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Status of experimental data in EXFOR and evaluations for $^{235}U(n_{th},f)$ PFNS (*working materials*)

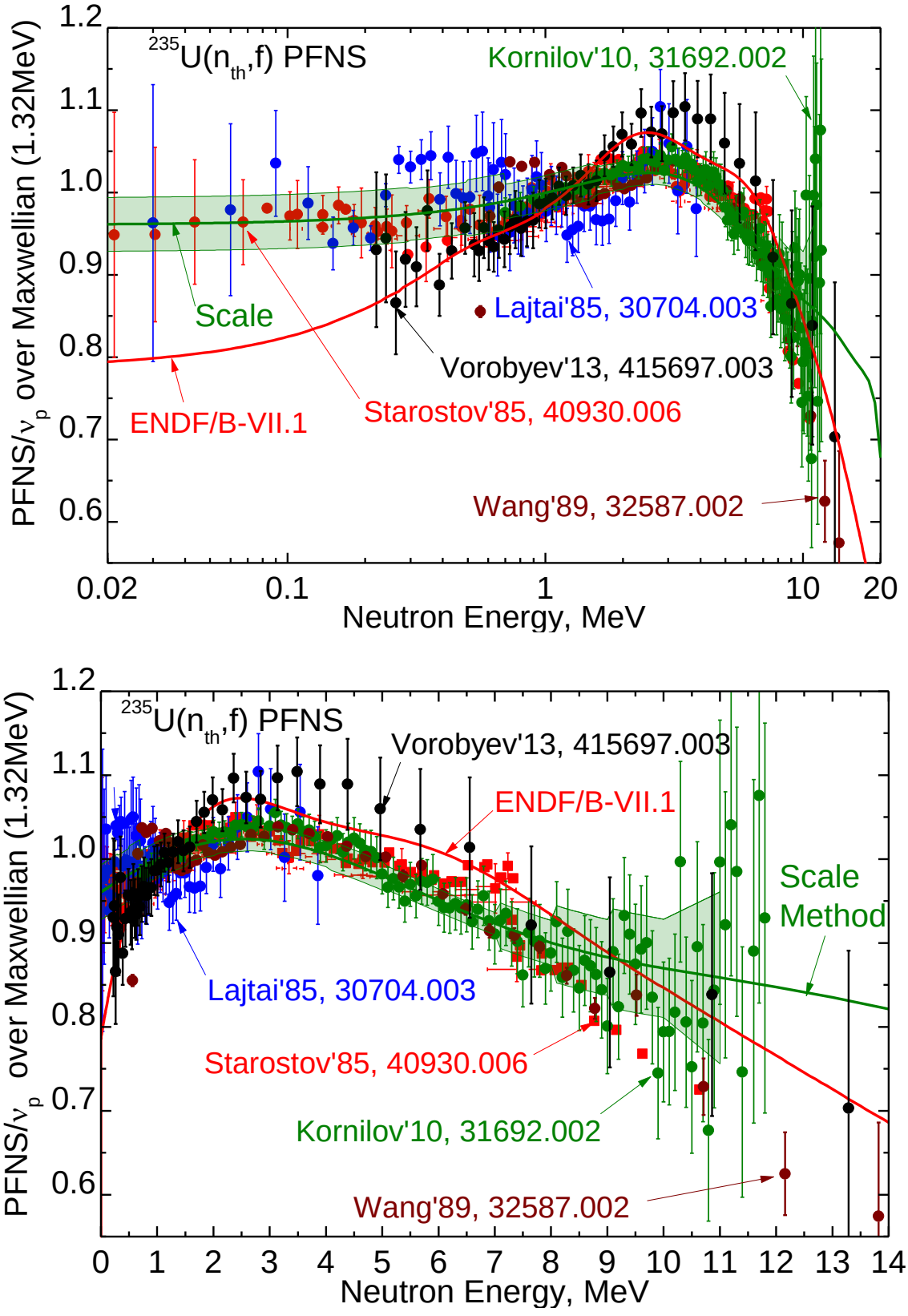

Fig. 1. Ratio of $^{235}U(n,f)$ PFNS/ν_p to Maxwell (T = 1.32 MeV), plotted vs. neutron energy in log (top) or linear (bottom) scales. References for plotted data on next page.

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- Experimental data which were plotted on Fig. 1 (information sources, experimental and EXFOR data processing if any):

Author' Year Laboratory	**EXFOR Entry Data Status**	**References**	**Most essential Experimental details**	**Processing of EXFOR data before plotting in Fig. 1**
Starostov'85 NIIAR, CM-2	40930.006 digitized from Fig. Entry combines data presented in other sub-Entries of 40871, 40872	Yad. Konst. 3 (1985) 16 Engl. transl.: INDC(CCP)-252, p. 19 Kiev-1983, v. 2, p. 290 Engl. transl.: INDC(CCP)-458	TOF relative to ^{252}Cf **1st Cycle:** n: Anthracene + FEU71 at 0.51 m Stilben + FEU63 at 2.313 m Plastic + FEU63 at 6.11 m FF: Ion. Cham. with ^{252}Cf, ^{233,235}U, ^{239}Pu **2nd Cycle**: n: Gas(^{5}U) + PM at 0.104, 0.214, 0.295 m ^{235}U Ion. Ch. at 0.124, 0.214, 0.40 m FF: Gas Scint. + PM	Spectrum (ratio to Maxw. T = 1.313 MeV) was converted to T = 1.32 MeV
Nefedov'83 NIIAR	40871.007 digitized from Fig.	Kiev-1983, v. 2, p. 285 Engl. transl.: INDC(CCP)-457	TOF relative to ^{252}Cf n: Anthracene + PM at 0.5 and 1.0 m FF: Ion. Cham. with ^{235}U and ^{252}Cf	~~Spectrum was divided by ν_p = 2.42085~~
Nefedov'83 NIIAR	40871.008 Authors' table 40871.011 Authors' table	Kiev-1983, v. 2, p. 285 Engl. transl.: INDC(CCP)-457	TOF relative to ^{252}Cf n: Anthracene + PM at 0.51 m FF: Ion. Cham. with ^{235}U and ^{252}Cf	~~Spectrum was divided by ν_p = 2.42085 and by Maxwell T=1.32~~ ~~Ratio ^{252}Cf/^{235}U~~
Nefedov'83 NIIAR	40871.012 Authors' table	Kiev-1983, v. 2, p. 285 Engl. transl.: INDC(CCP)-457	TOF relative to ^{252}Cf n: Anthracene + PM at 2.313 m FF: Ion. Cham. with ^{252}Cf, ^{233,235}U, ^{239}Pu	~~Ratio ^{252}Cf/^{235}U~~
Starostov'83 NIIAR	40872.007 Authors' table	Kiev-1983, v. 2, p. 290 Engl. transl.: INDC(CCP)-458	TOF relative to ^{252}Cf n: Plastic + PM at 6.11 m FF: Ion. Cham. with ^{252}Cf, ^{233,235}U, ^{239}Pu	~~Ratio ^{252}Cf/^{235}U~~
Boytsov'83 NIIAR	40873.004 Authors' table	Kiev-1983, v. 2, p. 294 Engl. transl.: INDC(CCP)-459	TOF relative to ^{252}Cf Renormalisation of NIIAR IP-22(356)1978 (2nd Cycle 2 of 40930.006 ?) to updated Cf shape (T=1.418)	~~Spectrum~~
Lajtai'85 IPPE + KFI	30704.003 Authors' table	Santa Fe 1985, v. 1, p. 613	TOF relative to ^{252}Cf n: ^{6}Li glass + FEU30 FF: Ar-gas + PM	Spectrum - has to be still corrected for deviation from Maxw. (T=1.42MeV) used for ^{252}Cf.
Wang Yufeng'89 CIAE	32587.002 Authors' table	Chinese J. of Nuclear Physics, v. 11, issue. 4, p. 47 (1989)	TOF n: ST451 scint. + PM at 3.17 m *ε(E)* calculated & meas. rel. to n-p FF: Ionization Chamber	Spectrum was divided by arbitrary factor 6.5E+6 and by Maxw. (T = 1.32 MeV)

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Author' Year Laboratory	**EXFOR Entry Data Status**	**References**	**Most essential Experimental details**	**Processing of EXFOR data before plotting in Fig. 1**
Kornilov'10 IRMM + KFI	31692.002 Authors' table 31692.006 Authors' table	Nuclear Science and Engineering, v. 165, p. 117 (2010)	TOF relative to ^{252}Cf n: three LS301 + XP4312 FF: Ion. Cham. with ^{235}U and ^{252}Cf	Spectrum was divided by Maxw. (T = 1.32 MeV). ~~Ratio ^{252}Cf/^{235}U.~~
Vorobyev'12 PNPI	415697.002 Authors' table 415697.003 Authors' table	Yad. Konst., 1-2(2011-2012) 37 Engl. translation: INDC(CCP)-0455, p. 21	TOF relative to ^{252}Cf n: two Stilben + PM at 0.492 & 0.472 m FF: 16 MWPD with ^{235}U (or ^{252}Cf) FF were detected only in plane not in 4π	~~Ratio ^{235}U/^{252}Cf was multiplied by $\nu_p(^{252}Cf)/\nu_p(^{235}U) = 3.7590/2.42085$~~ Spectrum was divided by $\nu_p(^{235}U)$ = 2.42085 and by Maxw. (T = 1.32 MeV).

Analysis of experimental data in EXFOR is also given in INDC(NDS)-0541 p. 39 (Annex F.)

- Evaluated data:

"ENDF/B-VII.1": M.B. Chadwick et al., Nuclear Data Sheets, **112**, 2887 (2011)
"Scale Method": N.V. Kornilov, Nuclear Sci. Eng., **169**, 290 (2011),
N.V. Kornilov, "Fission neutrons (Experiments, Evaluation, Modeling and Open Problems)", Springer, 2015, ISBN 978-3-319-07133-6, link

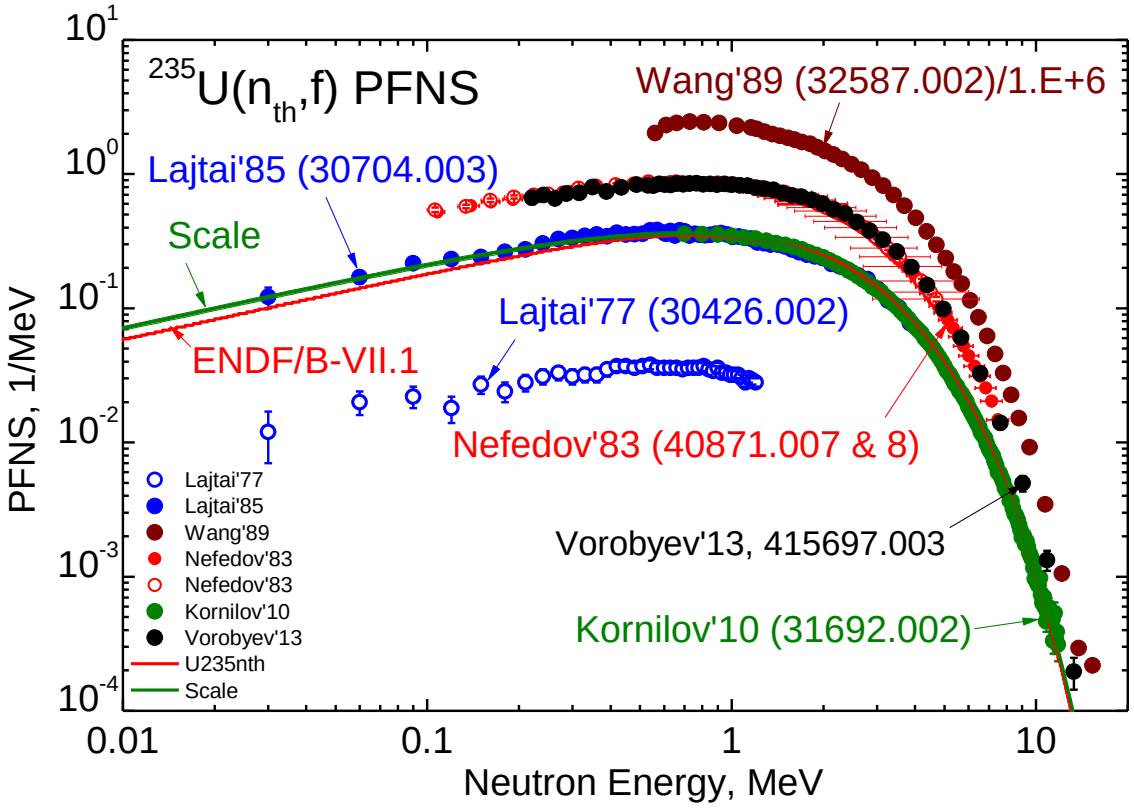

Fig. 2. Experimental data for $^{235}U(n_{th},f)$ PFNS as presented in EXFOR and evaluations.

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