

# ***Miscellanea on ENSDF Evaluation: Tools***

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# 1. GLSC/GABS

- Recent improvements in the “More” button
- I strongly appreciate the new output called “*GLSC\_combined.out*” which contains both the E(level) values from a GTOL fit and %IG continuation records from GABS calculations.
- **Proposal:**
  - *Mark by default the  $\gamma$  rays to g.s.*
  - *Add in the More Setting window option to remove the default marking of the  $\gamma$  rays to g.s.*
  - *Would be good to list the whole set of output files in the message window*

Java program for fitting gammas&calculating feedings (update 08/28/2024)

ignore "S" gamma
  compare E(level) in report

ignore "?" gamma
  compare E(gamma) in report

reset "?" Iy(min=0)
  print E(gamma) matrix in report

auto-adjust  $\Delta E_y$  of poor-fit  $E_y$  to reduce  $\chi^2/\text{ndf}$  to less than 2.0
 Max good-fit #sigma: 2

Set  $\Sigma(Iy+ce)$  for normalization of Iy(rel) in ENSDF format (value & uncert.)

Bricc-1.4%
  Hsicc-3%
  other %

35
  99
  other

Uncertainty Limit

Output path: C:\A156\cleanup\out

message

(above lines are by default for all gamma-ray energies, and will be overridden by a DEG option at the end of a gamma-line individually or by a global DEG option at the top of a dataset)

assumptions for non-numerical uncertainties in RI and TI, unless otherwise specified:

DRI	assumed %DRI
Empty	20
LT or LE	50 for DRI(+); assumed RI=DRI(-)=%(100-this value)
GT or GE	100000000 for DRI(+); assumed DRI(-)=0
AP	50
CA	50
SY	50

\* DCC theory=1.4% assumed if DCC not given  
 \* Uncertainty Limit=35 for rounding-up uncertainty in output  
 \* Gammas marked by "?" are also used in the fitting  
 \* All gammas marked by "S" are ignored in the fit  
 \* RI flagged by "e" are used as upper limit  
 Adjusted RI=(RI+DRI)/2=Adjusted D

#of Levels= 36 #of fixed Levels= 1 #of Gam. Degrees of Freedom (dof)= 82  
 Chi2= 75.8487  
 Chi2/dof= 0.9250

Done running GTOL

See report and output files from GABS at:  
 C:\A156\cleanup\out\Java\_GABS.rpt  
 C:\A156\cleanup\out\Java\_GABS.out

More Settings

Settings

reorder DPs in report by:  EP  EI  EF

put uncertainty in brackets in report file

remove  $\Delta E(\text{level})$  from fit in output where no  $\Delta E_y$  at all
  round E(level) to integer

replace IB (B-) or TI (EC) with calculated ones in GLSC combined output
  suppress DIB (B-) or DTI (EC) in output if incomplete decay scheme

Gamma intensity normalization

EI	Jl	EF	JF	EG	RI	CC	TI	Select
88.967	2+	0	0+	88.97	57(6)	3.88		<input checked="" type="checkbox"/>
288.20	4+	88.967	2+	159.19	132(7)	0.225		<input checked="" type="checkbox"/>
584.76	6+	288.20	4+	296.45	14.40(9)	0.0625		<input checked="" type="checkbox"/>
1129.38	2+	288.20	4+	841.08	0.85(4)	0.00399		<input checked="" type="checkbox"/>
1129.38	2+	88.967	2+	1040.40	2.08(4)	0.0143		<input checked="" type="checkbox"/>
1129.38	2+	0	0+	1129.25	0.546(29)	0.00214		<input checked="" type="checkbox"/>
1154.13	2+	288.20	4+	865.77	1.30(4)	0.00375		<input checked="" type="checkbox"/>
1154.13	2+	88.967	2+	1065.11	34.75(16)	0.00242		<input checked="" type="checkbox"/>
1154.13	2+	0	0+	1154.07	33.46(16)	0.00205		<input checked="" type="checkbox"/>
1242.38	1-	88.967	2+	1153.5	0.76(7)	8.83E-4		<input checked="" type="checkbox"/>
1242.38	1-	0	0+	1242.52	0.727(24)	8.05E-4		<input checked="" type="checkbox"/>
1242.38	3+	288.20	1+	953.02	6.32(1)	0.00302		<input checked="" type="checkbox"/>
1248.00	3+	88.967	2+	1159.03	23.38(11)	0.00204		<input checked="" type="checkbox"/>
1257.59	2+	288.20	4+	969.70	0.35(4)	0.00294		<input checked="" type="checkbox"/>
1257.59	2+	88.967	2+	1168.58	0.262(28)	0.0031		<input checked="" type="checkbox"/>
1257.59	2+	0	0+	1257.87	0.086(22)	0.00174		<input checked="" type="checkbox"/>
1276.10	3-	288.20	4+	997.76	0.92(4)	0.00116		<input checked="" type="checkbox"/>
1276.10	3-	88.967	2+	1187.08	2.03(3)	8.50E-4		<input checked="" type="checkbox"/>
1297.78	4+	288.20	4+	1009.58	0.23(4)	0.017		<input checked="" type="checkbox"/>
1297.78	4+	88.967	2+	1208.7	0.179(27)	0.00188		<input checked="" type="checkbox"/>
1319.60	2-	88.967	2+	1230.76	2.68(3)	8.16E-4		<input checked="" type="checkbox"/>
1355.39	4+	1154.13	2+	201.25				<input checked="" type="checkbox"/>
1355.39	4+	584.76	6+	770.57	0.08(3)	0.00485		<input checked="" type="checkbox"/>
1355.39	4+	288.20	4+	1067.15	9.07(8)	0.00249		<input checked="" type="checkbox"/>
1355.39	4+	88.967	2+	1266.60	3.46(4)	0.00172		<input checked="" type="checkbox"/>
1366.6	1-	88.967	2+	1277.5	0.059(25)	7.85E-4		<input checked="" type="checkbox"/>
1366.6	1-	0	0+	1366.8	0.054(14)	7.55E-4		<input checked="" type="checkbox"/>
1408	5-	288.20	4+	1120	0.084(28)			<input checked="" type="checkbox"/>

set  $\Sigma(\text{Intensity})=$   %  Iy  cascade gamma

per 100 parent decays via  Current branch  I(y+ce)  use input NR or NRBR to calculate %ly

All branches

# 2. NSR - Indexed Search

- **Critical:** There is no more “nuclide A=156” search as in the old NSR that gave all refs. with any of the A=156 nuclides. Condition “a-value” does not do that, which is misleading. **Please re-implement it !!!**
- **Important:** Very useful “Printer-friendly” button *is no longer working. (as it was, in HTML format)* **Please re-allow it**
- Search of “nica n” or “n nica” not working
- **Proposal:**
  - **Include all search conditions in the header of the Printer Friendly list (once re-allowed!)**
  - **Better diversify searching to all possibilities “nica n”, “n nica”, etc (if any)**

The screenshot displays the NSR Indexed Search interface. At the top, there are navigation tabs: Quick Search, Text Search, Indexed Search (selected), Keynumber Search, and DOI Search. Below the tabs is a search condition table with a '+ Add Condition' button. The table has columns for Condition, Contains, and a 'Browse' button with a red 'X' icon. The current condition is 'a-value' containing '156'. Below the table is a 'Filters' section with several options: 'Publication Year' (checkbox), 'Entries added since' (checkbox with a date input), 'Subject / Reference' (checkbox with a dropdown menu set to 'Measured / Experimental'), 'Primary Only' (checkbox), and 'EXFOR Data Available' (checkbox). There are 'Search' and 'Reset' buttons. Below the filters is a row of buttons: 'Download', 'New Tab', 'Copy', and a dropdown menu set to 'Key Numbers Only'. Below that is a 'Printer-Friendly' button. At the bottom, there is a list of search parameters: search-type: 'indexed', subject-type: 'measured', a-value: '156', page: '1', size: '100'. Below the list, it says '20 results found!'.

Condition	Contains	Browse	
a-value	156	Browse	X
		Browse	X
		Browse	X

**Filters**

Publication Year: [ ] to [ ]

Entries added since: [ mm/dd/yyyy ]

Subject / Reference: [ Measured / Experimental ]

Primary Only

EXFOR Data Available

**Search** **Reset**

**Download** **New Tab** **Copy** **Key Numbers Only**

**Printer-Friendly**

- search-type: 'indexed'
- subject-type: 'measured'
- a-value: '156'
- page: '1'
- size: '100'

20 results found!

# 3. XUNDL Search

- XUNDL “Quick Search” with “Mass” option produces all the XUNDL dataset for the selected mass chain
- XUNDL “Recent” search for “Interval” option is limited to datasets added not earlier than 01/01/2022
- ENSDF “Quick Search” with “Mass” option fortunately produces also the list with the links to the XUNDL dataset which came in after the last ENSDF publication, but this is also restrictive
- **Proposal:**
  - *Would it not be possible to extend the XUNDL search capability to look for XUNDL datasets added since a variable date?*

The screenshot displays the XUNDL search interface. At the top, there are four tabs: "Quick Search", "By Reaction", "By Decay", and "Recent". Below the tabs, a message states: "Use this form to retrieve datasets added or modified within the last year." The search form includes a "Search By:" section with radio buttons for "Date" (selected) and "Interval". Below this is a text input field for "Datasets added since:" containing the date "01/01/2022" and a calendar icon. There is also a "Sort by date:" section with a dropdown menu. A blue "Search" button is located at the bottom right of the form.

The main content area features a large, glowing "XUNDL" logo in the center. Below the logo, there is a list of experimental unevaluated nuclear data. The list includes entries such as  $^{144}\text{Sm}$  and  $^{144}\text{Gd}$  with their respective decay modes and half-lives. A prominent yellow banner at the bottom of the list reads: "Experimental Unevaluated Nuclear Data List" and "111 new datasets added/modified since 2024-09-12!". At the very bottom, there are four buttons: "About XUNDL", "XUNDL Archives", "Evaluated Nuclear Data", and "Contact Us".

# 4. Manage links

- “Evaluators' Corner” page contains useful information especially for the USNDP and NSDD communities
- When accessed from “Structure & Decay” menu it gives the correct page
- When accessed from “Resources” menu, then “Tools & Codes”, the link [Evaluators' Corner](#) is broken
- While this is not critical, this is still confusing
- Finally, the listing of high-priority nuclides seems not updates since 2020
- **Proposal:**
  - *It would be good to manage that all links in NNDC site be active*
  - *It would be good to update the high-priority listings yearly*

Databases	Evaluations	Tools
ENSDF   Evaluated Nuclear Structure Data File	Evaluators' Corner   ENSDF Manual and Resources	CapGam   Thermal Neutron Capture $\gamma$ -rays
MIRD   Medical Internal Radiation Dose	Nuclear Wallet Cards   Ground & Isomeric States Properties	QCalc   Q-Value Calculator
NuDat   Interactive Chart of Nuclides and Nuclear Structure and Decay Search	AME   Atomic Mass Evaluation	LOGFT   Analysis Program
XUNDL   Experimental Unevaluated Nuclear Data List Search and Retrieval		Bricc   Band-Raman Internal Conversion Coefficients
		$\beta\beta$ -decay   Double Beta Decay Data
		B(E2)   Reduced Transition Probabilities

Database Archives	U.S. Networks	International Networks	Tools and Resources
ENSDF   Evaluated Nuclear Structure Data File	CSEWG   Cross Section Evaluation Working Group	DDEP   Decay Data Evaluation Project	Contact Us
XUNDL   Experimental Unevaluated Nuclear Data List Search and Retrieval	USNDP   U.S. Nuclear Data Program	NRDC   The International Network of Nuclear Reaction Data Centers	Citation Guidelines
NSR   Nuclear Science References Archives	NDWG   Nuclear Data Working Group	NSDD   The International Network of Nuclear Structure and Decay Data Evaluator	NDWG Educational Resources
		WPEC   Working Party on International Nuclear Data Evaluation Co-operation	CapGam   Thermal Neutron Capture $\gamma$ -rays
			QCalc   Q-Value Calculator
			Tools & Codes

