

# Selected ENDF/A Materials in Sigma

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**Wouldn't it be dreamy if there  
were a way to plot cross  
sections from new  
evaluations and compare  
them to existing ones ???**





**Go to Sigma, [www.nndc.bnl.gov/sigma](http://www.nndc.bnl.gov/sigma)**

Use these forms to search ENDF/A

Use the drop-down menu  
to browse ENDF/A

# Browsing (selected files will be loaded upon request)

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

New in 3.1: ROSFOND library, fission yields, pre-calculated integral quantities, improved zooming.

**Periodic Table Browse** | Directory Tree Browse | Basic Retrieval | Advanced Retrieval | Plot Cart | Computations

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: **ENDF/A (USA selected, preliminary)** Sublibrary: **Neutron reactions**


1	2																	10	11
3	4																	12	13
11	12																	18	19
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54		
55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		
87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104		

Version History:



- + New in version 3.1 (October 2009)
- + New in version 3.0 (February 2009)
- + New in version 2.0 (April 2008)
- + New in version 1.0 (April 2007)

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

**Results for Z=29**  
63  
65

**ENDF-6 format** | **Human-readable**  
Whole file -   
introduction Interpreted  
res. param. Interpreted  
**Cross sections:**  
(n,total) Interpreted Plot  
(n,elastic) Interpreted Plot  
(n,non-elastic) Interpreted Plot  
(n,inelastic) Interpreted Plot  
(n,anything) Interpreted Plot  
(n,2n) Interpreted Plot  
(n,n $\alpha$ ) Interpreted Plot  
(n,np) Interpreted Plot  
(n,n' $\gamma$ ) (click to expand)  
(n,n $\gamma$ ) Interpreted Plot  
(n,p) Interpreted Plot  
(n,d) Interpreted Plot  
(n, $^3\text{He}$ ) Interpreted Plot

# Search


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


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Periodic Table Browse
Directory Tree Browse
**Basic Retrieval**
Advanced Retrieval
Plot Cart
Computations

Target  or Z:  and A:   
Ex: 56fe or fe56 or 56fe.60ni

Select Reaction:

- ☐ (n,\*)
- ☐ (n,total)
- ☐ (n,elastic)
- ☐ (n,inelastic)
- ☐ (n,f)
- ☒ (n, $\gamma$ )
- ☐ (n,2n)
- ☐ (n,p)
- ☐ (n, $\alpha$ )

And select quantity:




- ☒ Cross sections
- ☐ Resonance parameters
- ☐  $d\sigma/d\omega$
- ☐  $d\sigma/dE$
- ☐  $d^2\sigma/d\omega dE$
- ☐ Covariances

Or select other ENDF topic:

- ☐ Neutron cross section standards
- ☐ Thermal neutron scattering
- ☐ Photonuclear reactions
- ☐ Proton reactions
- ☐ Decay data
- ☐ Neutron-induced fission yields
- ☐ Spontaneous fission yields
- ☐ Neutron-induced nu-bar's
- ☐ All nu-bar's

Library:
☐ All
☒ ENDF/B-VII.0 (USA, 2006)
☐ JEFF-3.1 (Europe, 2005)
☒ JENDL-3.3
☐ ROSFOND
☐ ENDF/B-VI.8
☒ ENDF/A

**Results**

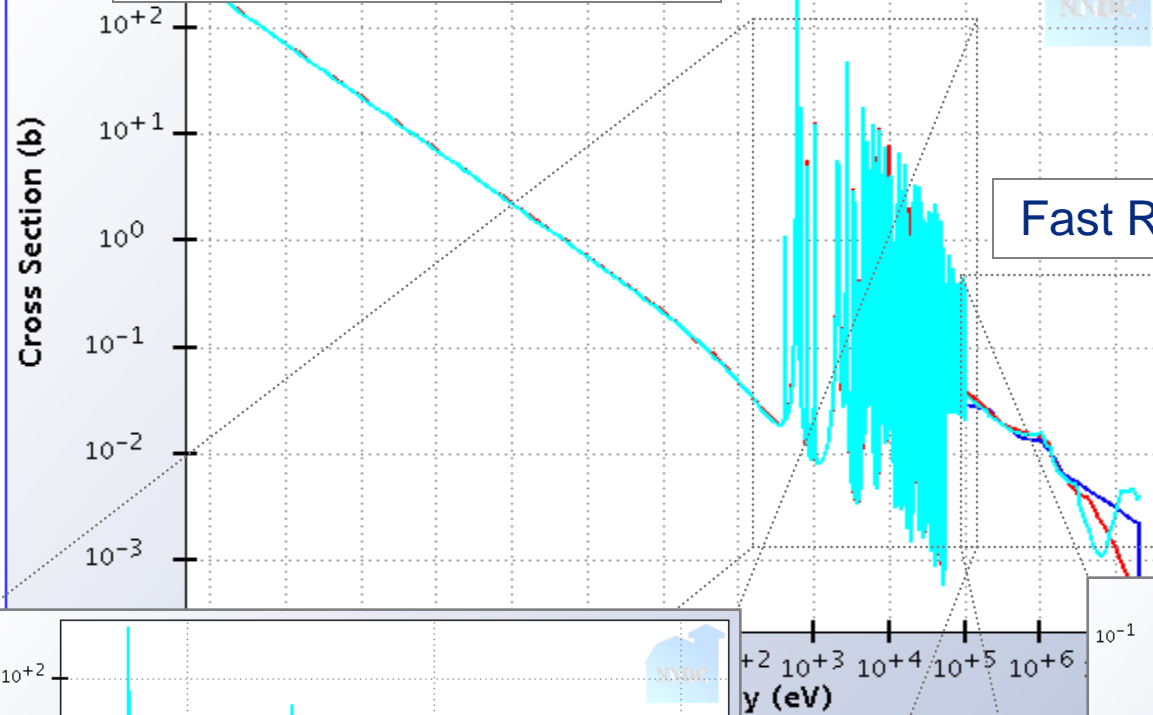
#	Library	Sublibrary	Material	ENDF-6 format	Human readable	
1	ENDF/B-VII.0	Neutron reactions	29-Cu- 63	Whole file -  (n, $\gamma$ ) (MF=3, MT=102)	Interpreted	Plot <input type="checkbox"/>
2	JENDL-3.3	Neutron reactions	29-CU- 63	Whole file -  (n, $\gamma$ ) (MF=3, MT=102)	Interpreted	Plot <input type="checkbox"/>
3	ENDF/A	Neutron reactions	29-Cu- 63	Whole file -  (n, $\gamma$ ) (MF=3, MT=102)	Interpreted	Plot <input type="checkbox"/>

Plot selected files
Plot all
Uncheck all

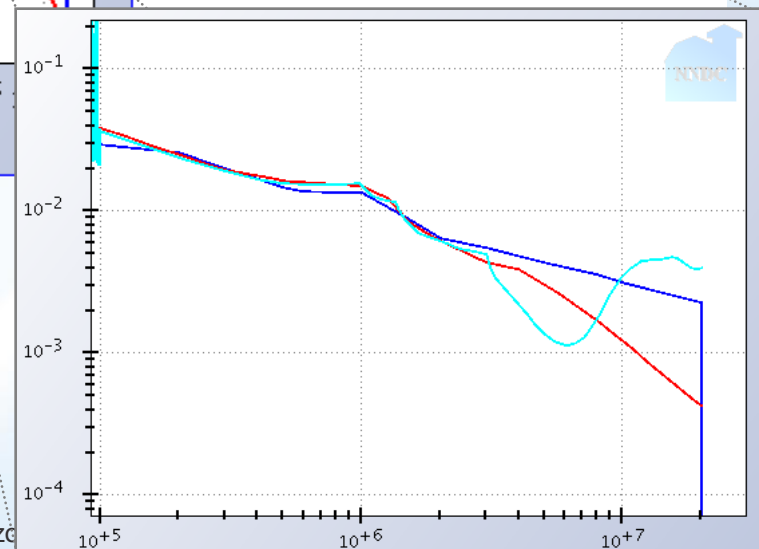
# Plot

Zooming was recently improved

## Resonance Region Zoom



## Fast Region Zoom



Update Plot    Reset Plot

Remove All Datasets    Remove Some

$4.73\text{E-}6 \leq E_n \text{ (eV)} \leq 4.51\text{E}7$     Log ▾

$2.15\text{E-}4 \leq \sigma \text{ (b)} \leq 811.0$     Log ▾

☒ 29-Cu-63(n,γ) ENDF/B-VII.0

☐ 29-Cu-63(n,γ) JEFF-3.1

☐ 29-Cu-63(n,γ) JENDL-3.3

☐ 29-Cu-63(n,γ) ENDF/B-VI.8

☐ 29-Cu-63(n,γ) ROSFOND

☒ 29-Cu-63(n,γ) ENDF/A

[View evaluated data](#)

[Plot Experimental data](#)

[Add your data](#)

[Help](#)

# Computations

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

New in 3.1: ROSFOND library, fission yields, pre-calculated integral quantities, improved zooming.

Periodic Table Browse

Directory Tree Browse

Basic Retrieval

Advanced Retrieval

Plot Cart

Computations

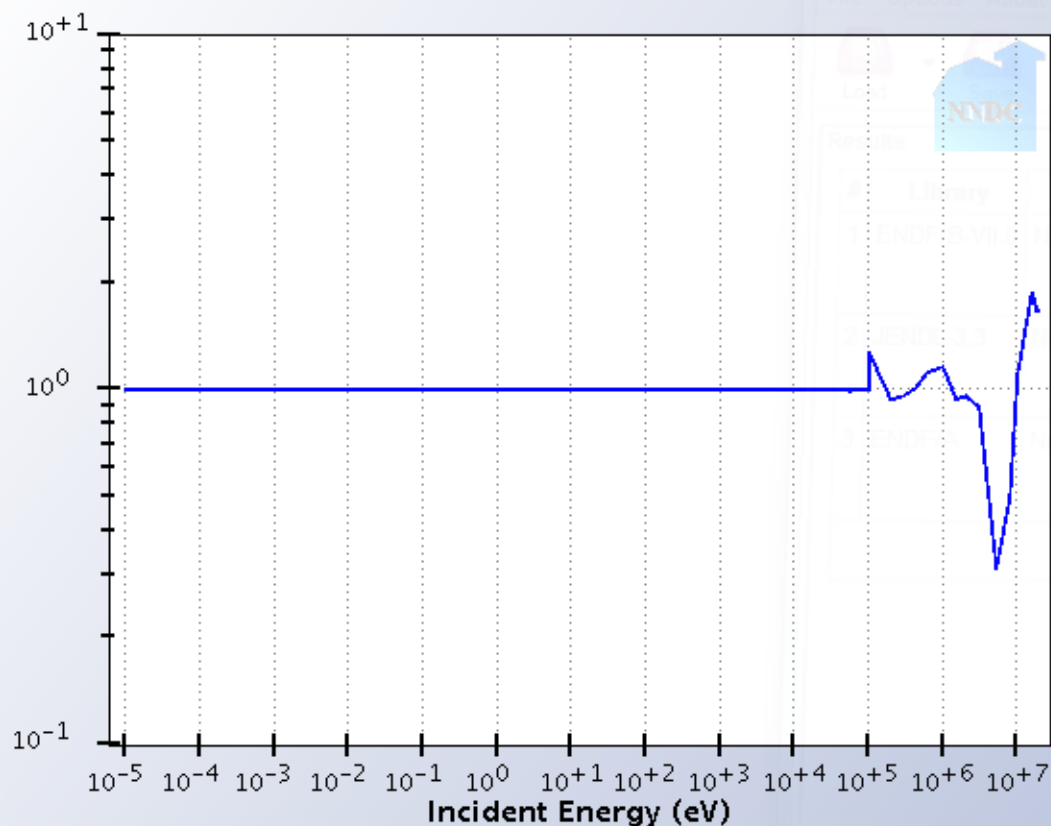
Existing Datasets:

Dataset	Description	Number of total (x,y) points
0	29-Cu-63(n, $\gamma$ ) ENDF/B-VII.0	9271
1	29-Cu-63(n, $\gamma$ ) JENDL-3.3	7944
2	29-Cu-63(n, $\gamma$ ) ENDF/A	9239

New Dataset:

y2/y0

Compute



- We can load in Sigma selected ENDF/A Files for browsing and plotting. Already in:
  - $^{63,65}\text{Cu}$
  - $^{233}\text{U}$
  - $^{240}\text{Pu}$
- More materials will be loaded on request
- Sigma uses PREPRO to produce linearized cross section data. We noticed that PREPRO wouldn't run on some files ( $^{19}\text{F}$ ,  $^{55}\text{Mn}$ )