

# Sigma Covariance Retrieval and Visualization

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NATIONAL LABORATORY

*a passion for discovery*



# Plotting of Covariance Data in Sigma

Preliminary, only 1 NI subsection with LB=5

## Evaluated Nuclear Data File (ENDF) Retrieval & Plotting

Periodic Table Browse

Directory Tree Browse

Basic Retrieval

Advanced Retrieval

Plot Cart

Computations NEW

Select first a library, then a sublibrary and finally click on a chemical element to obtain results.  
Data is available for materials with a cyan background.

Library:  Sublibrary:

0	1																	2
0	H																	He
	3	4											5	6	7	8	9	10
	Li	Be											B	C	N	O	F	Ne
	11	12											13	14	15	16	17	18
	Na	Mg											Al	Si	P	S	Cl	Ar
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
	55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
	87	88	89	104	105	106	107	108	109	110	111							
	Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg							
			58	59	60	61	62	63	64	65	66	67	68	69	70	71		
			Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu		
			90	91	92	93	94	95	96	97	98	99	100	101	102	103		
			Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr		

Results for  
Z=77

191

193

(n,2np)	Interpreted	2
(n,n <sub>0</sub> )	Interpreted	
(n,γ)	Interpreted	
Radioactivity and fission yields:		
(n,2n)	Interpreted	
(n,3n)	Interpreted	
Cross sections for radionuclides prod.:		
(n,2n)	Interpreted	
(n,3n)	Interpreted	
Mult. for γ production:		
(n,n <sub>1</sub> ) (click to expand)		
dσ/dω for γ production:		
(n,n <sub>1</sub> ) (click to expand)		
Cross section covariances:		
(n,total)	Interpreted	Plot
(n,elastic)	Interpreted	Plot
(n,inelastic)	Interpreted	Plot
(n,2n)	Interpreted	Plot
(n,γ)	Interpreted	Plot
(n,p)	Interpreted	Plot

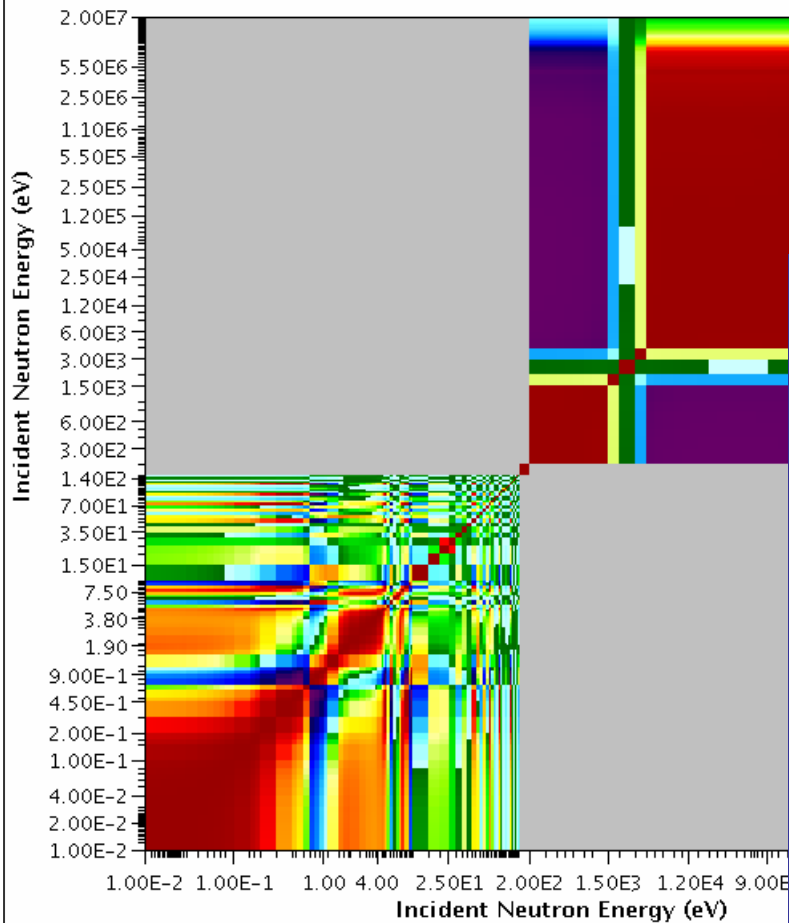
Click to plot

New in version 2.0:

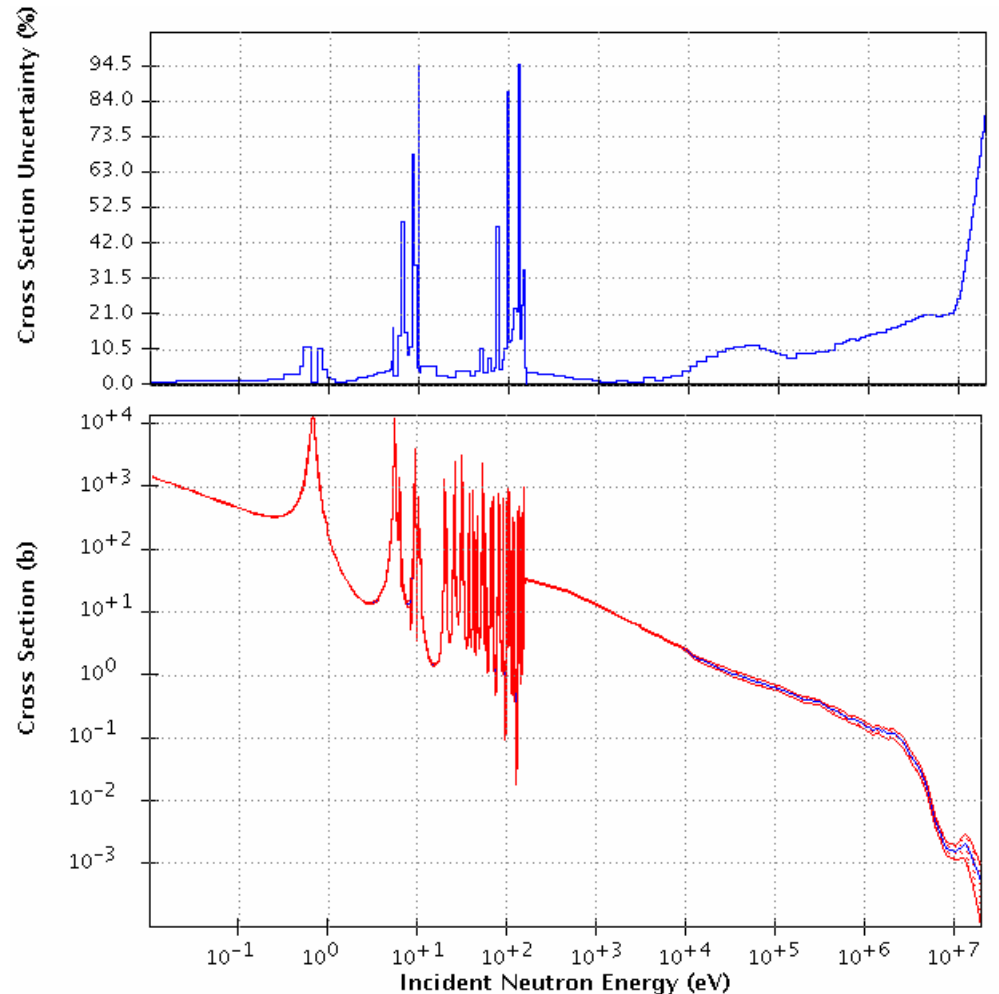
- Angular distributions of emitted neutrons (if available in MF=4)
- Energy distributions of emitted neutrons and photons (if available in MF=5)
- Computations (mathematical operations) on cross sections (MF=3)

In pipeline for 3.0: Energy-angle distributions (MF=6), covariances (MF=33)

Database Manager: Mike Herman, NNDC, Brookhaven National Laboratory  
Web and Programming: B. Pritychenko, A.A. Sonzogni, NNDC, Brookhaven National Laboratory  
Data Source: CSEWG and NEA-WPEC



Correlation, relative uncertainty, and cross section with uncertainty band plots



Similar plots were generated for the Low-Fidelity Project.

