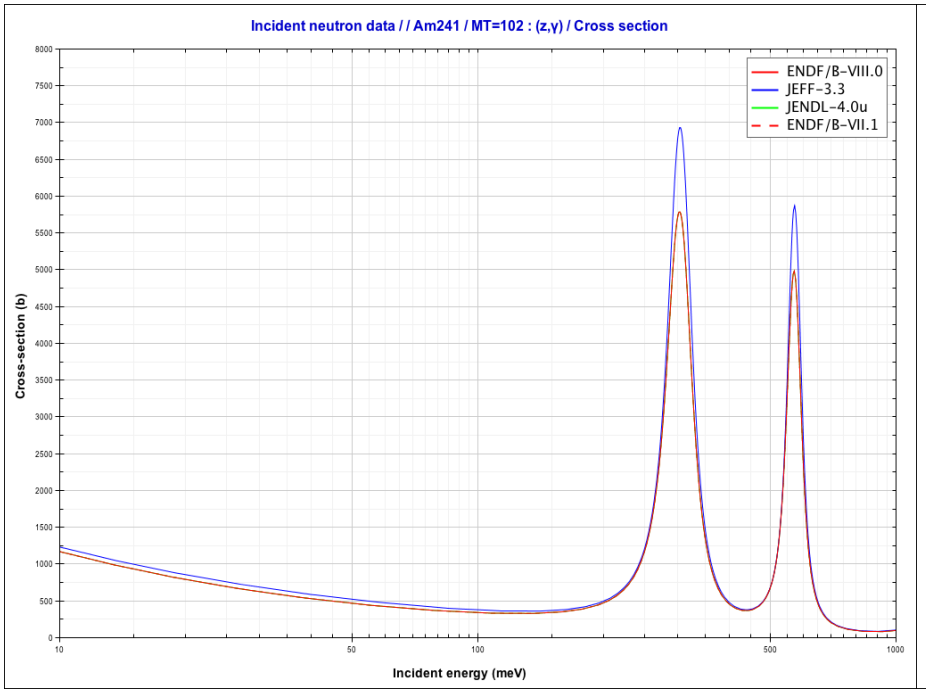


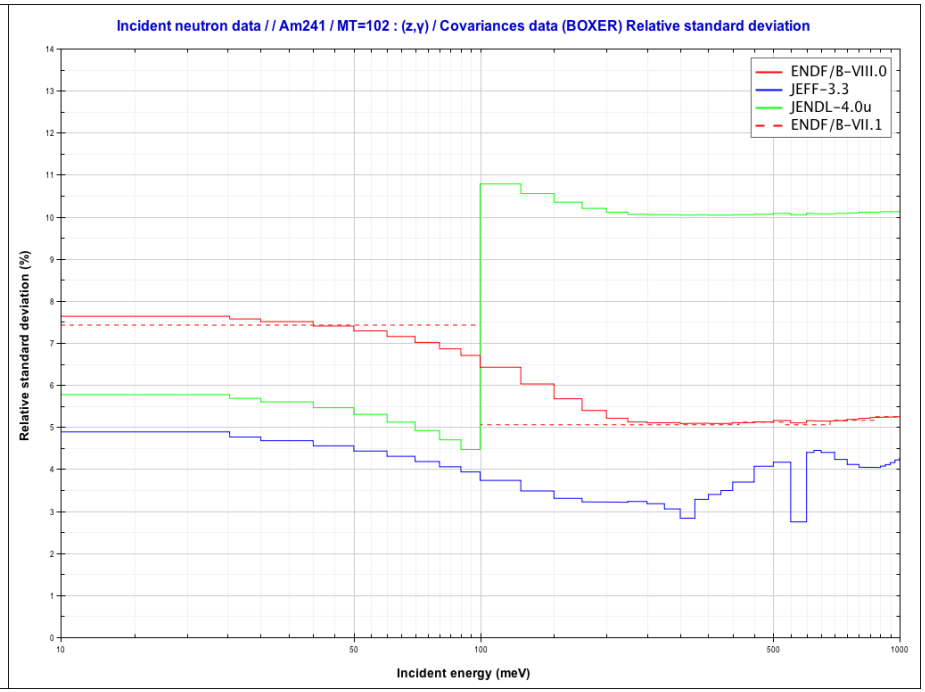


Requested uncertainty (fast capture): ~3% (see details in the request)
Present evaluated uncertainty (fast capture): depending on the evaluation, 2-4% (ENDF/B-VIII.0) or >3% (JENDL-4.0)


Incident neutron data / / Am241 / MT=1 : (n,total) / Cross section
JEFF-3.3
JENDL-4.0u
ENDF/B-VII.1
Cross-section (b)
Incident energy (meV)


Incident neutron data / / Am241 / MT=1 : (n,total) / Covariances data (BOXER) Relative standard deviation
JEFF-3.3
JENDL-4.0u
ENDF/B-VII.1
Relative standard deviation (%)
Incident energy (meV)





Requested uncertainty (thermal total): 5%
Present evaluated uncertainty (thermal total): depending on the evaluation, 3-5% (JEFF-3.3), 15-16% (JENDL-4.0, ENDF/B-VIII.0)
Present evaluated uncertainty (thermal capture): depending on the evaluation, 3-5% (JEFF-3.3), 5-8% (ENDF/B-VIII.0)

Requester: Tsuneo NAKAGAWA (retired, the new request "owner" is Osamu IWAMOTO) and Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID16: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=433

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
16	95-Am-243(n,f) Prompt neutrons (PFNS)	Thermal-10 MeV	8 Nov. 2007	*Experiments* • L.V.Drapchinsky, Measurements of the prompt neutron spectra of minor actinides - Fast neutron induced fission of 241Am and 243Am, thermal neutron induced fission of 243Cm, Report ISTC-1828-01 (2004) – EXFOR 41589 (http://www-nds.iaea.org/EXFOR/41589) *Theory/Evaluation* • … *Validation* • …

JANIS Book: N/A

Requested uncertainty: 10%
Present evaluated uncertainty: ???

Requester: Toshinobu SASA (JAEA)
Status proposal: (SGC review) Work in progress

Request ID17: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=434

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
17	96-Cm-244(n,f) Prompt neutrons (PFNS)	Thermal-10 MeV	8 Nov. 2007	*Experiments* • … *Theory/Evaluation* • … *Validation* • …

JANIS Book: N/A

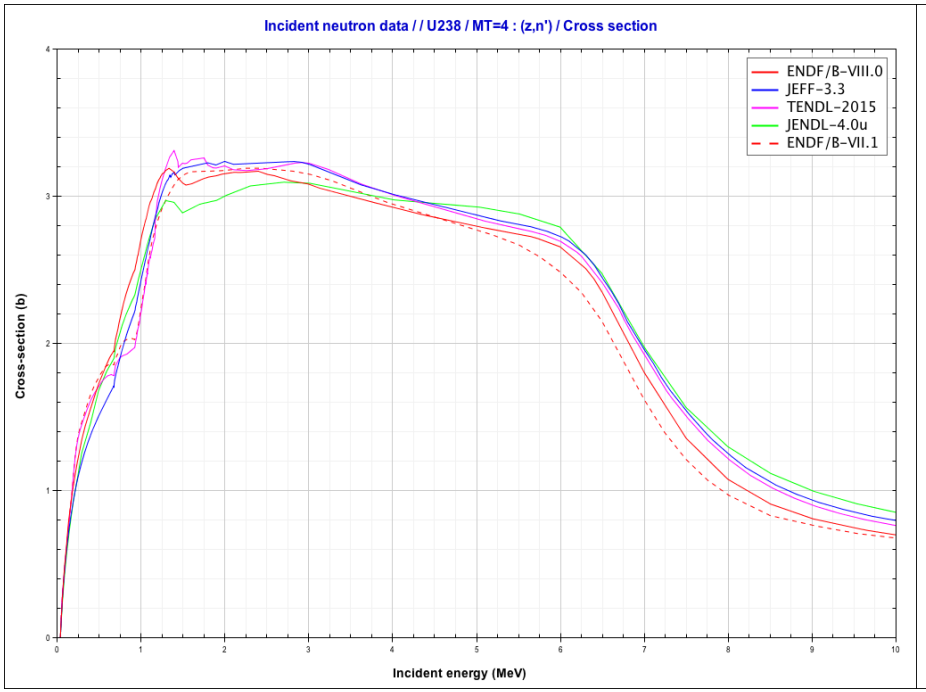
Requested uncertainty: 10%
Present evaluated uncertainty: ???

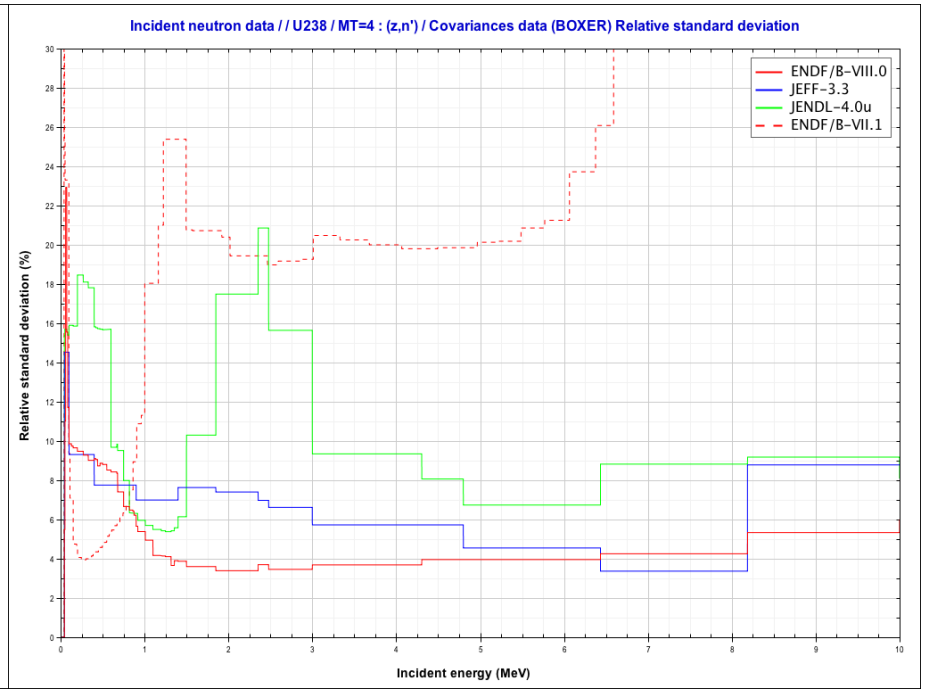
Requester: Toshinobu SASA (JAEA)
Status proposal: (SGC review) Work in progress

Request ID18: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=435

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
18	92-U-238(n,inl) Cross section	65 keV-20 MeV	28 Mars 2008	*Experiments* • M. Kerveno et al., (n,xn γ) reaction cross section measurements for (n,xn) reaction studies, EPJ Conferences 42 (2013) 01005 (http://doi.org/10.1051/epjconf/20134201005) – EXFOR 22795 (http://www-nds.iaea.org/EXFOR/22795) • A.M. Daskalakis et al., Quasi-differential neutron scattering from 238U from 0.5 to 20 MeV, Annals of Nuclear Energy 73 (2014) 455 (https://doi.org/10.1016/j.anucene.2014.07.023) • M. Kerveno, et al., From γ emissions to (n,xn) cross sections of interest: the role of GAINS and GRAPhEME in nuclear reaction modelling, Eur. Phys. J. A, 51 12 (2015) 167 (http://doi.org/10.1140/epja/i2015-15167-y) *Theory/Evaluation* • A. Santamarina et al., Improvement of 238U Inelastic Scattering Cross Section for an Accurate Calculation of Large Commercial Reactors, ND2013, Nuclear Data Sheets 118 (2014) 118–121 (http://doi.org/10.1016/j.nds.2014.04.015) • R. Capote et al., IAEA CIELO Evaluation of Neutron-induced Reactions on 235U and 238U Targets, NDS 148 (2018) 254 (http://doi.org/10.1016/j.nds.2018.02.005) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/U238/MT4





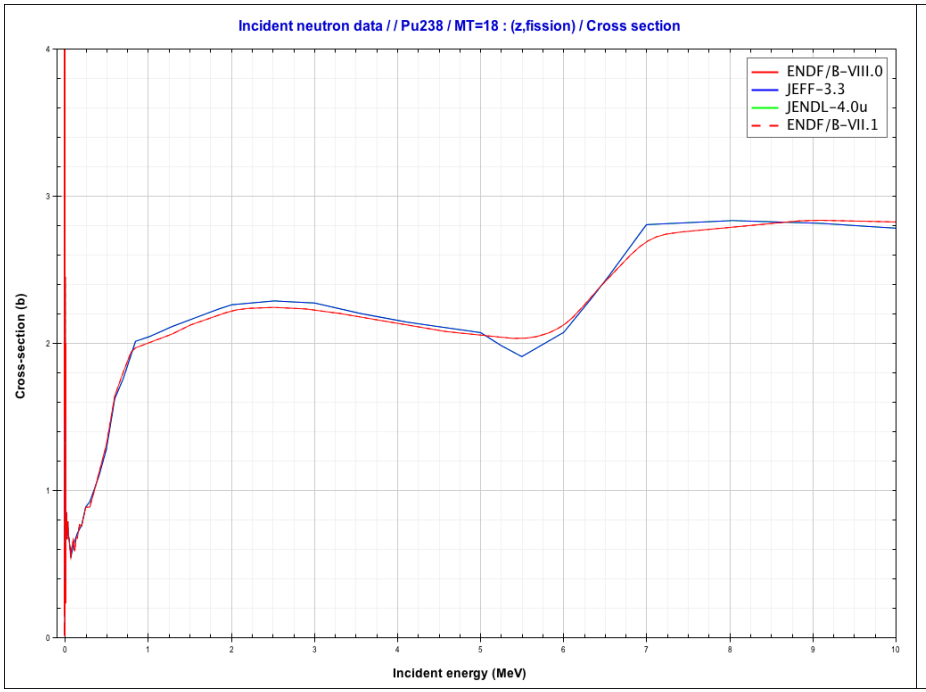
Requested uncertainty: 3-5%, strongly depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: 4-6% at best, depending on the energy range

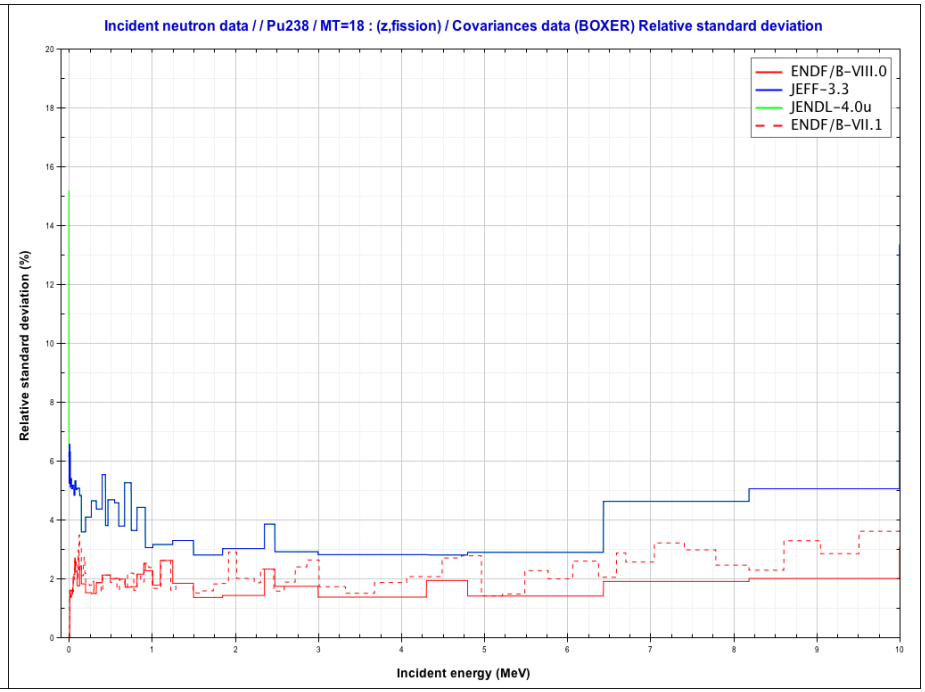
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID19: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=436

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
19	94-Pu-238(n,f) Cross section	9 keV-6 MeV	31 Mars 2008	*Experiments* • T. Granier et al., New measurement of the 238Pu(n,f) cross-section, AIP Conf. Proc. 1175 (2009) 227 (http://doi.org/10.1063/1.3258228) – EXFOR 14273 (http://www-nds.iaea.org/EXFOR/14273) • J.J. Ressler et al., Surrogate measurement of the 238Pu(n,f) cross section, PRC 83 (2011) 054610 (http://doi.org/10.1103/PhysRevC.83.054610) – EXFOR 14292 (http://www-nds.iaea.org/EXFOR/14292) • R.O. Hughes et al., 236Pu(n,f), 237Pu(n,f), and 238Pu(n,f) cross sections deduced from (p,t), (p,d), and (p,p') surrogate reactions, PRC 90 (2014) 014304 (http://doi.org/10.1103/PhysRevC.90.014304) – EXFOR 14396 (http://www-nds.iaea.org/EXFOR/14396) • A. Pal et al., Determination of 238Pu(n,f) and 236Np(n,f) cross sections using surrogate reactions, PRC 91 (2015) 054618 (http://doi.org/10.1103/PhysRevC.91.054618) – EXFOR 33095 (http://www-nds.iaea.org/EXFOR/33095) • Ongoing work by a CENBG-CEA-IPNO+ collaboration on surrogate measurements *Theory/Evaluation* • M.B. Chadwick et al., ENDF/B-VII.1 Nuclear Data for Science and Technology: Cross Sections, Covariances, Fission Product Yields and Decay Data, p.2937 in NDS 112 (2011) 2887 (http://doi.org/10.1016/j.nds.2011.11.002) • Pu-238 evaluation was proposed to be part of INDEN (CIELO follow-up) initial program of work (as of Dec. 2017) *Validation* • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Pu238/MT18





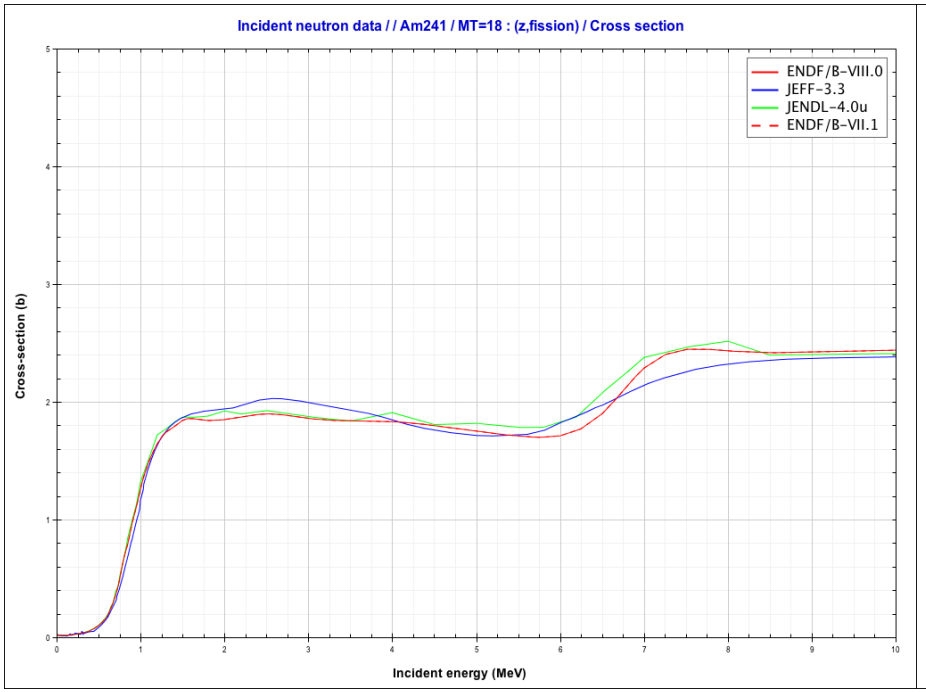
Requested uncertainty: 4-6%, strongly depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: 2-4%

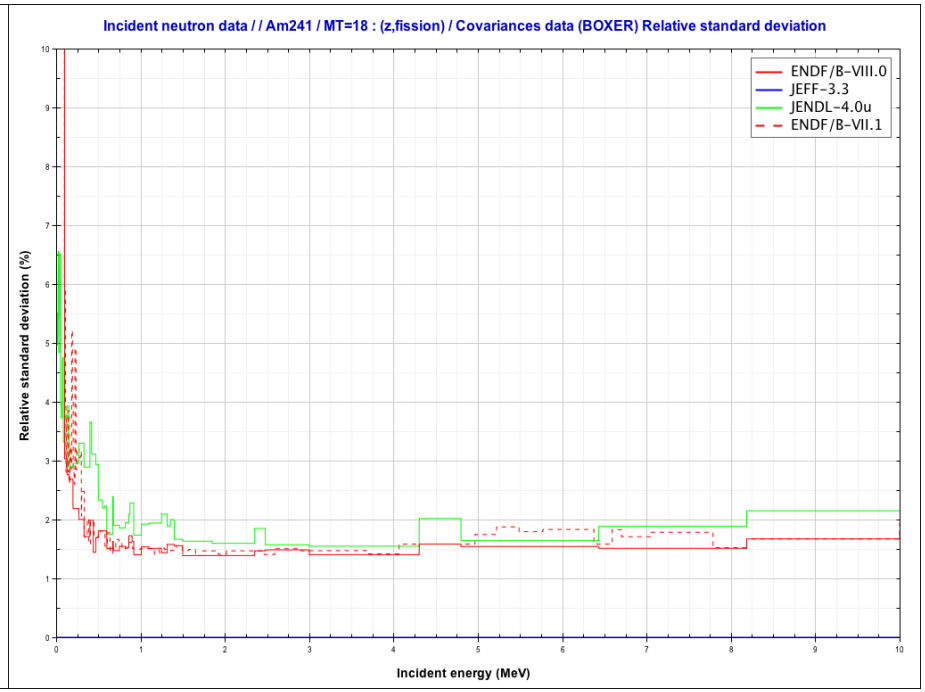
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID21: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=438

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
21	95-Am-241(n,f) Cross section	180 keV-20 MeV	31 Mars 2008	*Experiments* • G. Kessedjian et al., Neutron-induced fission cross sections of short-lived actinides with the surrogate reaction method, Phys. Lett. B 692 (2010) 297 (http://doi.org/10.1016/j.physletb.2010.07.048) – EXFOR 23076 (http://www-nds.iaea.org/EXFOR/23076) • F. Belloni, et al., Measurement of the neutron-induced fission cross-section of 241Am at the time-of-flight facility n_TOF, EPJ A 49 (2013) 2 (http://doi.org/10.1140/epja/i2013-13002-3) – EXFOR 23148 (http://www-nds.iaea.org/EXFOR/23148) • K. Hirose et al., Simultaneous measurement of neutron-induced fission and capture cross sections for 241Am at neutron energies below fission threshold, NIM A856 (2017) 133 (http://doi.org/10.1016/j.nima.2016.12.021) – EXFOR 23338 (http://www-nds.iaea.org/EXFOR/23338) • New measurement planned in 2018 at n_TOF EAR2 *Theory/Evaluation* • P. Talou et al., Improved Evaluations of Neutron-Induced Reactions on Americium Isotopes, NSE 155 (2007) 84 (http://doi.org/10.13182/NSE07-A2646) *Validation* • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Am241/MT18





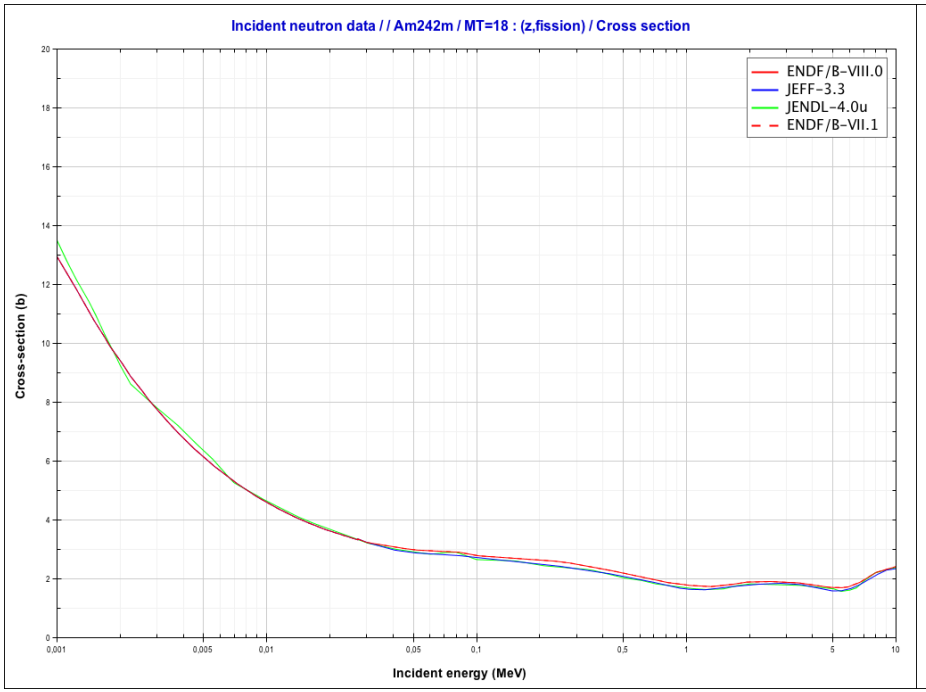
Requested uncertainty: 2-6%, strongly depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: ~2%

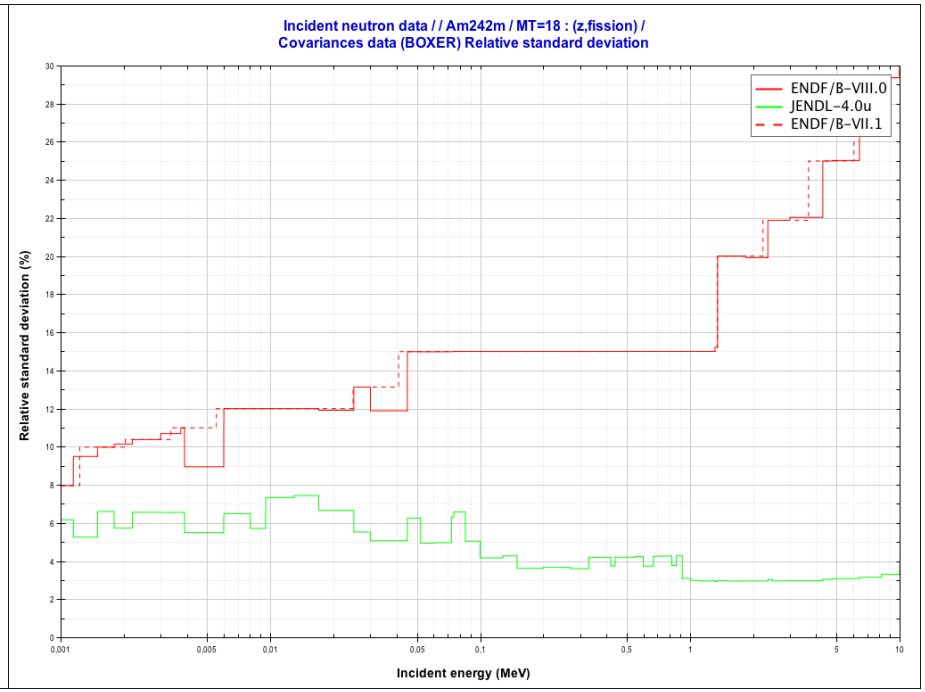
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID22: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=439

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
22	95-Am-242m(n,f) Cross section	0.5 keV-6 MeV	31 Mars 2008	*Experiments* • T. Kai et al., Measurements of neutron induced fission cross-section for 242mAm from 0.003 eV to 10 keV using lead slowing-down spectrometer, thermal neutron facility and time-of-flight method, Annals of Nuclear Energy 28 (2001) 723 (http://doi.org/10.1016/S0306-4549(00)00086-4) – EXFOR 22644 (http://www-nds.iaea.org/EXFOR/22644) • K. Hirose et al., Fission cross-section measurements of 237Np, 242mAm, and 245Cm with lead slowing-down neutron spectrometer, JNST 49 (2012) 1057 (http://doi.org/10.1080/00223131.2012.730895) – EXFOR 23186 (http://www-nds.iaea.org/EXFOR/23186) • M.Q. Buckner et al., Comprehensive 242mAm neutron-induced reaction cross sections and resonance parameters, PRC 95 (2017) 061602(R) (http://doi.org/10.1103/PhysRevC.95.061602) – EXFOR 14471 (http://www-nds.iaea.org/EXFOR/14471) *Theory/Evaluation* • P. Talou et al., Improved Evaluations of Neutron-Induced Reactions on Americium Isotopes, NSE 155 (2007) 84 (http://doi.org/10.13182/NSE07-A2646) *Validation* • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Am242m/MT18





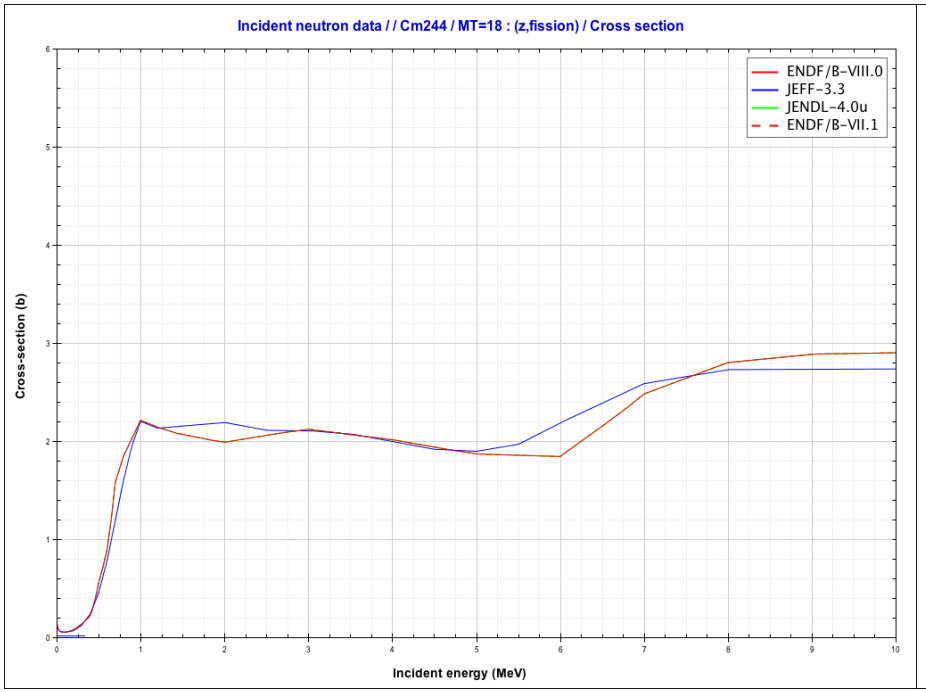
Requested uncertainty: 4-7%, strongly depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: depending on the evaluation, <6% (JENDL-4.0) or >8% (ENDF/B-VIII.0)

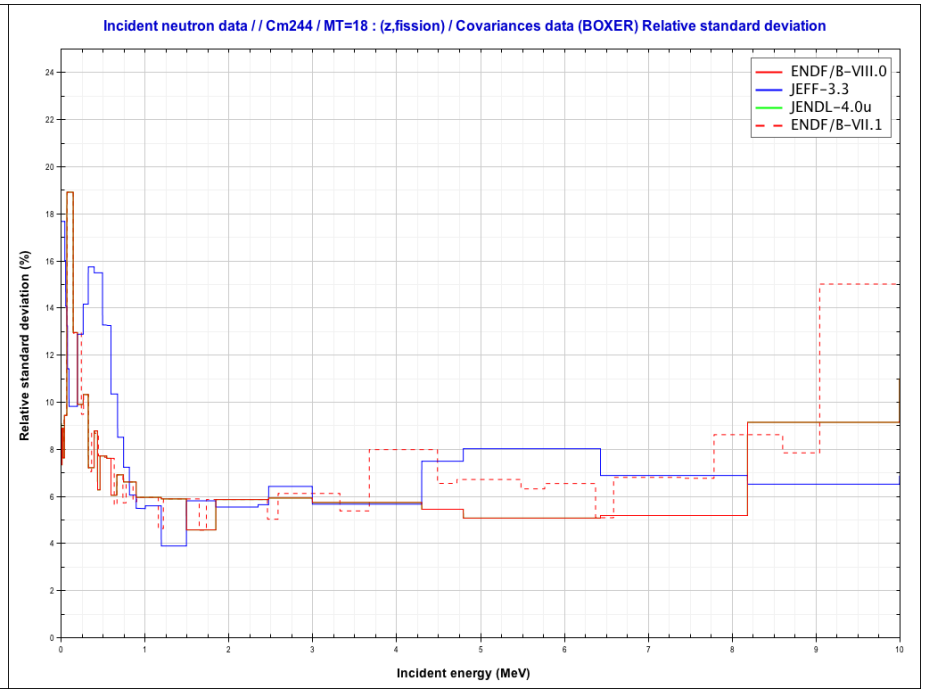
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID25: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=444

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
25	96-Cm-244(n,f) Cross section	65 keV-6 MeV	4 April 2008	*Experiments* • B.I. Fursov, Fast neutron induced fission cross sections of some minor actinides, ND1997 Proceedings, p.488 (1997) – EXFOR 41343 (http://www-nds.iaea.org/EXFOR/41343) *Theory/Evaluation* • K. Shibata et al., JENDL-4.0: A New Library for Nuclear Science and Engineering, J. Nucl. Sci. Technol. 48 (2011) 1 (http://doi.org/10.1080/18811248.2011.9711675) *Validation* • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Cm244/MT18





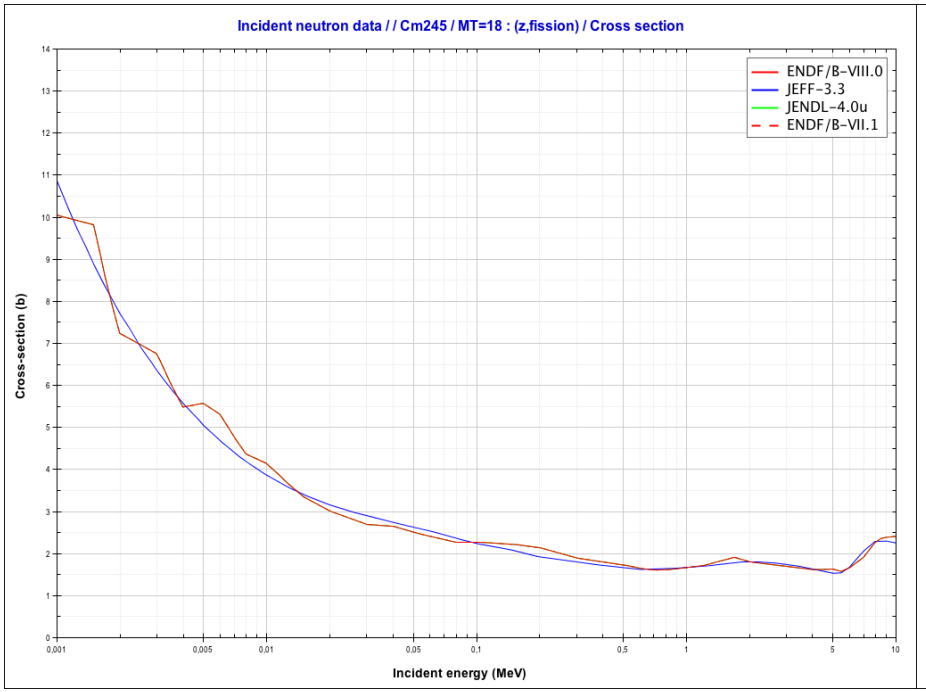
Requested uncertainty: 4-12%, strongly depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: ~6%, up to 10-15% at threshold

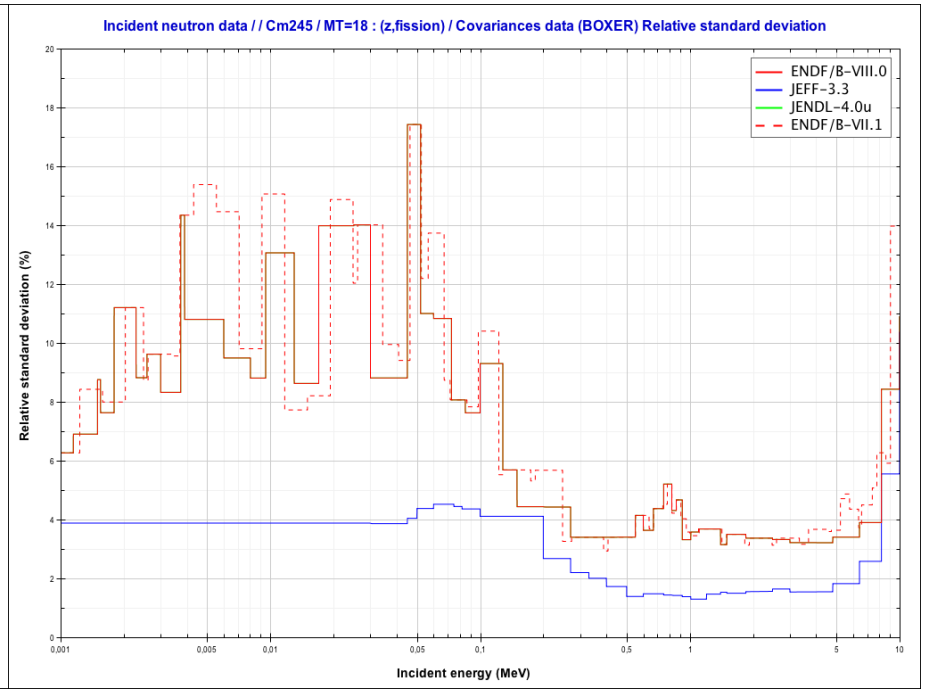
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID27: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=446

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
27	96-Cm-245(n,f) Cross section	0.5 keV-6 MeV	4 April 2008	*Experiments* • O. Serot et al., Measurement of the Neutron Induced Fission of 245Cm in the Resolved Resonance Region and Its Resonance Analysis, Journal of the Korean Physical Society 59 (2011) 1896 (http://doi.org/10.3938/jkps.59.1896) – EXFOR 23120 (http://www-nds.iaea.org/EXFOR/23120) • K. Hirose et al., Fission cross-section measurements of 237Np, 242mAm, and 245Cm with lead slowing-down neutron spectrometer, JNST 49 (2012) 1057 (http://doi.org/10.1080/00223131.2012.730895) – EXFOR 23186 (http://www-nds.iaea.org/EXFOR/23186) • M. Calviani, et al., Neutron-induced fission cross section of 245Cm: New results from data taken at the time-of-flight facility n_TOF, PRC 85 (2012) 034616 (http://doi.org/10.1103/PhysRevC.85.034616) – EXFOR 23168 (http://www-nds.iaea.org/EXFOR/23168) *Theory/Evaluation* • K. Shibata et al., JENDL-4.0: A New Library for Nuclear Science and Engineering, J. Nucl. Sci. Technol. 48 (2011) 1 (http://doi.org/10.1080/18811248.2011.9711675) *Validation* • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Cm245/MT18





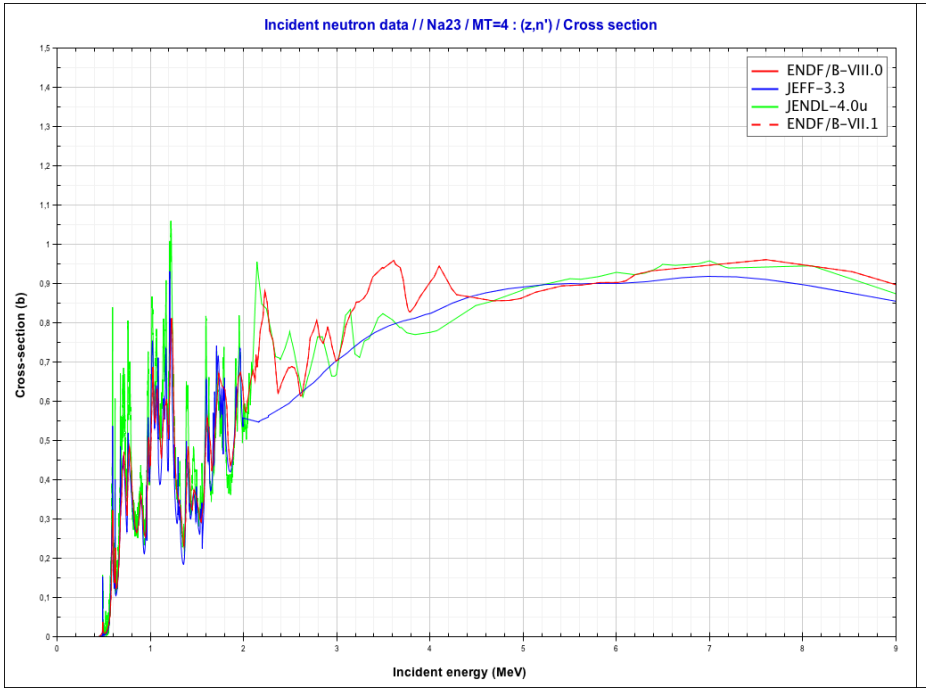
Requested uncertainty: 4-13%, strongly depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: 2-10% depending on the energy range and strongly depending on the evaluation

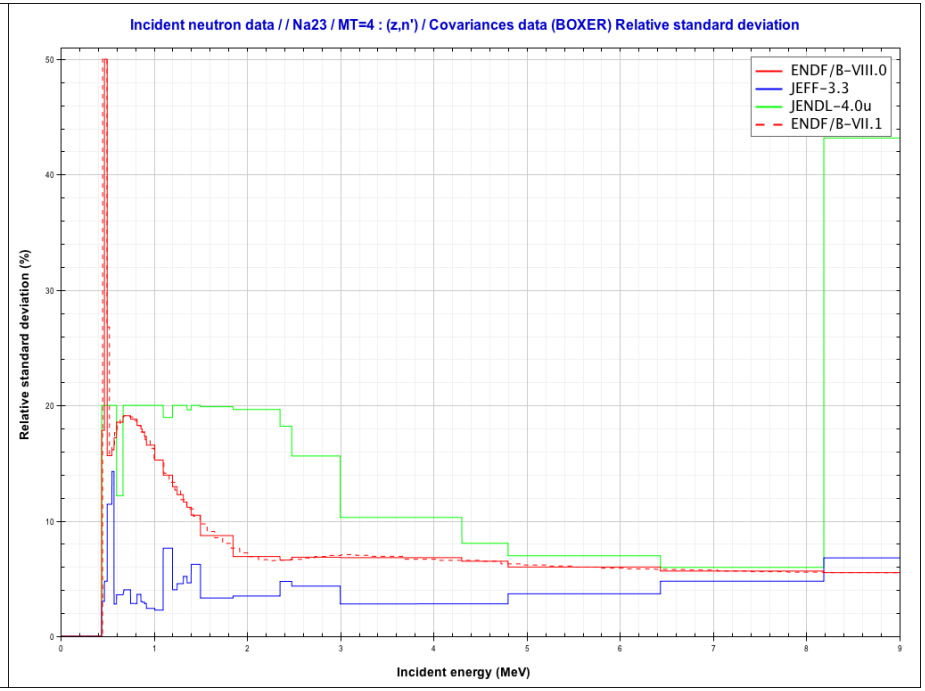
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID29: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=448

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
29	11-Na-23(n,inl) Cross section	0.5 MeV-1.3 MeV	4 April 2008	*Experiments* • C. Rouki et al., High resolution measurement of neutron inelastic scattering cross-sections for 23Na, NIM A 672 (2012) 82 (http://doi.org/10.1016/j.nima.2012.01.004) – EXFOR 23137 (http://www-nds.iaea.org/EXFOR/23137) • J.R. Vanhoy et al., Neutron scattering differential cross-sections for 23Na from 1.5 to 4.5 MeV, Nucl. Phys. A 939 (2015) 121 (http://doi.org/10.1016/j.nuclphysa.2015.03.006) – EXFOR 14403 (http://www-nds.iaea.org/EXFOR/14403) *Theory/Evaluation* • S. Kopecky and A. Plompen, R-matrix analysis of the total and inelastic scattering cross sections, EUR 25067 EN (2011) • M. Herman et al., COMMARA-2.0 Neutron Cross-Section Covariance Library, Report BNL- 94830-2011, Brookhaven National Laboratory (2011) • P. Archier et al., New JEFF-3.2 Sodium Neutron Induced Cross-sections Evaluation for Neutron Fast Reactors Applications: from 0 to 20 MeV, NDS 118 (2014) 140 (http://doi.org/10.1016/j.nds.2014.04.020) • D. Rochman et al., On the evaluation of 23Na neutron-induced reactions and validations, NIM A 612 (2010) 374 (http://doi.org/10.1016/j.nima.2009.10.147) • Na-23 evaluation was proposed to be part of INDEN (CIELO follow-up) initial program of work (as of Dec. 2017) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145) • Y.-K. Lee, E. Brun, Investigation of Nuclear Data Libraries with TRIPOLI-4 Monte Carlo Code for Sodium-cooled Fast Reactors, Nuclear Data Sheets 118 (2014) 433 (http://doi.org/10.1016/j.nds.2014.04.099)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Na23/MT4





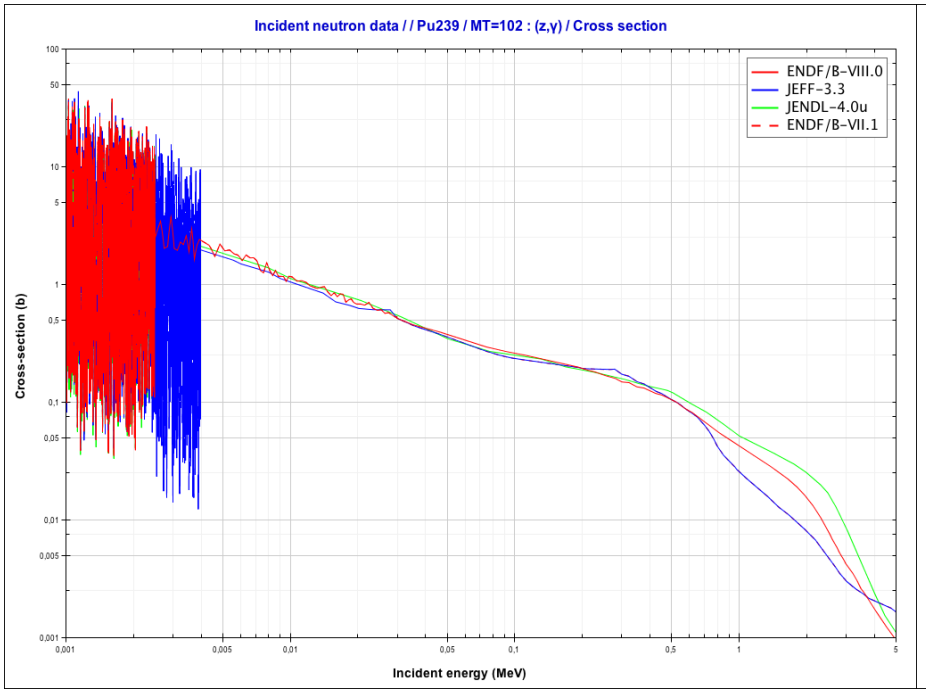
Requested uncertainty: 4-8%
Present evaluated uncertainty: strongly depending on the evaluation

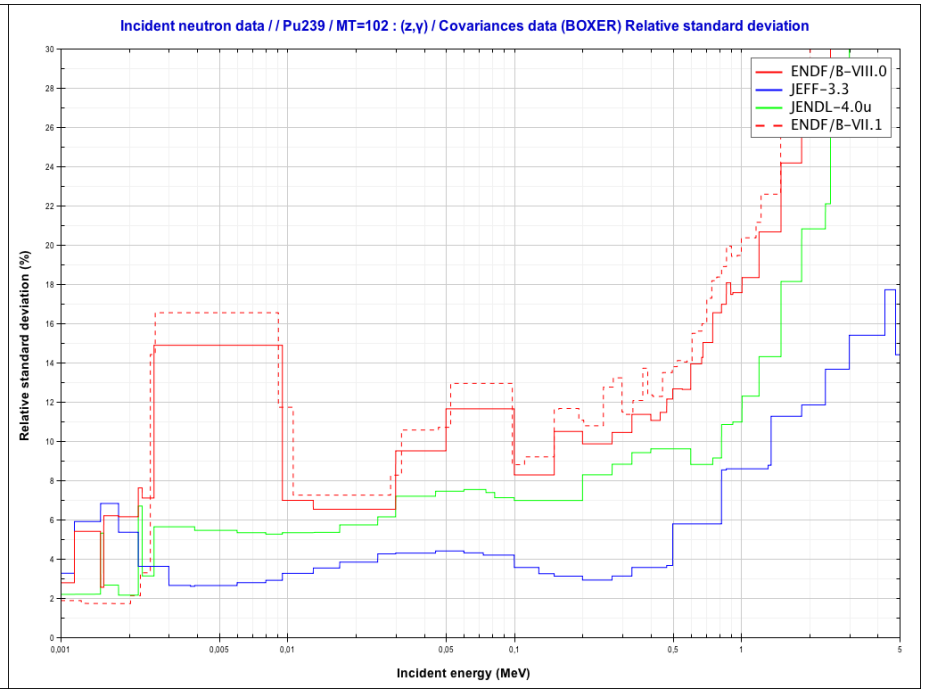
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID32: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=451

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
32	94-Pu-239(n,g) Cross section	0.1 eV-1.35 MeV	4 April 2008	*Experiments* • S. Mosby et al., Improved neutron capture cross section of Pu-239, PRC 89 (2014) 034610 (http://doi.org/10.1103/PhysRevC.89.034610) – EXFOR 14383 (http://www-nds.iaea.org/EXFOR/14383) • S. Mosby et al., 239Pu(n,g) from 10 eV to 1.3 MeV, NDS 148 (2018) 312 (http://doi.org/10.1016/j.nds.2018.02.007) • S. Mosby et al., Unifying measurement of 239Pu(n,γ) in the keV to MeV energy regime, PRC (http://journals.aps.org/prc/accepted/9507ePa3Wb4E0d1cd0f25db35e4cfdb681c4a64ee) • Ongoing work by a CENBG-CEA-IPNO+ collaboration on surrogate measurements, see R. Perez et al., The Surrogate Reaction Method Applied to 240Pu, FIESTA 2017 (http://t2.lanl.gov/fiesta2017/Talks/Perez.pdf) *Theory/Evaluation* • C. De Saint Jean et al., Coordinated Evaluation of Plutonium-239 in the Resonance Region, International Evaluation Cooperation, Volume 34, NEA/WPEC-34, OECD (2014) • M.B. Chadwick et al., CIELO Collaboration Summary Results: International Evaluations of Neutron Reactions on Uranium, Plutonium, Iron, Oxygen and Hydrogen, NDS 148 (2018) 189 (http://doi.org/10.1016/j.nds.2018.02.003) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Pu239/MT102





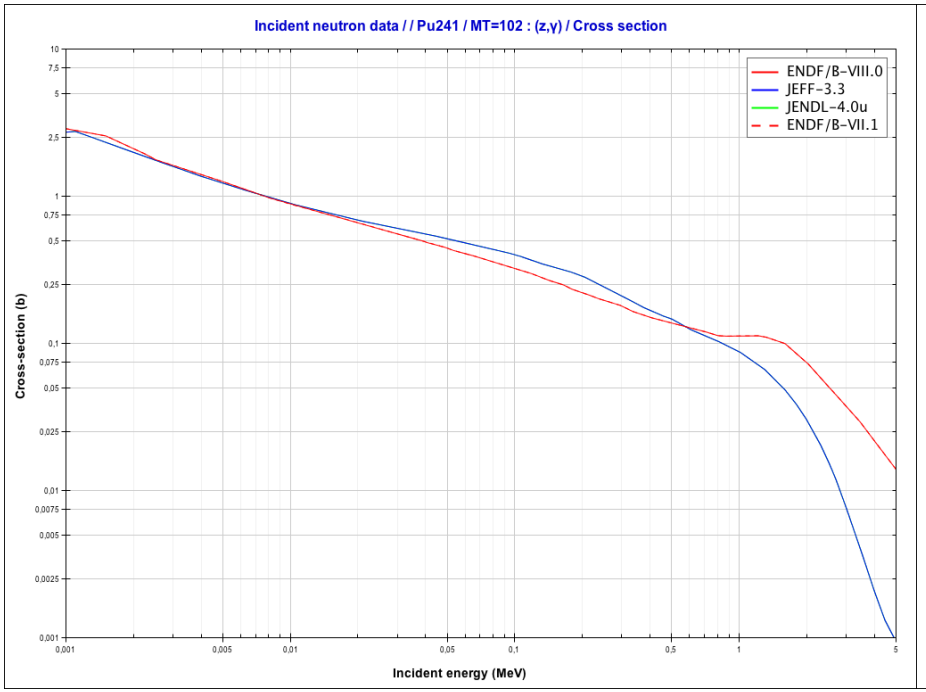
Requested uncertainty: 3-6%, depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: strongly depending on the evaluation

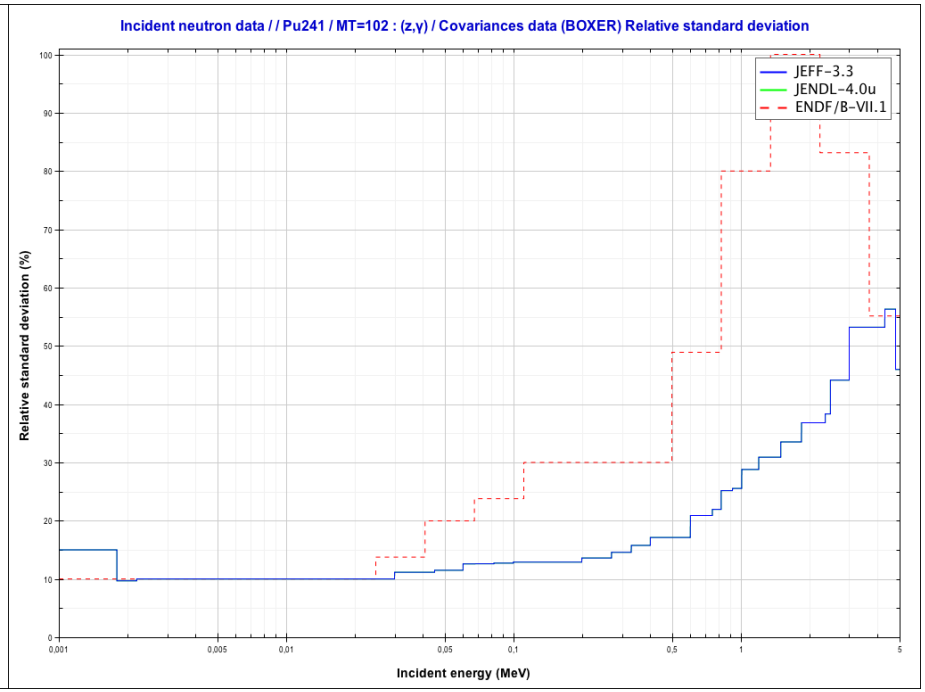
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID33: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=452

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
33	94-Pu-241(n,g) Cross section	0.1 eV-1.35 MeV	4 April 2008	*Experiments* • … *Theory/Evaluation* • H. Derrien et al., Reevaluation and Validation of the 241Pu Resonance Parameters in the Energy Range Thermal to 20 eV, NSE 150 (2005) 109 (http://doi.org/10.13182/NSE150-109) • Pu-241 evaluation was proposed to be part of INDEN (CIELO follow-up) initial program of work (as of Dec. 2017) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Pu241/MT102





Requested uncertainty: ~12%
Present evaluated uncertainty: from ~10% in the keV region up to more than 30% at 1 MeV and above

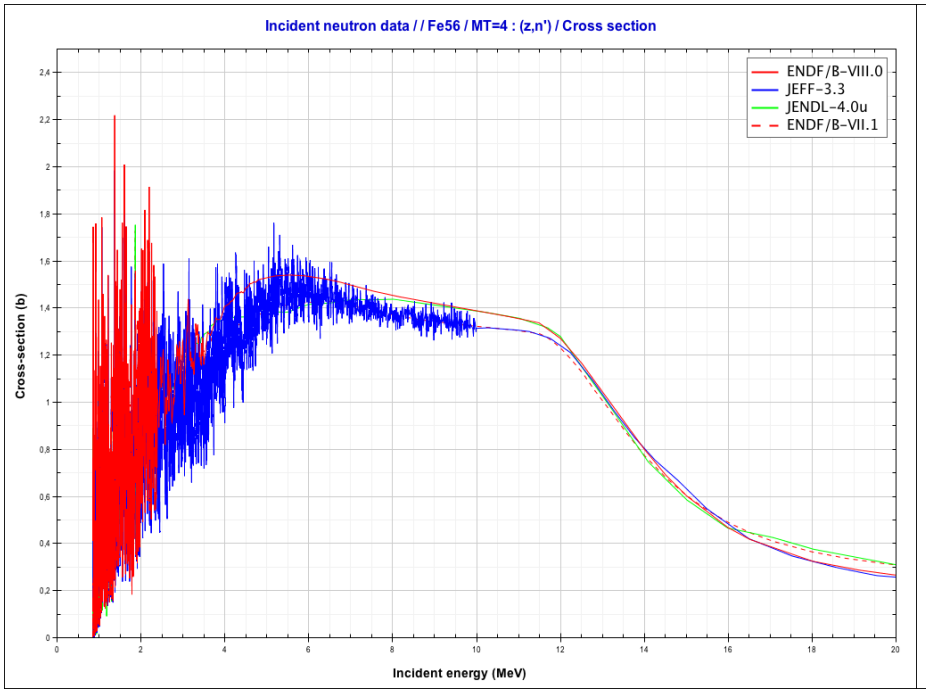
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

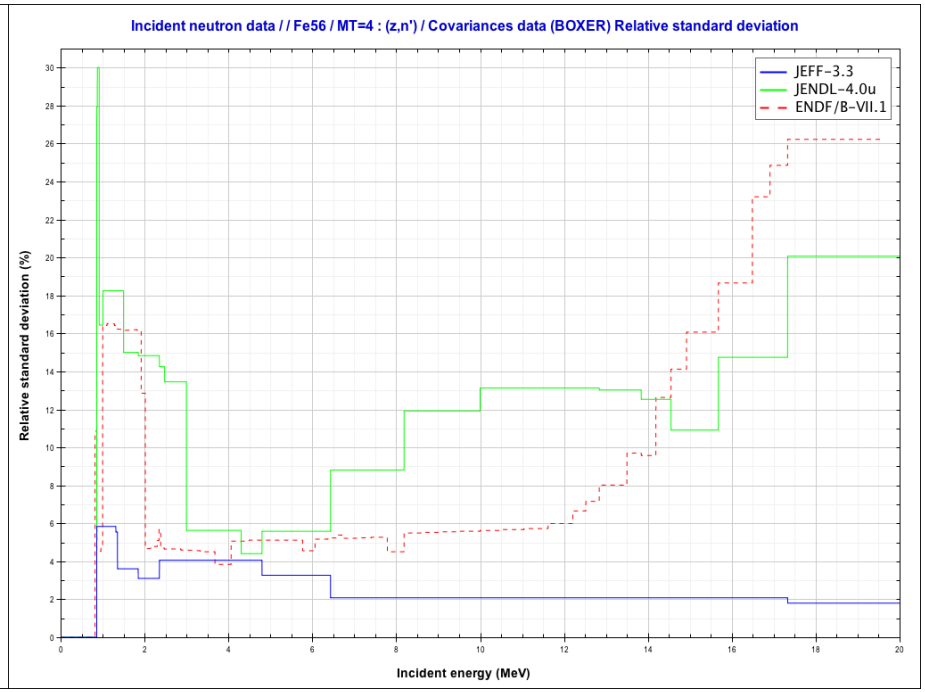
Request ID34: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=454

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
34	26-Fe-56(n,inl) Cross section	800 keV-20 MeV	4 April 2008	*Experiments* • R.O. Nelson et al., Cross-section standards for neutron-induced gamma-ray production in the MeV energy range, ND2004, AIP Conference Proceedings 769 (2004) 838 (http://doi.org/10.1063/1.1945136) – EXFOR 14118 (http://www-nds.iaea.org/EXFOR/14118) • C.M. Castaneda et al., Gamma ray production cross sections from the bombardment of Mg, Al, Si, Ca and Fe with medium energy neutrons, NIM/B 260 (2007) 508 (https://doi.org/10.1016/j.nimb.2007.04.019) – EXFOR 14151 (http://www-nds.iaea.org/EXFOR/14151) • Z. Wang et al., Study on coincidence measurement for 56Fe(n,xng) reaction cross section, Atomic Energy Science and Technology 47 (2013) 2177 – EXFOR 32720 (http://www-nds.iaea.org/EXFOR/32720) • A. Negret et al., Cross-section measurements for the 56Fe(n,xng) reactions, PRC 90 (2014) 034602 (http://doi.org/10.1103/PhysRevC.90.034602) – EXFOR 23073 (http://www-nds.iaea.org/EXFOR/23073) • R. Beyer et al., Inelastic scattering of fast neutrons from excited states in 56Fe, NP A 927 (2014) 41 (http://doi.org/10.1016/j.nuclphysa.2014.03.010) – EXFOR 23134 (http://www-nds.iaea.org/EXFOR/23134) • A.M.Daskalakis et al., Quasi-differential elastic and inelastic neutron scattering from iron in the MeV energy range, Annals of Nuclear Energy 110 (2017) 603 (http://doi.org/10.1016/j.anucene.2017.07.007) • Ongoing work at University of Kentucky, cf. J.R. Vanhoy et al., Differential Cross Section Measurements at the University of Kentucky -- Adventures in Analysis", NEMEA-7, NEA Report NEA/NSC/DOC(2014)13, p.85 (http://www.oecd-nea.org/science/docs/2014/nsc-doc2014-13.pdf) *Theory/Evaluation* • M. Herman et al., Evaluation of Neutron Reactions on Iron Isotopes for CIELO and ENDF/B-VIII.0, NDS 148 (2018) 214 (http://doi.org/10.1016/j.nds.2018.02.004) *Validation*

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
				• C. Jouanne, Sensitivity of the Shielding Benchmarks on Variance-covariance Data for Scattering Angular Distributions, Nuclear Data Sheets 118 (2014) 384 (http://doi.org/10.1016/j.nds.2014.04.087) • I. Kodeli, A. Trkov, G. Žerovnik, Benchmark analysis of iron neutron cross-sections, Jožef Stefan Institute, Ljubljana, Slovenia, Report IJS-DP-11544 (2014) • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Fe56/MT4





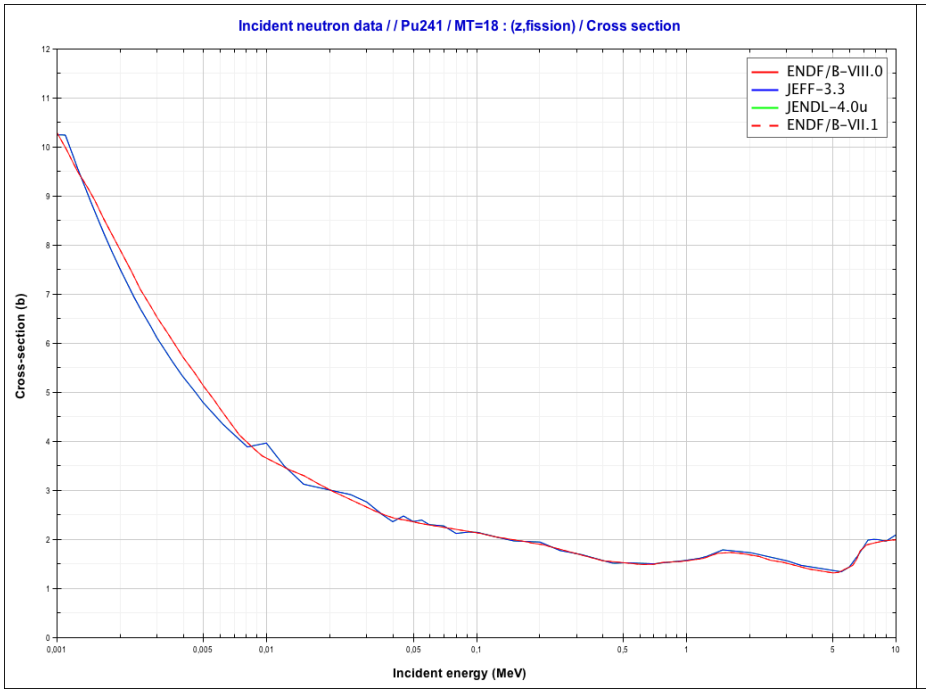
Requested uncertainty: 3-8%, depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: depending on the evaluation

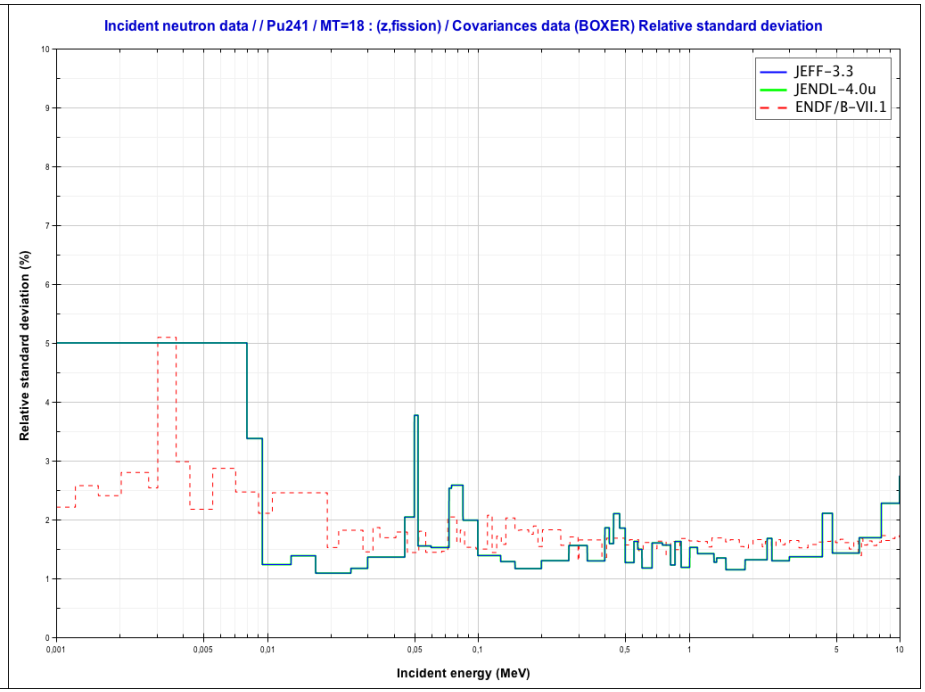
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID35: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=455

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
35	94-Pu-241(n,f) Cross section	0.5 eV-1.35 MeV	4 April 2008	*Experiments* • F. Tovesson, T.S. Hill, Cross Sections for 239Pu(n,f) and 241Pu(n,f) in the Range En = 0.01 eV to 200 MeV, Nuclear Science and Engineering 165 (2010) 224 (http://doi.org/10.13182/NSE09-41) – EXFOR 14271 (http://www-nds.iaea.org/EXFOR/14271) • V.V. Desai, Determination of 241Pu(n,f) cross sections by the surrogate-ratio method, PRC 87 (2013) 034604 (http://doi.org/10.1103/PhysRevC.87.034604) – EXFOR 33053 (http://www-nds.iaea.org/EXFOR/33053) *Theory/Evaluation* • H. Derrien et al., Reevaluation and Validation of the 241Pu Resonance Parameters in the Energy Range Thermal to 20 eV, NSE 150 (2005) 109 (http://doi.org/10.13182/NSE150-109) • Pu-241 evaluation was proposed to be part of INDEN (CIELO follow-up) initial program of work (as of Dec. 2017) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Pu241/MT18





Requested uncertainty: 3-7%, depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: about 1-3% (but 5% in the keV range for JEFF-3.3 and JENDL-4.0)

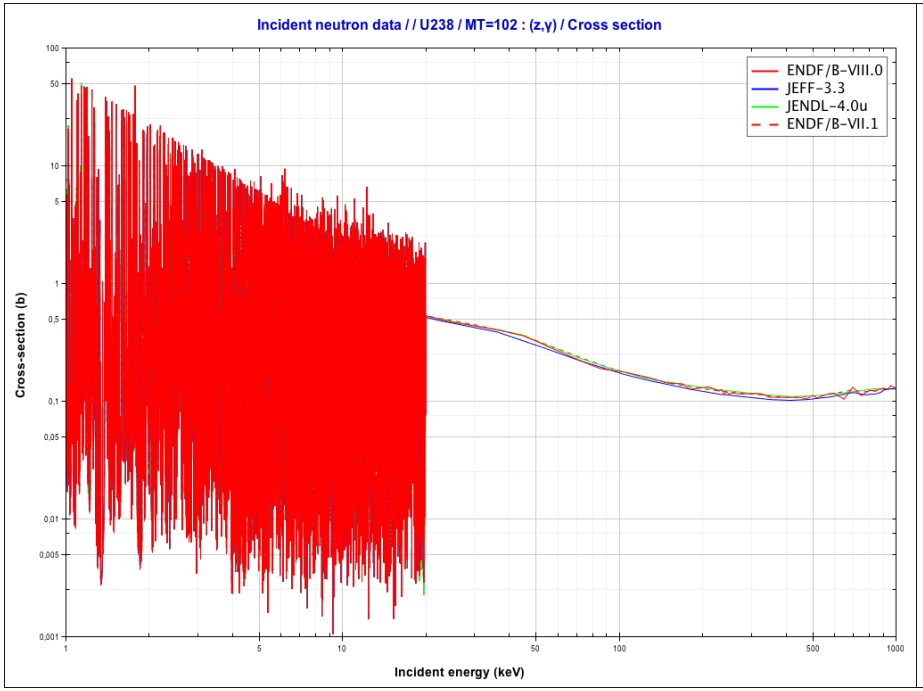
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

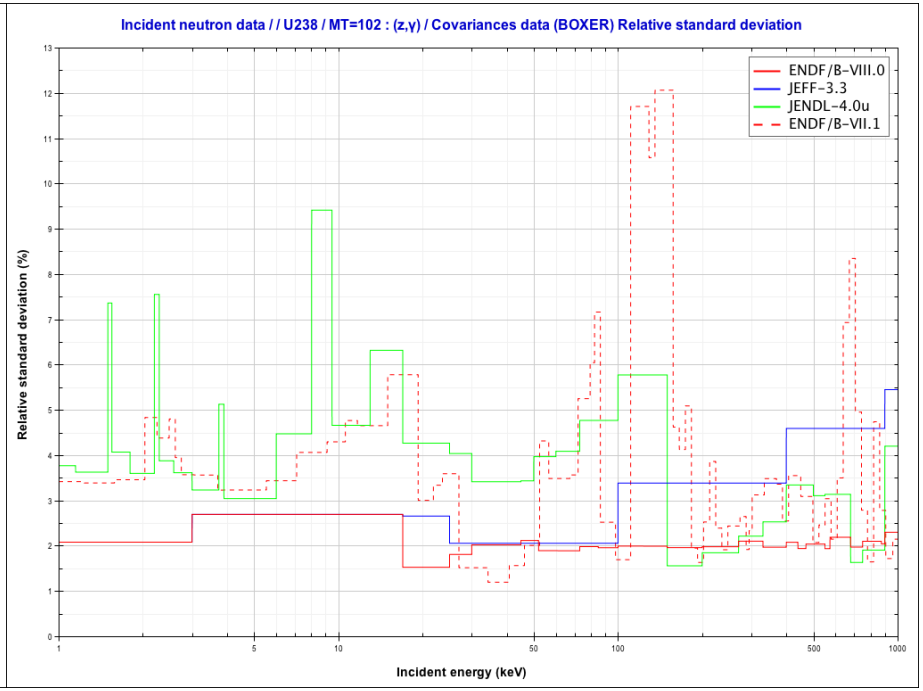
Request ID36: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=456

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
36	92-U-238(n,g) Cross section	20 eV-25 keV	15 Sept. 2008	*Experiments* • A. Wallner et al., Novel Method to Study Neutron Capture of 235U and 238U Simultaneously at keV Energies, PRL 112 (2014) 192501 (http://doi.org/10.1103/PhysRevLett.112.192501) – EXFOR 23170 (http://www-nds.iaea.org/EXFOR/23170) • J.L. Ullmann, et al., Cross section and γ-ray spectra for 238U(n,γ) measured with the DANCE detector array at the Los Alamos Neutron Science Center, PRC 89 (2014) 034603 (http://doi.org/10.1103/PhysRevC.89.034603) – EXFOR 14310 (http://www-nds.iaea.org/EXFOR/14310) • H.I. Kim et al., Neutron capture cross section measurements for 238U in the resonance region at GELINA, EPJ A 52 (2016) 170 (http://doi.org/10.1140/epja/i2016-16170-6) – EXFOR 23302 (http://www-nds.iaea.org/EXFOR/23302) • F. Mingrone et al., Neutron capture cross section measurement of 238U at the CERN n_TOF facility in the energy region from 1 eV to 700 keV, PRC 95 (2017) 034604 (http://doi.org/10.1103/PhysRevC.95.034604) – EXFOR 23234 (http://www-nds.iaea.org/EXFOR/23234) • T. Wright et al., Measurement of the 238U(n,γ) cross section up to 80 keV with the Total Absorption Calorimeter at the CERN n_TOF facility, PRC 96 (2017) 064601 (http://doi.org/10.1103/PhysRevC.96.064601) *Theory/Evaluation* • H. Derrien et al., R-Matrix Analysis of 238U High-Resolution Neutron Transmissions and Capture Cross Sections in the Energy Range 0 to 20 keV, NSE 161 (2009) 131 (http://doi.org/10.13182/NSE161-131) • R. Dagan et al., Impact of the Doppler Broadened Double Differential Cross Section on Observed Resonance Profiles, ND2013, NDS 118 (2014) 179 (http://doi.org/10.1016/j.nds.2014.04.031) • Kopecky et al., Status of Evaluated Data Files for 238U in the Resonance region, JRC Technical Report, EUR 27504 EN (2015) • R. Capote et al., IAEA CIELO Evaluation of Neutron-induced Reactions on 235U and 238U Targets, NDS 148 (2018) 254 (http://doi.org/10.1016/j.nds.2018.02.005)

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
				• A.D. Carlson et al., Evaluation of the Neutron Data Standards, NDS 148 (2018) 143 (http://doi.org/10.1016/j.nds.2018.02.002) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/U238/MT102





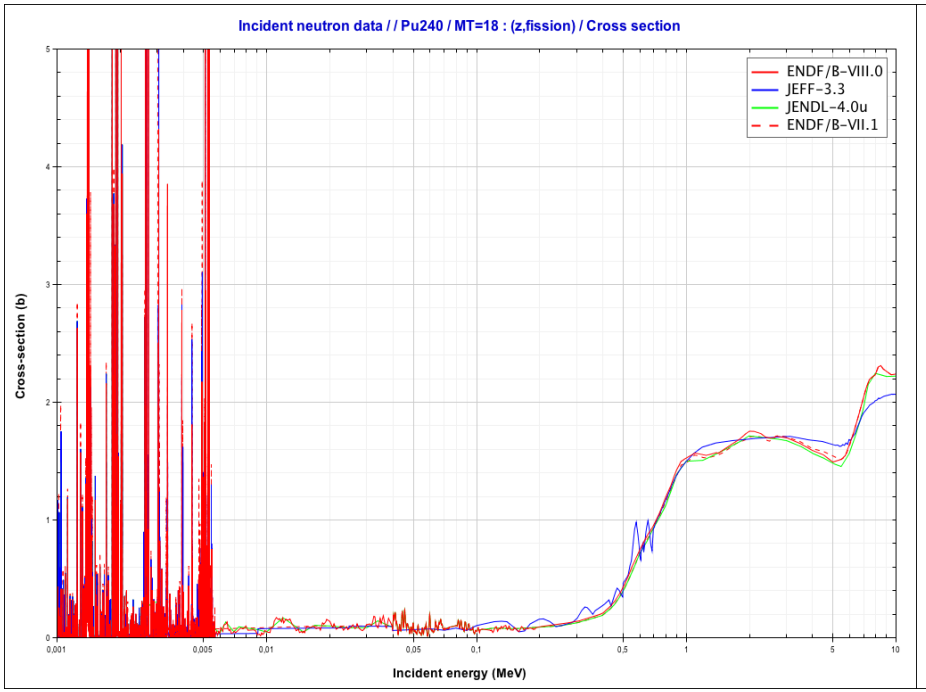
Requested uncertainty: ~2%
Present evaluated uncertainty: ~2% in the CIELO files

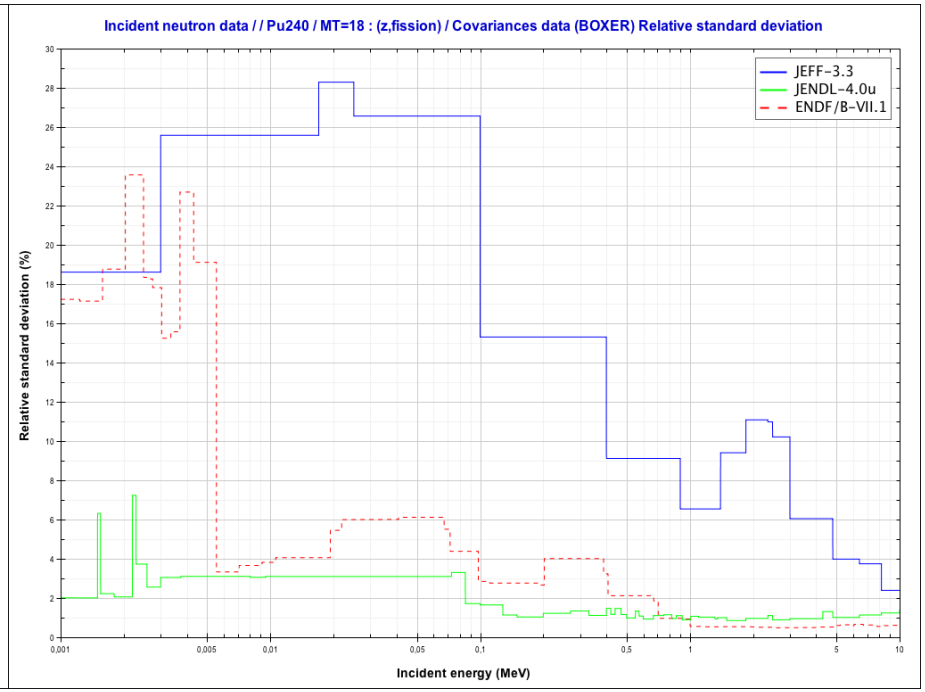
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Completed

Request ID37: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=457

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
37	94-Pu-240(n,f) Cross section	0.5 keV-5 MeV	15 Sept. 2008	*Experiments* • A.B. Laptev et al., Int. Conf. on Fission and Properties of Neutron-Rich Nuclei, Sanibel Island, USA, p.462, 2007 – EXFOR 41487 (http://www-nds.iaea.org/EXFOR/41487) • F. Tovesson et al., Neutron induced fission of 240,242Pu from 1 eV to 200 MeV, PRC 79 (2009) 014613 (http://doi.org/10.1103/PhysRevC.79.014613) – EXFOR 14223 (http://www-nds.iaea.org/EXFOR/14223) • A. Tsinganis, et al., Measurement of the 240Pu(n,f) cross-section at the CERN n_TOF facility: first results from EAR-2, Conf. on Nuclear Reaction Mechanisms, Varenna, 2015 (http://cds.cern.ch/record/2115357) • P. Salvador et al., Neutron-induced fission cross section of 240Pu from 0.5 MeV to 3 MeV, PRC 92 (2015) 014620 (http://doi.org/10.1103/PhysRevC.92.014620) – EXFOR 23281 (http://www-nds.iaea.org/EXFOR/23281) • Ongoing work from a JRC-PTB-NPL collaboration and from a CENBG-CEA-JRC collaboration (ANDES and EMRP projects) *Theory/Evaluation* • D. Brown et al., ENDF/B-VIII.0: The 8th Major Release of the Nuclear Reaction Data Library with CIELO-project Cross Sections, New Standards and Thermal Scattering Data, NDS 148 (2018) 1 (http://doi.org/10.1016/j.nds.2018.02.001) • Pu-240 evaluation was proposed to be part of INDEN (CIELO follow-up) initial program of work (as of Dec. 2017) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Pu240/MT18





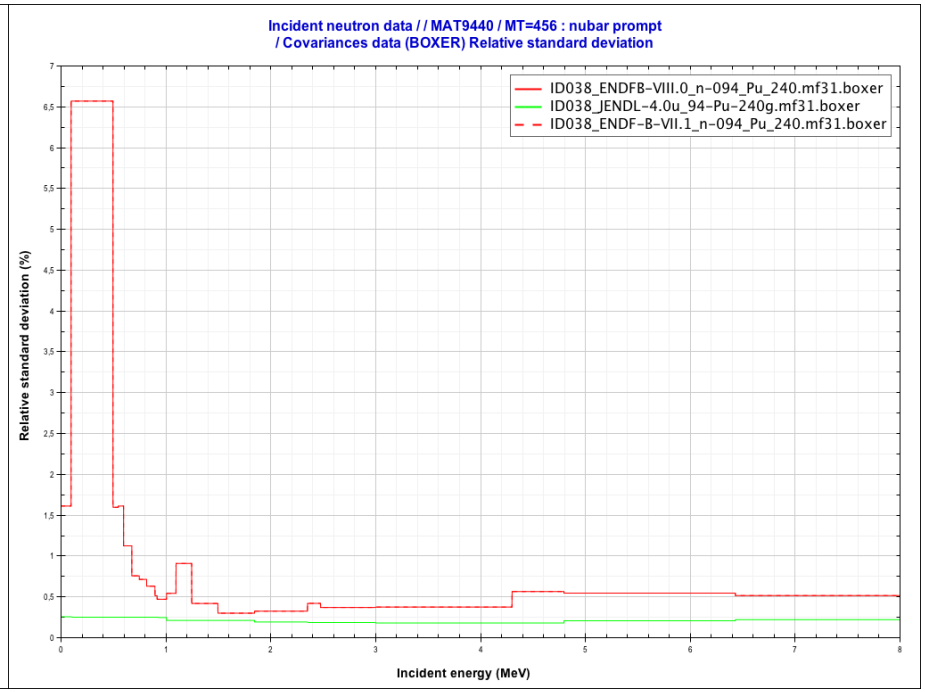
Requested uncertainty: ~3% (10% in the subthreshold resonances)
Present evaluated uncertainty: strongly depending on the evaluation

Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID38: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=458

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
38	94-Pu-240(n,f) Nubar	200 keV-2 MeV	15 Sept. 2008	*Experiments* • … *Theory/Evaluation* • Pu-240 evaluation was proposed to be part of INDEN (CIELO follow-up) initial program of work (as of Dec. 2017) *Validation* • M. Salvatores, et al., Methods and Issues for the Combined Use of Integral Experiments and Covariance Data: Results of a NEA International Collaborative Study, Nuclear Data Sheets 118 (2014) 38 (http://doi.org/10.1016/j.nds.2014.04.005) • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: N/A



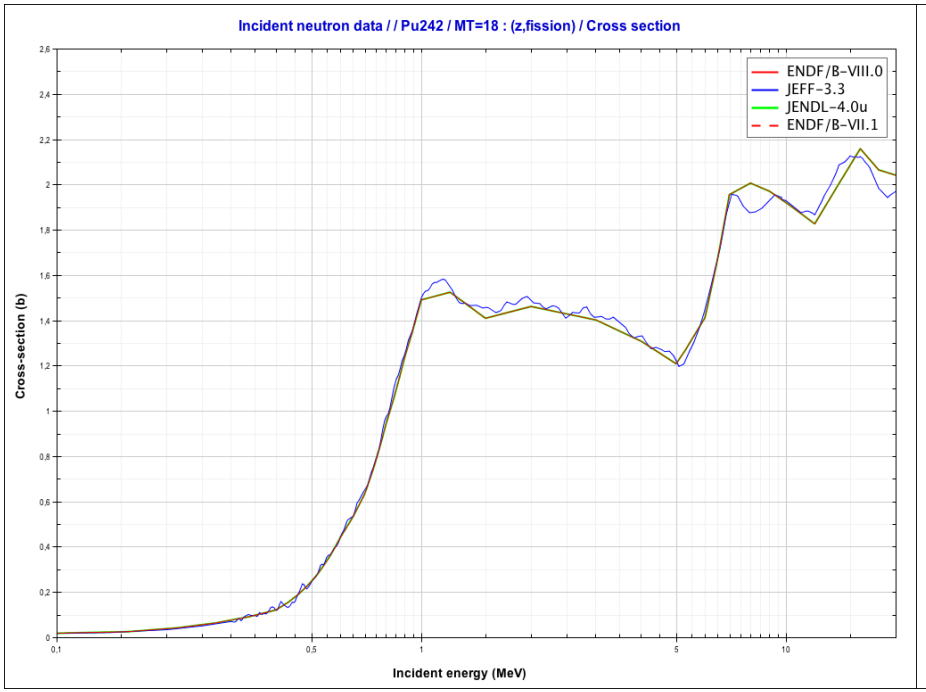
Requested uncertainty: ~2%
Present evaluated uncertainty: <2% above the fission threshold (about 500 keV)

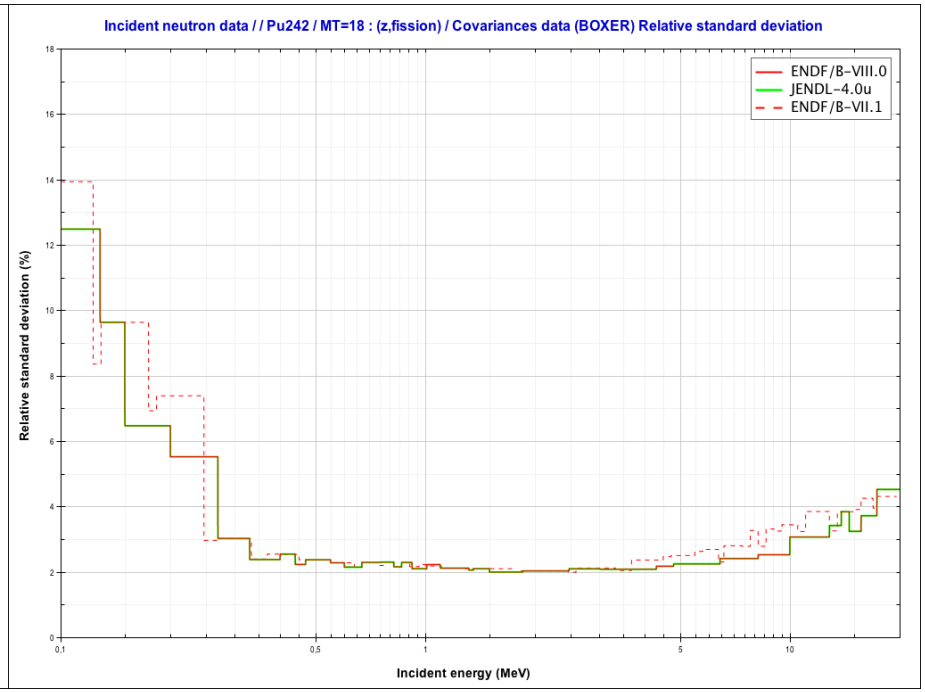
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID39: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=459

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
39	94-Pu-242(n,f) Cross section	200 keV-20 MeV	15 Sept. 2008	*Experiments* • F. Tovesson et al., Neutron induced fission of 240,242Pu from 1 eV to 200 MeV, PRC 79 (2009) 014613 (http://doi.org/10.1103/PhysRevC.79.014613) – EXFOR 14223 (http://www-nds.iaea.org/EXFOR/14223) • A. Tsinganis, et al., Measurement of the 242Pu(n,f) Cross Section at the CERN n_TOF Facility, NDS 119 (2014) 58-60 (http://doi.org/10.1016/j.nds.2014.08.018) • P. Salvador-Castiñeira, Neutron-induced fission cross sections of Pu242 from 0.3 MeV to 3 MeV, PRC 92 (2015) 044606 (http://doi.org/10.1103/PhysRevC.92.044606) – EXFOR 23280 (http://www-nds.iaea.org/EXFOR/23280) • C. Matei, et al., Absolute cross section measurements of neutron-induced fission of 242Pu from 1 to 2.5 MeV, PRC 95 (2017) 024606 (http://doi.org/10.1103/PhysRevC.95.024606) – EXFOR 23334 (http://www-nds.iaea.org/EXFOR/23334) • P. Marini, et al., 242Pu neutron-induced fission cross-section measurement from 1 to 2 MeV neutron energy, PRC 96 (2017) 054604 (http://doi.org/10.1103/PhysRevC.96.054604) *Theory/Evaluation* • M. Herman et al., COMMARA-2.0 Neutron Cross Section Covariance Library, Report BNL- 94830-2011, Brookhaven National Laboratory (2011) • Pu-242 evaluation was proposed to be part of INDEN (CIELO follow-up) initial program of work (as of Dec. 2017) *Validation* • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Pu242/MT18





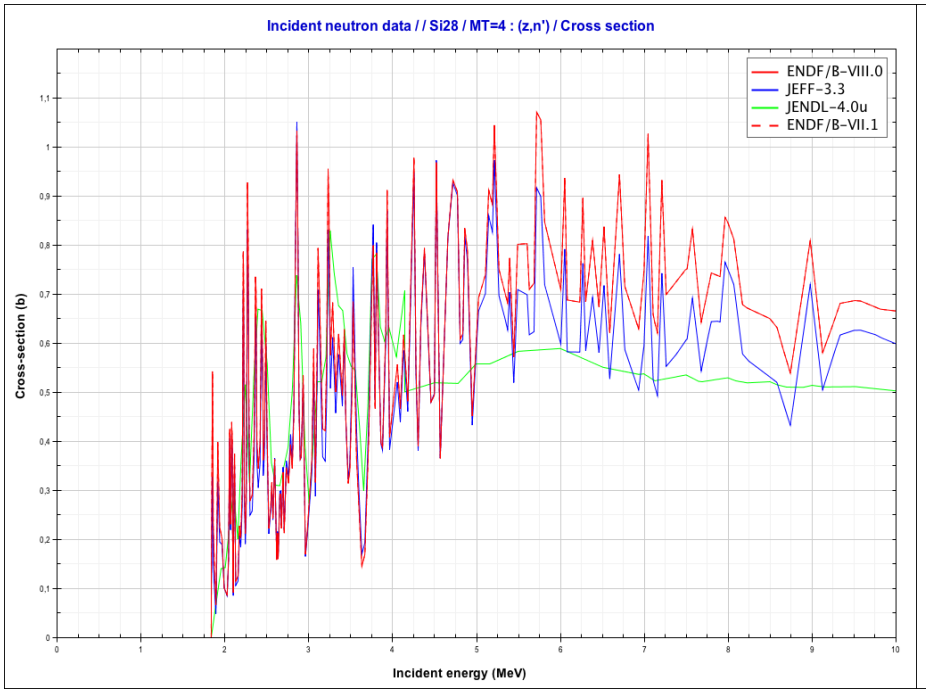
Requested uncertainty: 5-7%, depending on the energy range and the reactor (see details in the request)
Present evaluated uncertainty: 2-4%

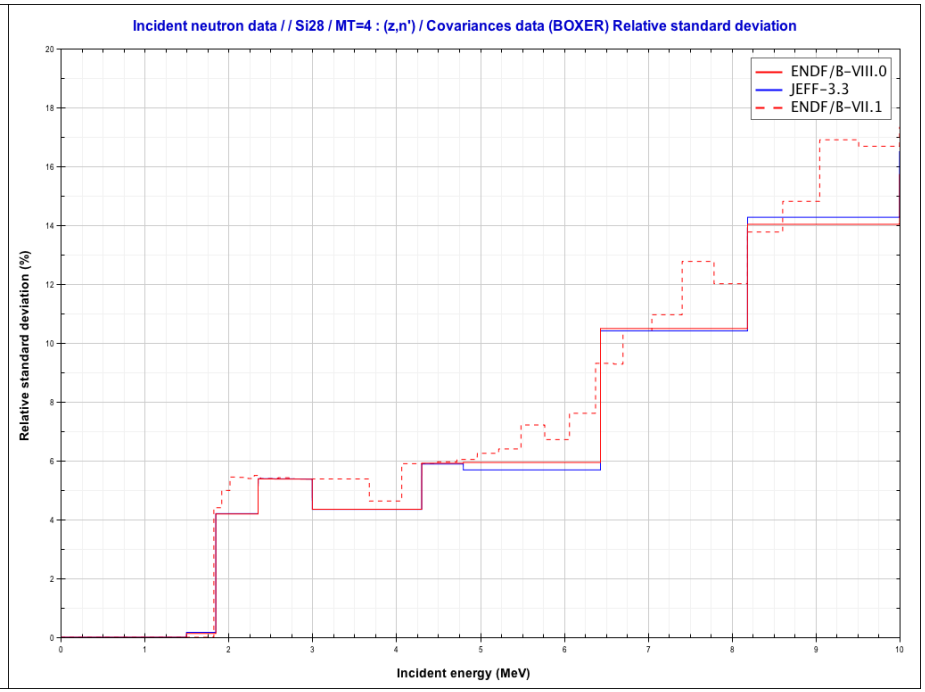
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Work in progress

Request ID40: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=460

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
40	14-Si-28(n,inl) Cross section	1.4 MeV-6 MeV	15 Sept. 2008	*Experiments* • A. Negret et al., Cross sections for inelastic scattering of neutrons on 28Si and comparison with the 25Mg(α,n)28Si reaction, PRC 88 (2013) 034604 (http://doi.org/10.1103/PhysRevC.88.034604) – EXFOR 23173 (http://www-nds.iaea.org/EXFOR/23173) • A. Negret et al., Neutron inelastic scattering measurements for background assessment in neutrinoless double β decay experiments, PRC 88 (2014) 027601 (http://doi.org/10.1103/PhysRevC.88.027601) *Theory/Evaluation* • M. Herman et al., COMMARA-2.0 Neutron Cross Section Covariance Library, Report BNL- 94830-2011, Brookhaven National Laboratory (2011) *Validation* • …

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Si28/MT4





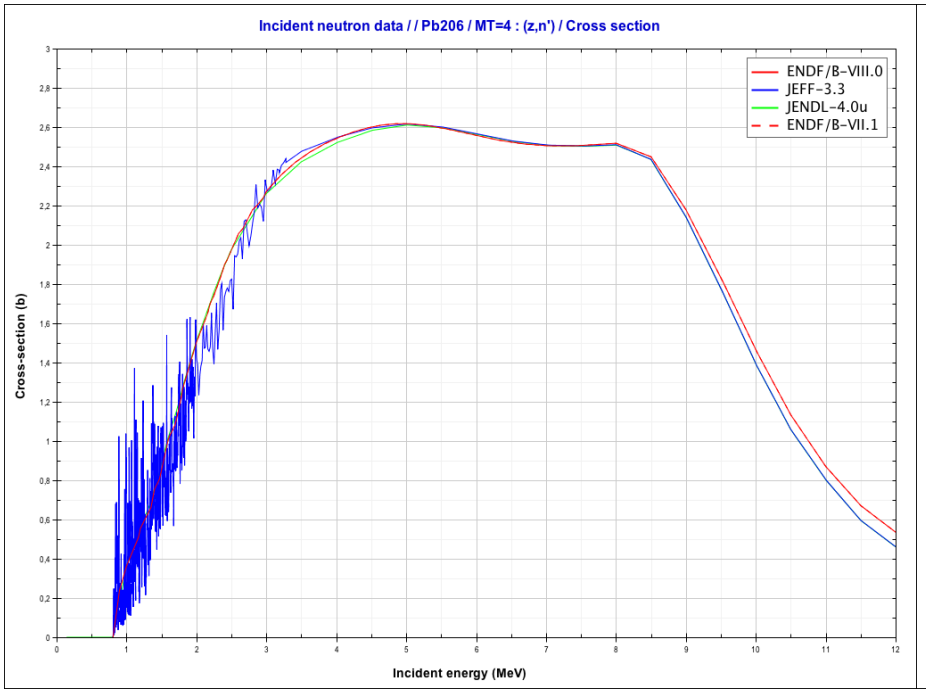
Requested uncertainty: 4-6%
Present evaluated uncertainty: 4-6%

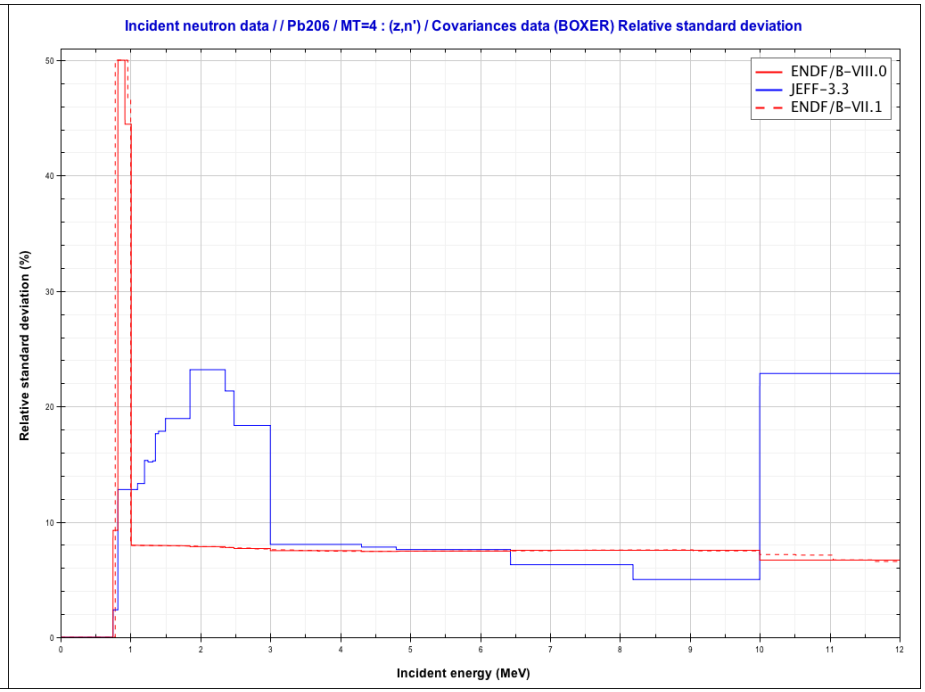
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Completed

Request ID41: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=461

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
41	82-Pb-206(n,inl) Cross section	0.5 MeV-6 MeV	15 Sept. 2008	*Experiments* • V.E. Guiseppe et al., Neutron inelastic scattering and reactions in natural Pb as a background in neutrinoless double-β-decay experiments, PRC 79 (2009) 054604 (http://doi.org/10.1103/PhysRevC.79.054604) – EXFOR 14231 (http://www-nds.iaea.org/EXFOR/14231) • A. Negret, L.C. Mihailescu et al., Cross section measurements for neutron inelastic scattering and the (n, 2n gamma) reaction on 206Pb, PRC 91 (2015) 064618 (http://doi.org/10.1103/PhysRevC.91.064618) – EXFOR 23292 (http://www-nds.iaea.org/EXFOR/23292) • M. Kerveno et al., From γ emissions to (n,xn) cross sections of interest: The role of GAINS and GRAPhEME in nuclear reaction modeling, EPJA 51 (2015) 167 (http://doi.org/10.1140/epja/i2015-15167-y) *Theory/Evaluation* • D. Rochman and A. Koning, Pb and Bi neutron data libraries with full covariance evaluation and improved integral tests, NIM A 589 (2008) 85 (http://doi.org/10.1016/j.nima.2008.02.003) *Validation* • …

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Pb206/MT4





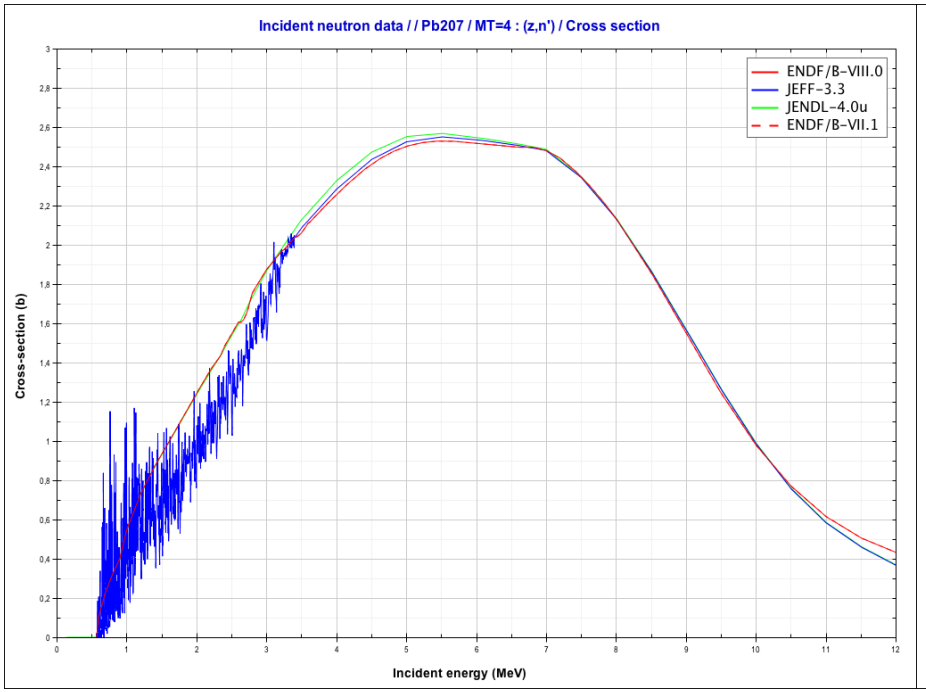
Requested uncertainty: 4-7%, depending on the energy range (see details in the request)
Present evaluated uncertainty: depending on the evaluation, but > 7% in any case

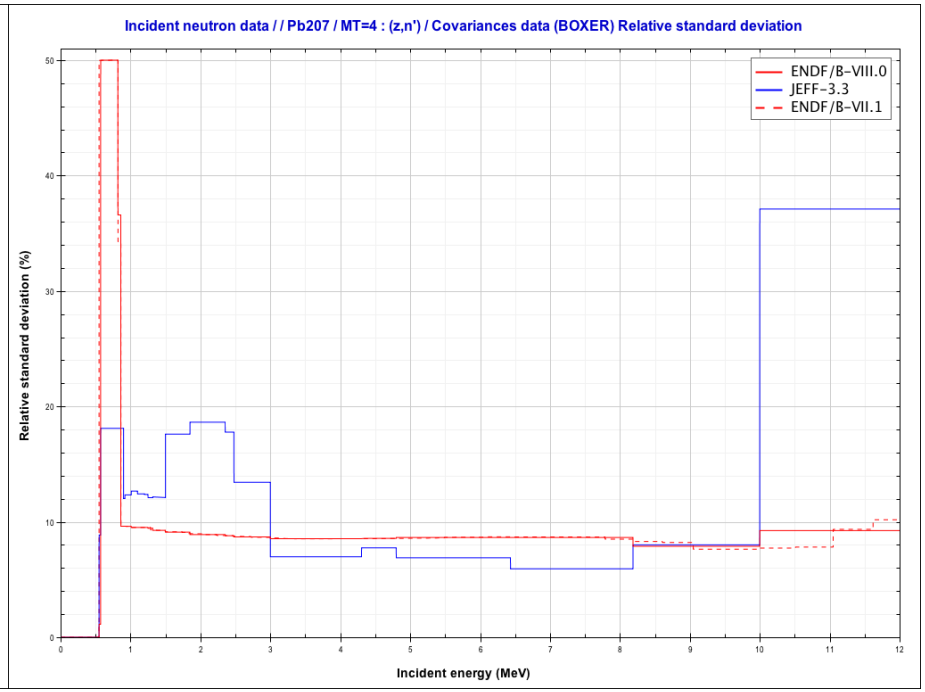
Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Pending new evaluation/validation

Request ID42: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=462

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
42	82-Pb-207(n,inl) Cross section	0.5 MeV-6 MeV	15 Sept. 2008	*Experiments* • L.C. Mihailescu et al., Neutron (n,xng) cross-section measurements for 52Cr, 209Bi, 206,207,208Pb from threshold up to 20 MeV, Report EUR 22343 EN, European Communities (2006) – EXFOR 23286 (http://www-nds.iaea.org/EXFOR/23286) • V.E. Guiseppe et al., Neutron inelastic scattering and reactions in natural Pb as a background in neutrinoless double-β-decay experiments, PRC 79 (2009) 054604 (http://doi.org/10.1103/PhysRevC.79.054604) – EXFOR 14231 (http://www-nds.iaea.org/EXFOR/14231) • A. Plompen and A. Negret (Eds), Uncertainties and covariances for inelastic scattering data, Report EUR 25208 EN, European Union, 2011 (http://doi.org/10.2787/58803) • M. Kerveno et al., From γ emissions to (n,xn) cross sections of interest: The role of GAINS and GRAPhEME in nuclear reaction modeling, EPJA 51 (2015) 167 (http://doi.org/10.1140/epja/i2015-15167-y) *Theory/Evaluation* • D. Rochman and A. Koning, Pb and Bi neutron data libraries with full covariance evaluation and improved integral tests, NIM A 589 (2008) 85 (http://doi.org/10.1016/j.nima.2008.02.003) *Validation* • …

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Pb207/MT4





Requested uncertainty: 4-7%, depending on the energy range (see details in the request)
Present evaluated uncertainty: depending on the evaluation, but > 7% in any case

Requester: Massimo SALVATORES (INL)
Status proposal: (SGC review) Pending new evaluation/validation

Request ID43: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=463

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
43	1-H-1(n,el) Cross section (dA)	10 MeV-20 MeV	29 April 2011	*Experiments* • B.H. Daub et al., Measurements of the neutron-proton and neutron-carbon total cross section from 150 to 800 keV, PRC 87 (2013) 014005 (http://doi.org/10.1103/PhysRevC.87.014005) – EXFOR 14356 (http://www-nds.iaea.org/EXFOR/14356) • N. Kornilov et al., Development of a New Method for Measurement of Neutron Detector Efficiency up to 20 MeV, NDS 119 (2014) 413 (http://doi.org/10.1016/j.nds.2014.08.116) • N. Kornilov et al., A high precision n-p scattering measurement at 14.9 MeV, ND2016, EPJ Conferences 146 (2017) 11053 (https://doi.org/10.1051/epjconf/201714611053) *Theory/Evaluation* • A.D. Carlson et al. (G. Hale, M. Paris), Evaluation of the Neutron Data Standards, NDS 148 (2018) 143 (http://doi.org/10.1016/j.nds.2018.02.002) *Validation* • …

JANIS Book: N/A

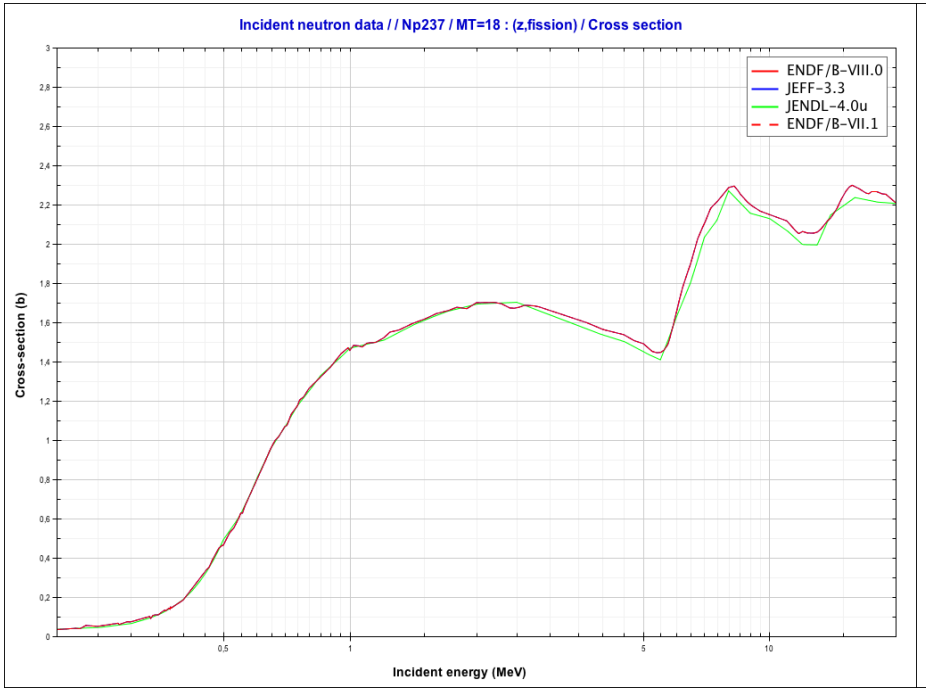
Requested uncertainty: 1-2%
Present evaluated uncertainty: ???

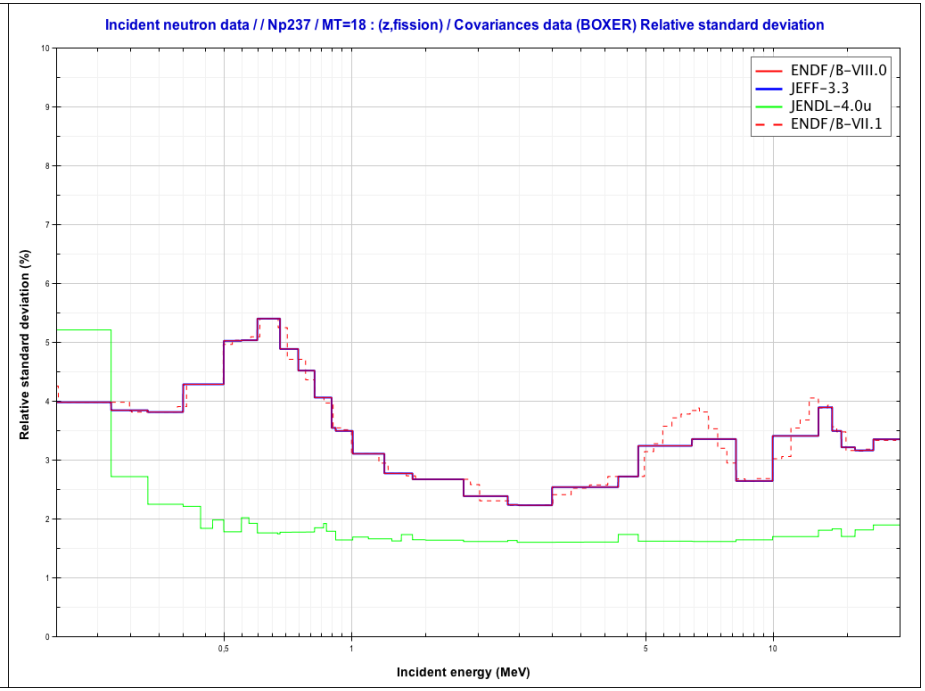
Requester: Allan D. CARLSON (NIST)
Status proposal: (SGC review) Work in progress

Request ID44: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=464

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
44	93-Np-237(n,f) Cross section	200 keV-20 MeV	11 May 2015	*Experiments* • O. Shcherbakov et al., Neutron-Induced Fission of 233U, 238U, 232Th, 239Pu, 237Np, natPb and 209Bi Relative to 235U in the Energy Range 1-200 MeV, Jour. of Nuclear Science and Technology Suppl. 2, p.230, 2002 (http://doi.org/10.1080/00223131.2002.10875081) – EXFOR 41455 (http://www-nds.iaea.org/EXFOR/41455) • F. Tovesson and T. Hill, Neutron induced fission cross section of 237Np from 100 keV to 200 MeV, PRC 75 (2007) 034610 (http://doi.org/10.1103/PhysRevC.75.034610) – EXFOR 14130 (http://www-nds.iaea.org/EXFOR/14130) • M.S. Basunia, The (3He, t f) as a surrogate reaction to determine (n,f) cross sections in the 10–20 MeV energy range, NIM B 267 (2009) 1899 (http://doi.org/10.1016/j.nimb.2009.04.006) – EXFOR 31673 (http://www-nds.iaea.org/EXFOR/31673) • C. Paradela, et al., Neutron-induced fission cross section of 234U and 237Np measured at the CERN Neutron Time-of-Flight (n_TOF) facility, PRC 82 (2010) 034601 (http://doi.org/10.1103/PhysRevC.82.034601) – EXFOR 23126 (http://www-nds.iaea.org/EXFOR/23126) • M. Diakaki et al., Determination of the 237Np(n,f) reaction cross section for En = 4.5-5.3 MeV using a MicroMegas detector assembly, EPJA 49 (2013) 62 (http://doi.org/10.1140/epja/i2013-13062-3) – EXFOR 23189 (http://www-nds.iaea.org/EXFOR/23189) • M. Diakaki et al., Neutron-induced fission cross section of 237Np in the keV to MeV range at the CERN n_TOF facility, PRC 93 (2016) 034614 (http://doi.org/10.1103/PhysRevC.93.034614) – EXFOR 22742 (http://www-nds.iaea.org/EXFOR/22742) • Ongoing activities at JRC-Geel in collaboration with NPL and at n_TOF *Theory/Evaluation* • M.B. Chadwick et al., ENDF/B-VII.0: Next Generation Evaluated Nuclear Data Library for Nuclear Science and Technology, NDS 107 (2006) 2931 (http://doi.org/10.1016/j.nds.2006.11.001) *Validation* • G. Palmiotti, et al., Combined Use of Integral Experiments and Covariance Data, Nuclear Data Sheets 118 (2014) 596 (http://doi.org/10.1016/j.nds.2014.04.145)

JANIS Book: http://www.oecd-nea.org/janisweb/book/neutrons/Np237/MT18





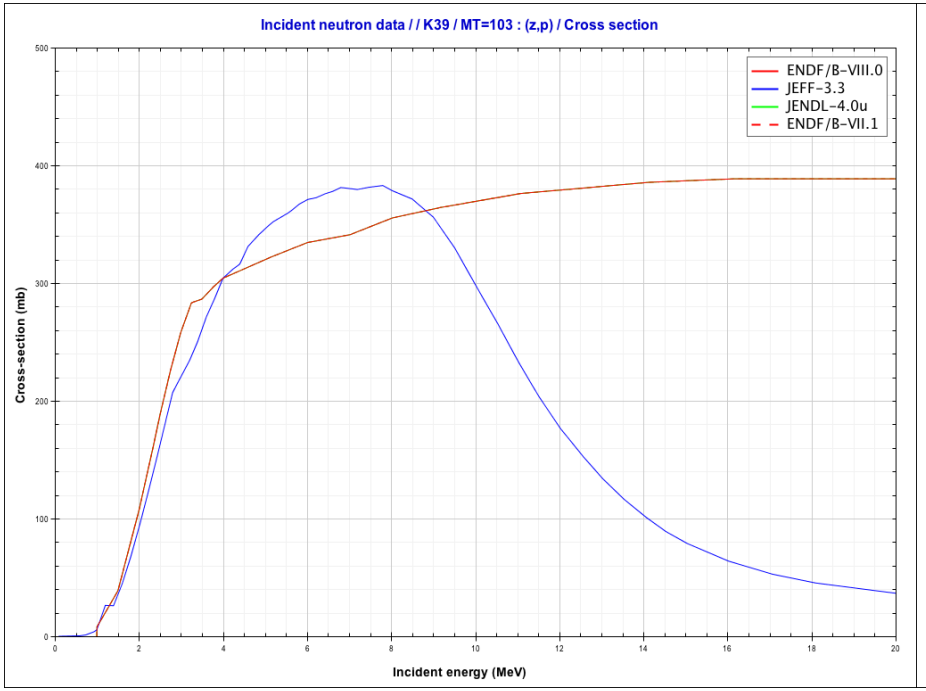
Requested uncertainty: 2-3%
Present evaluated uncertainty: depending on the evaluation, <2% (JENDL-4.0) or 3-4% (JEFF-3.3, ENDF/B-VIII.0)

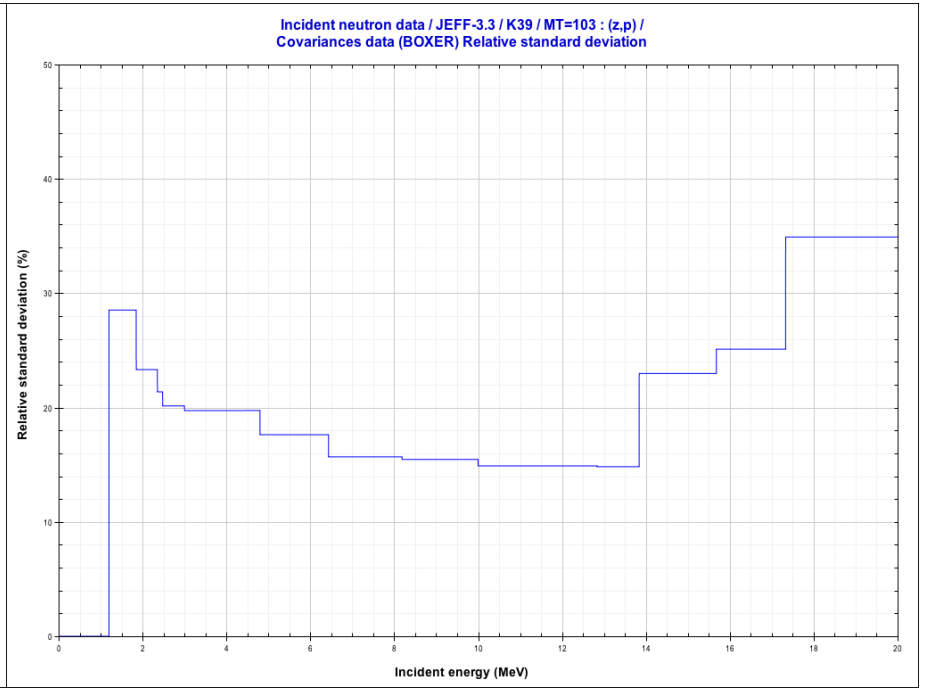
Requester: Fredrik TOVESSON (LANL)
Status proposal: (SGC review) Completed

Request ID45: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=466

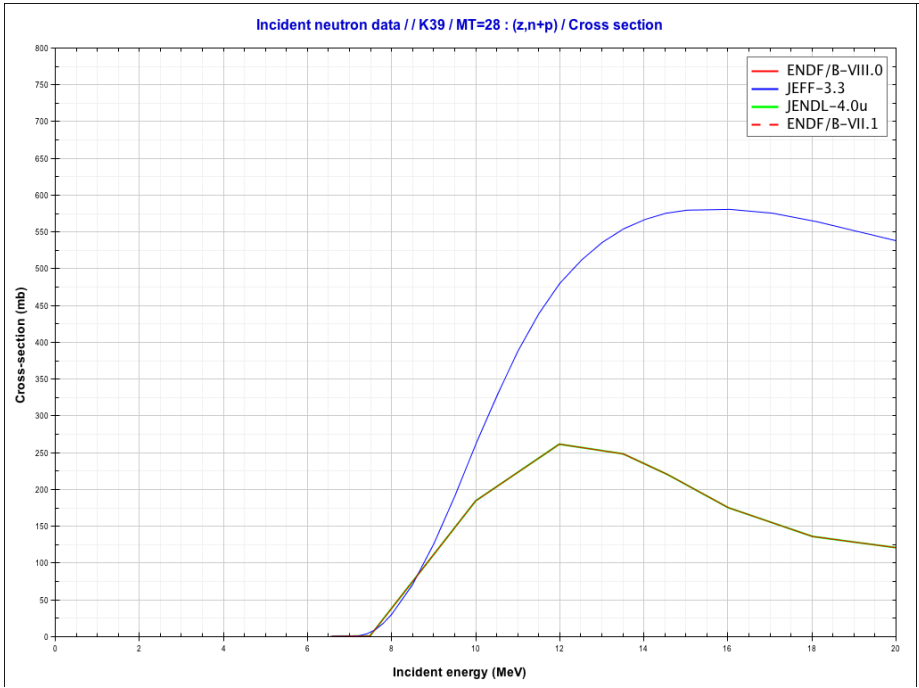
ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
45	19-K-39(n,p),(n,np) Cross section	10 MeV-20 MeV	17 May 2017	*Experiments* • … *Theory/Evaluation* • … *Validation* • …

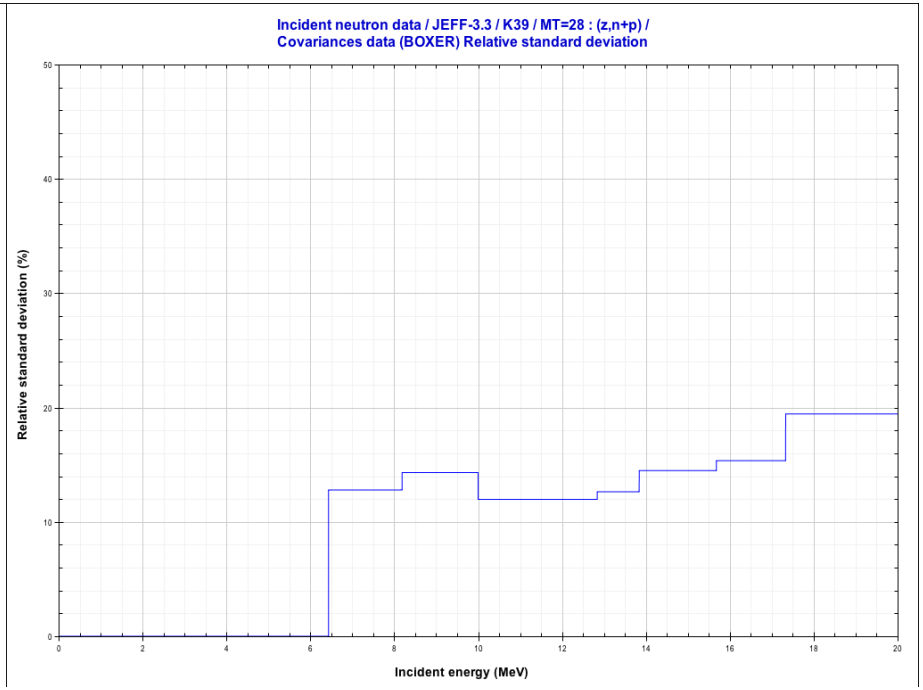
JANIS Book (n,p)Ar39: http://www.oecd-nea.org/janisweb/book/neutrons/K39/MT103
JANIS Book (n,np)Ar38: http://www.oecd-nea.org/janisweb/book/neutrons/K39/MT28





Requested uncertainty (n,p): 10%
Present evaluated uncertainty: ~20%





Requested uncertainty (n,np): 10%
Present evaluated uncertainty: ~15%

Requester: Stanislav SIMAKOV (KIT)
Status proposal: (SGC review) Work in progress

Request IDs: http://www.oecd-nea.org/dbdata/hprl/search.pl?vspq=on

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2010)
46-96	Various dosimetry cross sections	PFNS (~1 MeV) and high energy (15 MeV up to 150 MeV)	17 May 2017	*Experiments* • M. Majerle, P. Bém, et al., Au, Bi, Co and Nb cross-section measured by quasimonoenergetic neutrons from p+7Li reaction in the energy range of 18–36 MeV, Nuclear Physics A 953 (2016) 139 (http://dx.doi.org/10.1016/j.nuclphysa.2016.04.036) • M. Schulc, M. Kostal, et al., Validation of differential cross sections by means of 252Cf spectral averaged cross sections, Applied Radiation and Isotopes 132 (2018) 29 (http://doi.org/10.1016/j.apradiso.2017.11.008) *Theory/Evaluation* • … *Validation* • M. Schulc, M. Kostal, et al., On 54Fe neutron cross section importance in iron, Applied Radiation and Isotopes 128 (2017) 86 (http://doi.org/10.1016/j.apradiso.2017.06.025)

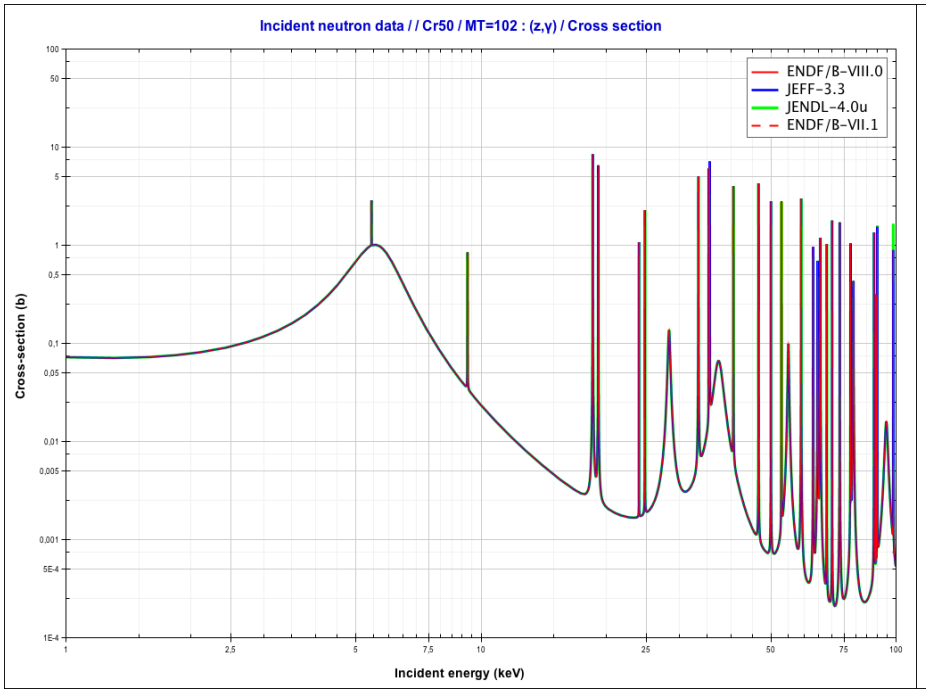
JANIS Book: many…

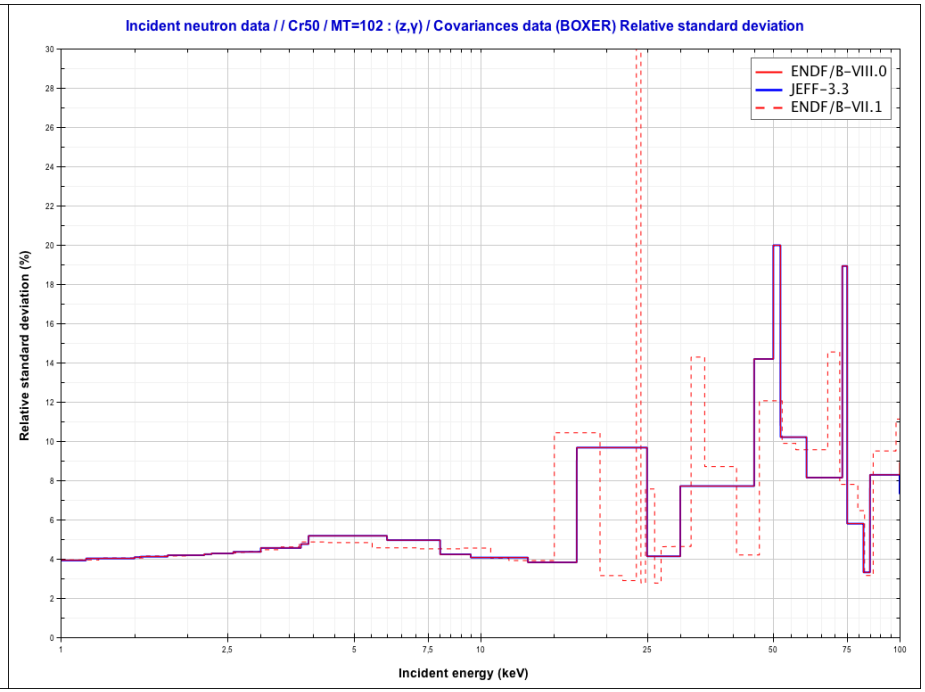
Requester: Stanislav SIMAKOV et al. (IAEA) and Christophe DESTOUCHES (CEA) for request ID #72
Status proposal: (SGC review) Work in progress

Request ID97 (Cr-50): http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=518
Request ID98 (Cr-53): http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=519

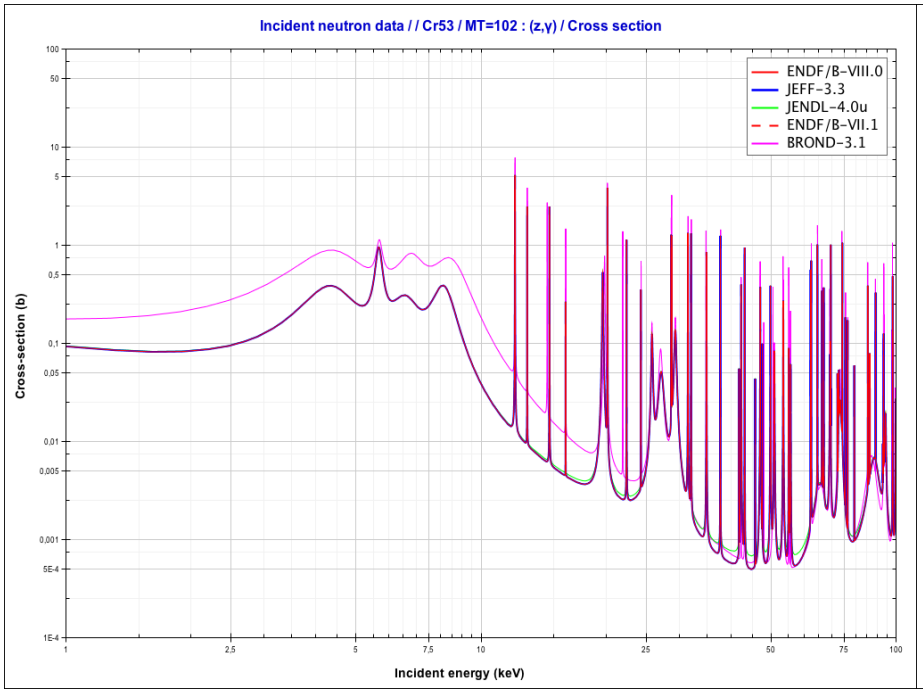
ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
97-98	24-Cr-50,53(n,g) Cross section	1 keV-100 keV	20 January 2018	*Experiments* • Yijun Xia et al., Measurement of neutron capture cross section of Cr-50 in the energy range from 50 to 1052 keV, Communication of Nuclear Data Progress 28 (2002) 1, Report INDC(CPR)-059/L (http://www-nds.iaea.org/publications) – EXFOR 32648 (http://www-nds.iaea.org/EXFOR/32648) • K.H. Guber et al., Neutron Cross-Section Measurements on Structural Materials at ORELA, Journal of the Korean Physical Society 59 (2011) 1685 (http://doi.org/10.3938/jkps.59.1685) – EXFOR 14324 (http://www-nds.iaea.org/EXFOR/14324) *Theory/Evaluation* • L. Leal et al., Evaluation of the Chromium Resonance Parameters Including Resonance Parameter Covariance, Journal of the Korean Physical Society 59 (2011) 1644 (http://doi.org/10.3938/jkps.59.1644) *Validation* • V. Koscheev et al., Use the results of measurements on KBR facility for testing of neutron data of main structural materials for fast reactors, EPJ Conferences 146 (2007) 06025 (http://doi.org/10.1051/epjconf/201714606025)

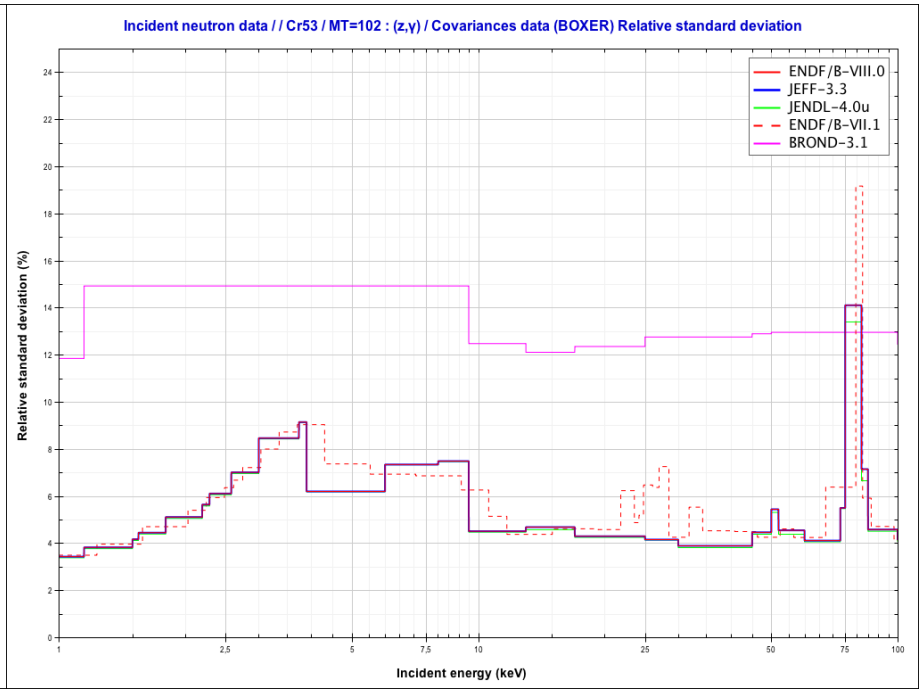
JANIS Book (Cr-50): http://www.oecd-nea.org/janisweb/book/neutrons/Cr50/MT102
JANIS Book (Cr-53): http://www.oecd-nea.org/janisweb/book/neutrons/Cr53/MT102





Requested uncertainty (Cr-50): 8-10%
Present evaluated uncertainty: < 10% but not reflecting 35% discrepancy between evaluations and Atlas of Neutron Resonances, 5th Edition (2006).





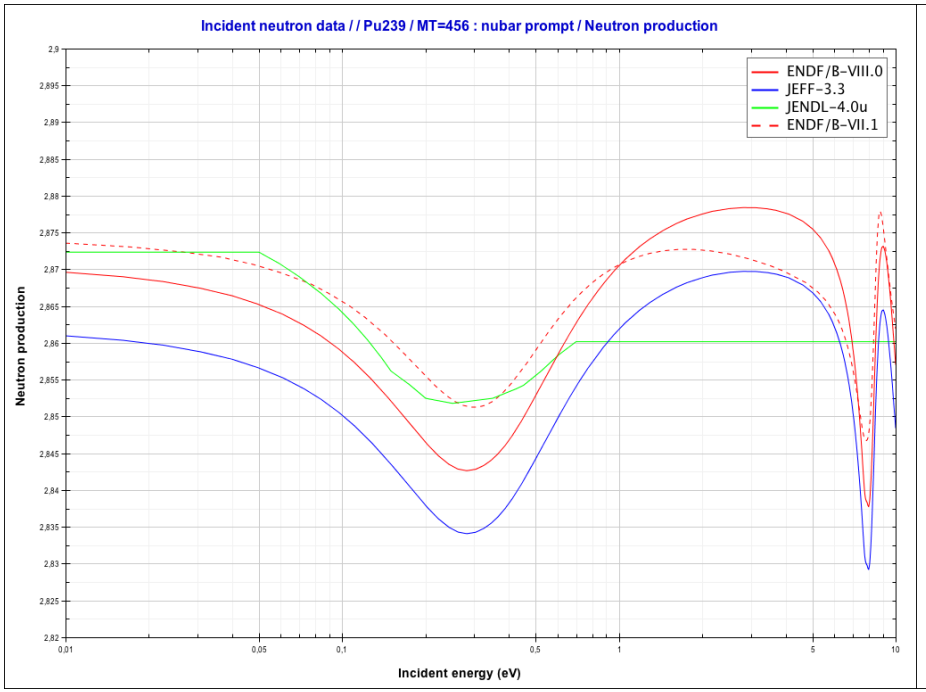
Requested uncertainty (Cr-53): 8-10%
Present evaluated uncertainty: ~14% (BROND-3.1) and < 8% for ENDF/B-VIII.0, JEFF-3.3, JENDL-4.0, but not reflecting discrepancy between central values.

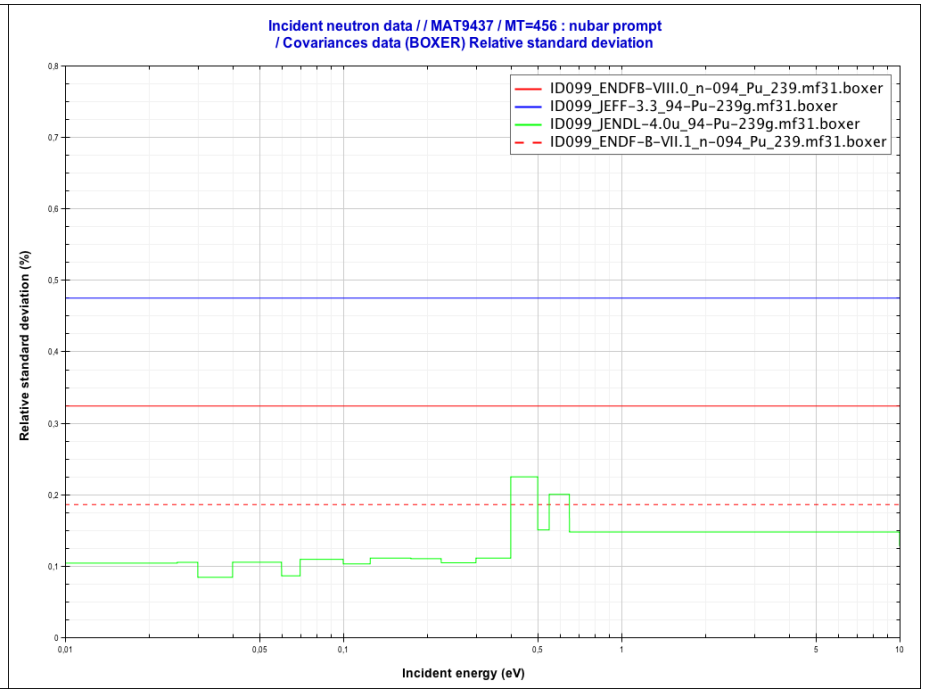
Requester: Roberto CAPOTE NOY (IAEA)
Status proposal: (SGC review) Work in progress

Request ID99: http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=520

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
99	94-Pu-239(n,f) Nubar	Thermal-5 eV	23 March 2018	*Experiments* • F.J. Hambsch, et al., Prompt fission neutron emission in resonance fission of ^{239}Pu, ND2004, Santa Fe (NM), USA, September 2004, AIP 769 (2005) 644 (http://doi.org/10.1063/1.1945092) *Theory/Evaluation* • J.E. Lynn, P. Talou and O. Bouland, Reexamining the role of the (n,gf) process in the low-energy fission of 235U and 239Pu, PRC xx (2018) accepted May 1st (http://journals.aps.org/prc/accepted/bf075P04Afb1980a15d663106b852e9650a412153) *Validation* • …

JANIS Book: N/A





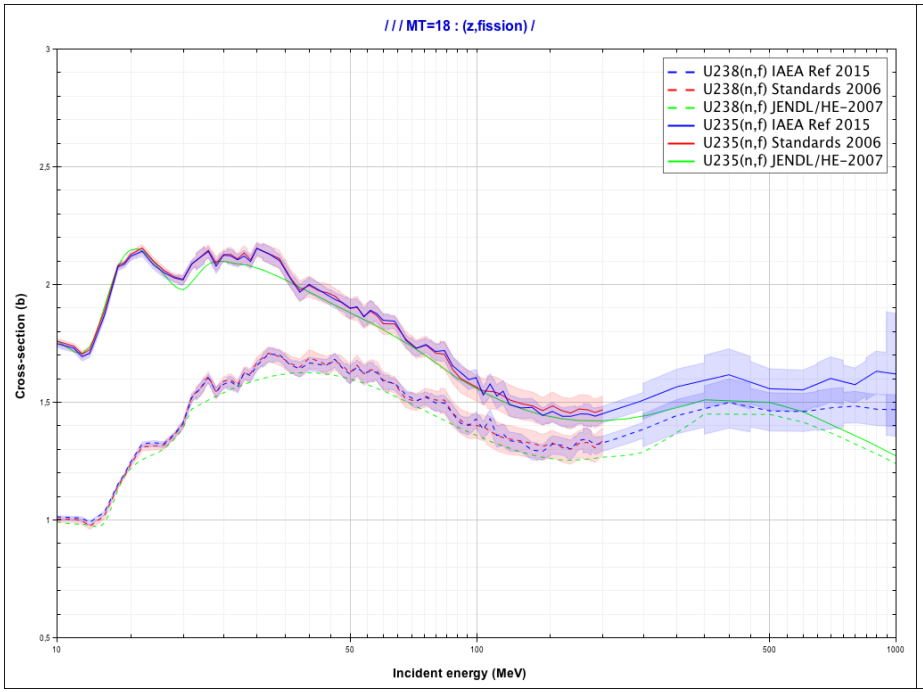
Requested uncertainty: <1%
Present evaluated uncertainty: <1%

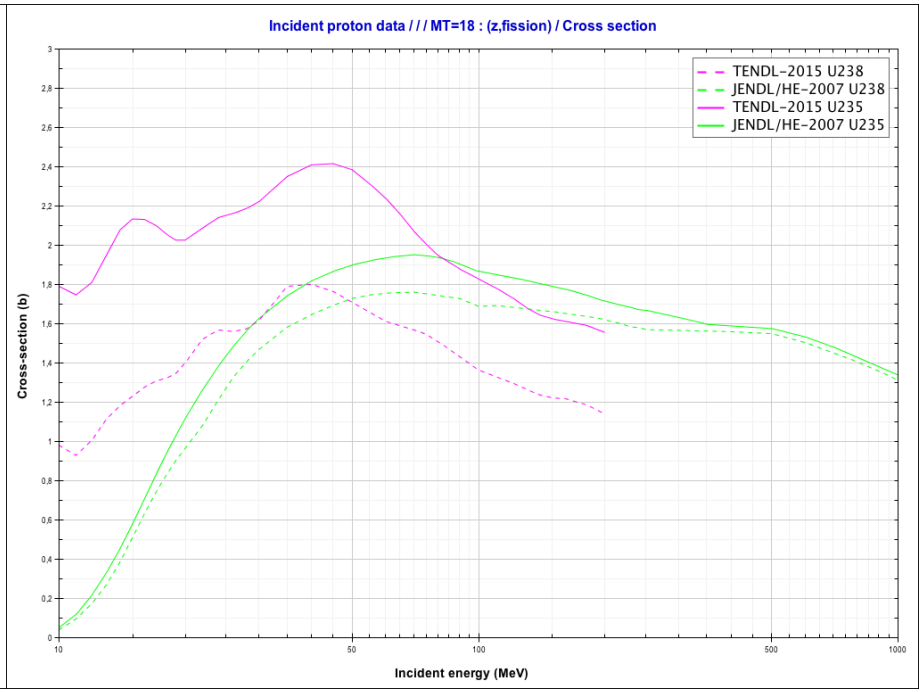
Requester: Roberto CAPOTE NOY (IAEA)
Status proposal: (SGC review) Work in progress

Request ID100 (U-235): http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=521
Request ID101 (U-238): http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=522

ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
100 - 101	92-U-235,238(n/p,f) Cross section	100 MeV-500 MeV	23 March 2018	*Experiments* • U-235 measurement planned at n_TOF in 2018 *Theory/Evaluation* • B. Marcinkevicius, S. Simakov, V. Pronyaev, ^{209}Bi(n,f) and ^{nat}Pb(n,f) cross sections as a new reference and extension of the ^{235}U, ^{238}U and ^{239}Pu(n,f) standards up to 1 GeV, IAEA Report INDC(NDS)-0681 (http://www-nds.iaea.org/publications/indc/indc-nds-0681) • A.D. Carlson et al., Evaluation of the Neutron Data Standards, NDS 148 (2018) 143 (http://doi.org/10.1016/j.nds.2018.02.002) *Validation* • …

JANIS Book (U-235): http://www.oecd-nea.org/janisweb/book/neutrons/U235/MT18 - http://www.oecd-nea.org/janisweb/book/protons/U235/MT18
JANIS Book (U-238): http://www.oecd-nea.org/janisweb/book/neutrons/U238/MT18 - http://www.oecd-nea.org/janisweb/book/protons/U238/MT18





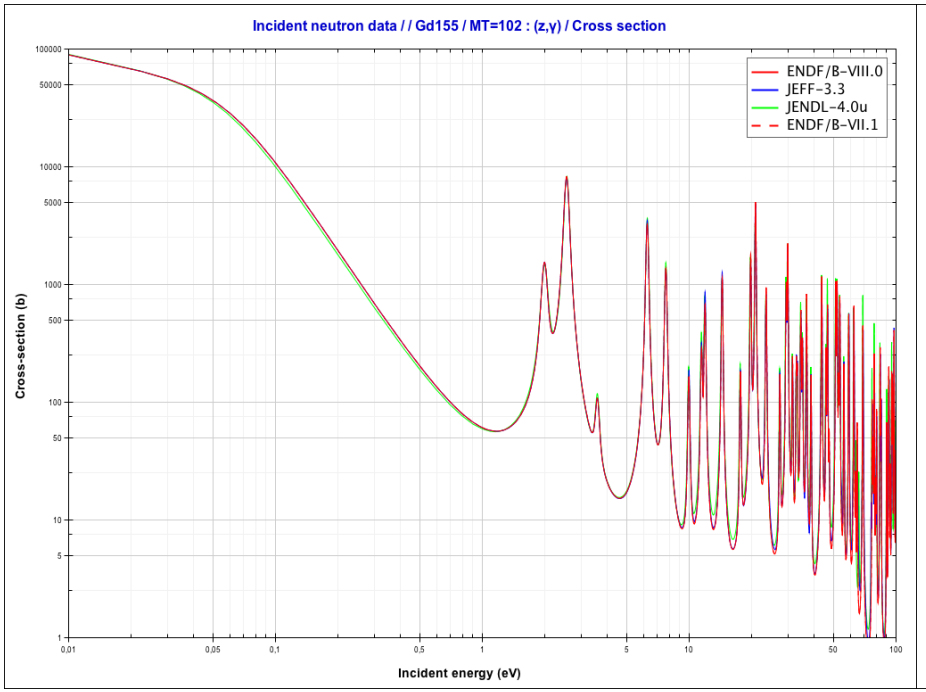
Requested uncertainty: 5%
Present evaluated uncertainty (n,f): 5-10%?
Present evaluated uncertainty (p,f): ???

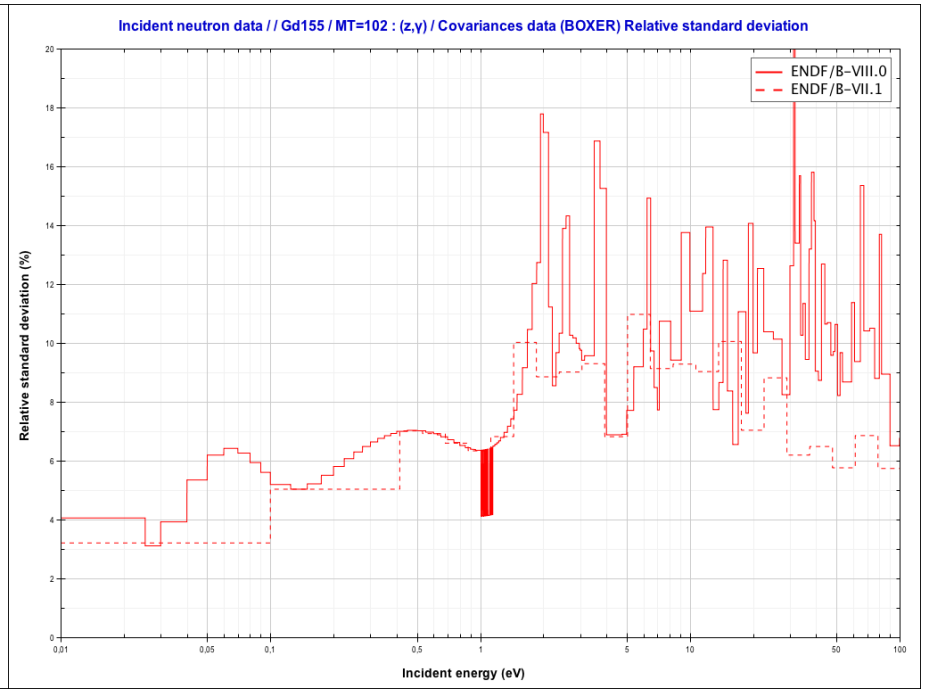
Requester: Roberto CAPOTE NOY (IAEA)
Status proposal: (SGC review) Work in progress

Request ID102 (Gd-155): http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=523
Request ID103 (Gd-157): http://www.oecd-nea.org/dbdata/hprl/hprlview.pl?ID=524

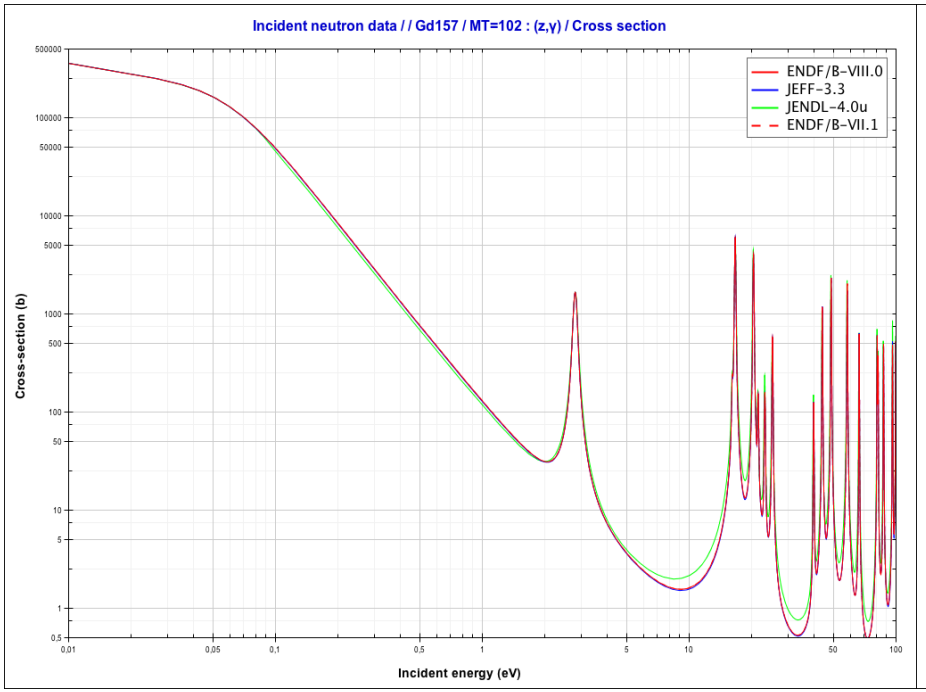
ID	Reaction Quantity	Energy range	Date entry created	Main references (years ≳ 2000)
102 - 103	64-Gd-155,157(n,g) Cross section	Thermal-100 eV	XX May 2018	*Experiments* • G. Leinweber et al., Neutron capture and total cross-section measurements and resonance parameters of gadolinium, Nuclear Science and Engineering 154 (2006) 261 (http://doi.org/10.13182/NSE05-64) • B. Baramsai et. al., Neutron resonance parameters in 155Gd measured with the DANCE γ-ray calorimeter array, Phys. Rev. C 85 (2012) 024622 (http://doi.org/10.1103/PhysRevC.85.024622) • H.D.Choi et. al., Radiative capture cross sections of 155,157Gd for thermal neutrons, Nucl. Science & Eng. 177 (2014) 219 (http://doi.org/10.13182/NSE13-49) • Ongoing work at n_TOF *Theory/Evaluation* • Ongoing work at ORNL/IRSN *Validation* • F. Rocchi et al., Reassessment of gadolinium odd isotopes neutron cross sections: scientific motivations and sensitivity-uncertainty analysis on LWR fuel assembly criticality calculations, EPJ N 3 (2017) 21 (http://doi.org/10.1051/epjn/2017015)

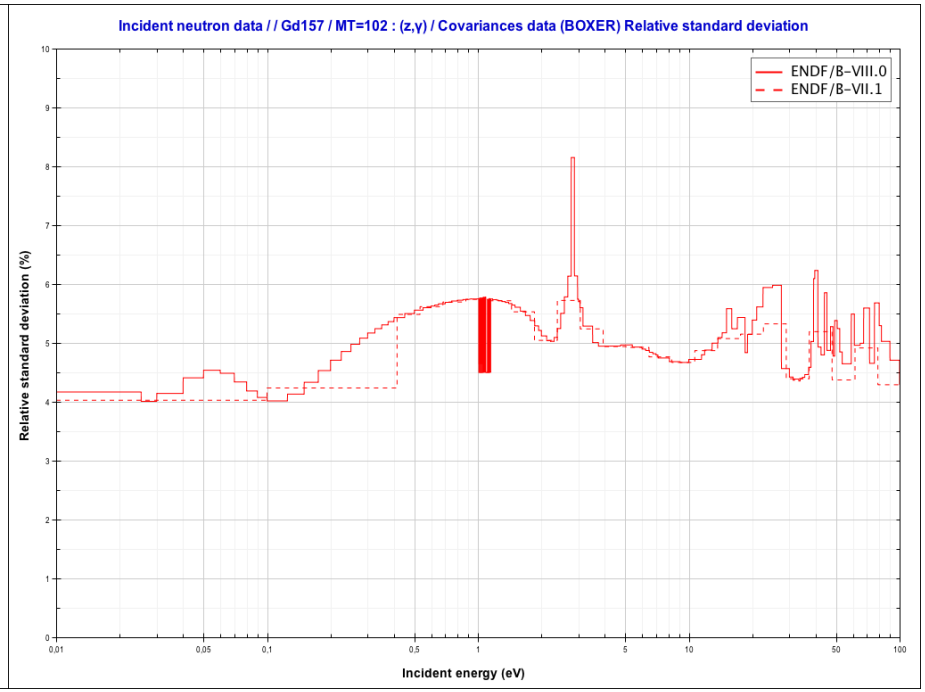
JANIS Book (Gd-155): http://www.oecd-nea.org/janisweb/book/neutrons/Gd155/MT102
JANIS Book (Gd-157): http://www.oecd-nea.org/janisweb/book/neutrons/Gd157/MT102





Requested uncertainty (Gd-155): 4%
Present evaluated uncertainty: 4-7% below 1 eV (ENDF/B-VIII.0)





Requested uncertainty (Gd-157): 4%
Present evaluated uncertainty: 4-6% below 1 eV (ENDF/B-VIII.0)

Requester: Cristian MASSIMI (INFN)
Status proposal: (SGC review) Pending new evaluation/validation