



IAEA

60 Years

Atoms for Peace and Development

Poster 142

Experiments in the EXFOR Library for Evaluation of Thermal Neutron Constants

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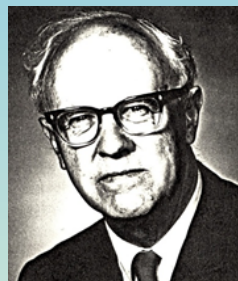
G. Noguere

SPRC/LEPh, CEA Cadarache, Saint-Paul-les Durance, France

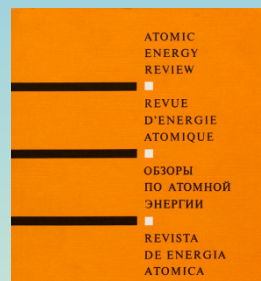
ND-2016, Bruges, Belgium, September 11-16 2016

$^{233}\text{U}(n_{\text{th}},f)$		
$^{235}\text{U}(n_{\text{th}},f)$	σ_s	--
	σ_f	579.5 ± 2.0
	$\sigma_{\text{?}}$	100.5 ± 1.4
	[?]_t	2.430 ± 0.008
derived	[?]	0.173
$^{239}\text{Pu}(n_{\text{th}},f)$	σ_s	--
	Σ_f	742.4 ± 3.5
	$\sigma_{\text{?}}$	265.7 ± 3.7
	[?]_t	2.871 ± 0.014
derived	[?]	0.3579
$^{241}\text{Pu}(n_{\text{th}},f)$	σ_s	--
$^{252}\text{Cf}(sf)$	[?]_t	

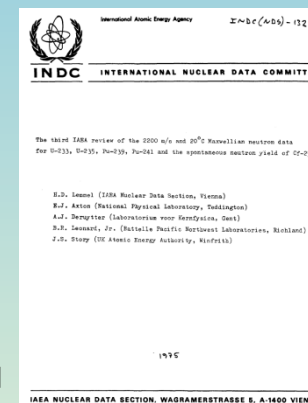
Atom. Energy Rev.3 (1965) 3



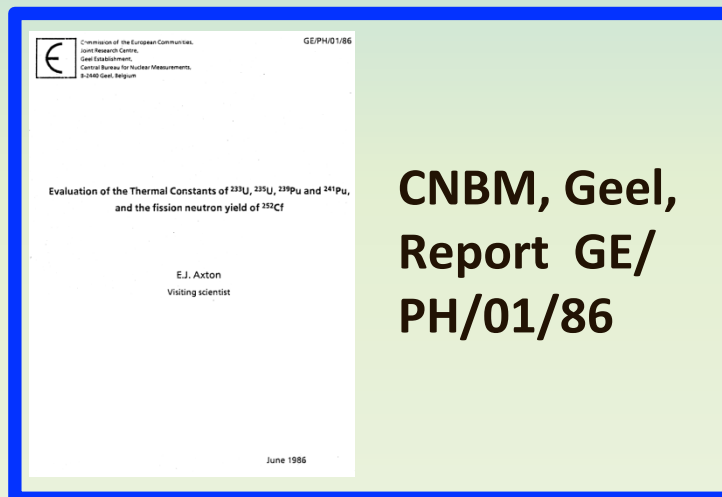
Carl H. Westcott
1st IAEA NDU Head



Hans Lemmel
IAEA NDS Unit Head



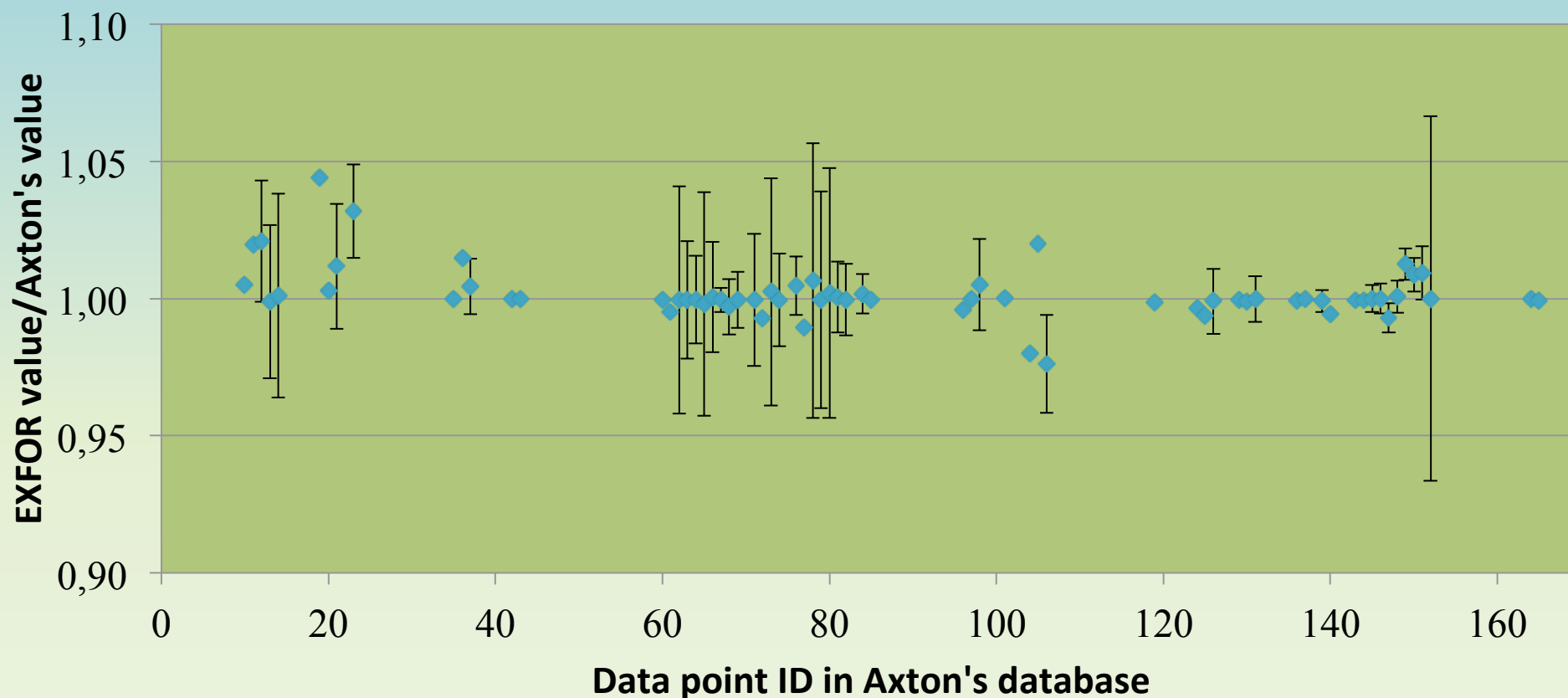
INDC(NDS)-132 (IAEA 1975)



IAEA Neutron Standards evaluation (2004) based on **Axton's microscopic database** containing 167 experimental values.
Many of them are not confirmed in EXFOR.

EXFOR Value/Axton's Value

P 142



**Experimental “micro” values exist in EXFOR for 68 cases
(out of 167 experimental values used by Axton’s database)**

Difference between EXFOR P 142 and Axton's Database

- EXFOR irrelevant quantities (e.g., $\sigma \cdot T_{1/2}$ value derived from σ and $T_{1/2}$ values in the literature) → *not for EXFOR*
- Values derived from values in the literature (e.g., $\sigma/\sigma_{\text{ref}}$ value derived from σ and σ_{ref} in the literature) → *not for EXFOR, but could be included in the EXFOR correction system (Zerkin)*
- Values renormalized for a reference parameter (e.g., Co-59(n, $\square$) cross section for monitor) → *original values in EXFOR, but could be included in the EXFOR correction system (Zerkin)*
- Literature values overlooked by EXFOR compilers. → *should be added to EXFOR!*