

# NuDat 2.0

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# NuDat 2.0: [www.nndc.bnl.gov/nudat2](http://www.nndc.bnl.gov/nudat2)

## NuDat 2.0

NuDat 2.0 allows to search and plot nuclear structure and nuclear decay data interactively. [More...](#)

### Search Options:

#### Levels and Gammas

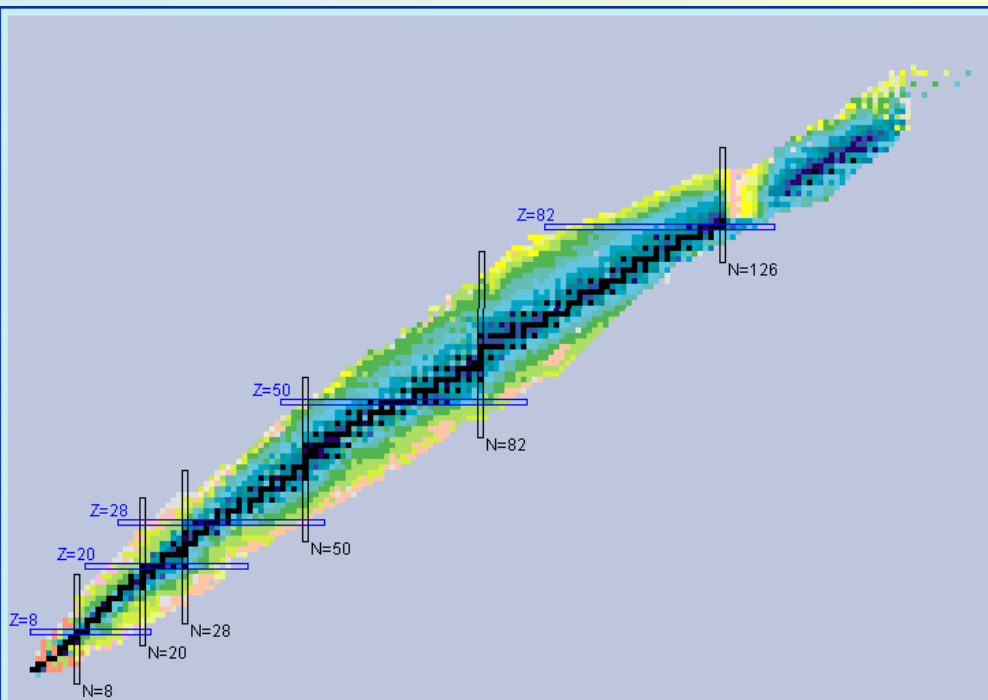
Search on ground and excited states level properties (energy, half-life, spin and parity, decay modes) and gamma-ray information (energy, branching ratio, multipolarity )

#### Nuclear Wallet Cards

Search on ground and isomeric states level properties, neutron resonance parameters and thermal cross sections

#### Decay Radiation

Search on radiation type, energy, intensity and dose following nuclear decay



Interactive chart of nuclei

Click on a given nucleus to obtain information

Zoom


1
2
3
4

Nucleus:

Color code

Half-life
Decay Mode

> 10+15 s	10-01 s
10+10 s	10-02 s
10+07 s	10-03 s
10+05 s	10-04 s
10+04 s	10-05 s
10+03 s	10-06 s
10+02 s	10-07 s
10+01 s	10-15 s
10+00 s	< 10-15 s
unknown	

  
NNDc  
ENSDF NSR  
Nuclear Wallet Cards

Online since April 19 2004

## Nuclear Levels and Gammas Search

( [Help](#) )

Specify Nuclei :

**Nucleus:**  Ex: 232TH or th232 or 232-Th or th-232 or  
 **Z / Element:**  **A:**  **N:**  or  
  <= **Z** <=   <= **A** <=   <= **N** <=

E(level) condition:

enabled  disabled 0 <= **Elevel(keV)** <= 40000

Decay Mode condition:

enabled  disabled **Decay Mode** ANY

JPi(level) condition:

enabled  disabled **J** =  **Order :** ALL **Parity :** ANY

T<sub>1/2</sub>(level) condition:

enabled  disabled 0 fs <= **T<sub>1/2</sub>** <= 1E10 Gy

Gamma condition #1:

enabled  disabled 0 <= **Egamma(keV)** <= 40000 **Multipolarity:** ANY

Gamma condition #2:

enabled  disabled 0 <= **Egamma(keV)** <= 40000 **Multipolarity:** ANY

Gamma-Gamma coincidence condition :

uncorrelated  coincident **Coincidence gate** <= 1 us

Ordering:

Z, A, E(level), E(gamma) Output:  Web Page  Formatted File

NuDat2 - Levels and Gammas database version of 8/12/2004

Examples of  
search forms

## Decay Radiation Search

[Help](#)

Specify Parent Nuclei :

**Nucleus:**  Ex: 232TH or th232 or 232-Th or th-232 or  
 **Z / Element:**  **A:**  **N:**  or  
  <= **Z** <=   <= **A** <=   <= **N** <=

Parent T<sub>1/2</sub> condition:

enabled  disabled 0 fs <= **T<sub>1/2</sub>** <= 1E10 Gy

Decay Mode condition:

enabled  disabled **Decay Mode** ANY

Radiation Type condition:

enabled  disabled **Radiation Type** ANY

Radiation Energy condition:

enabled  disabled 0 <= **Energy (keV)** <= 10000

Radiation Intensity condition:

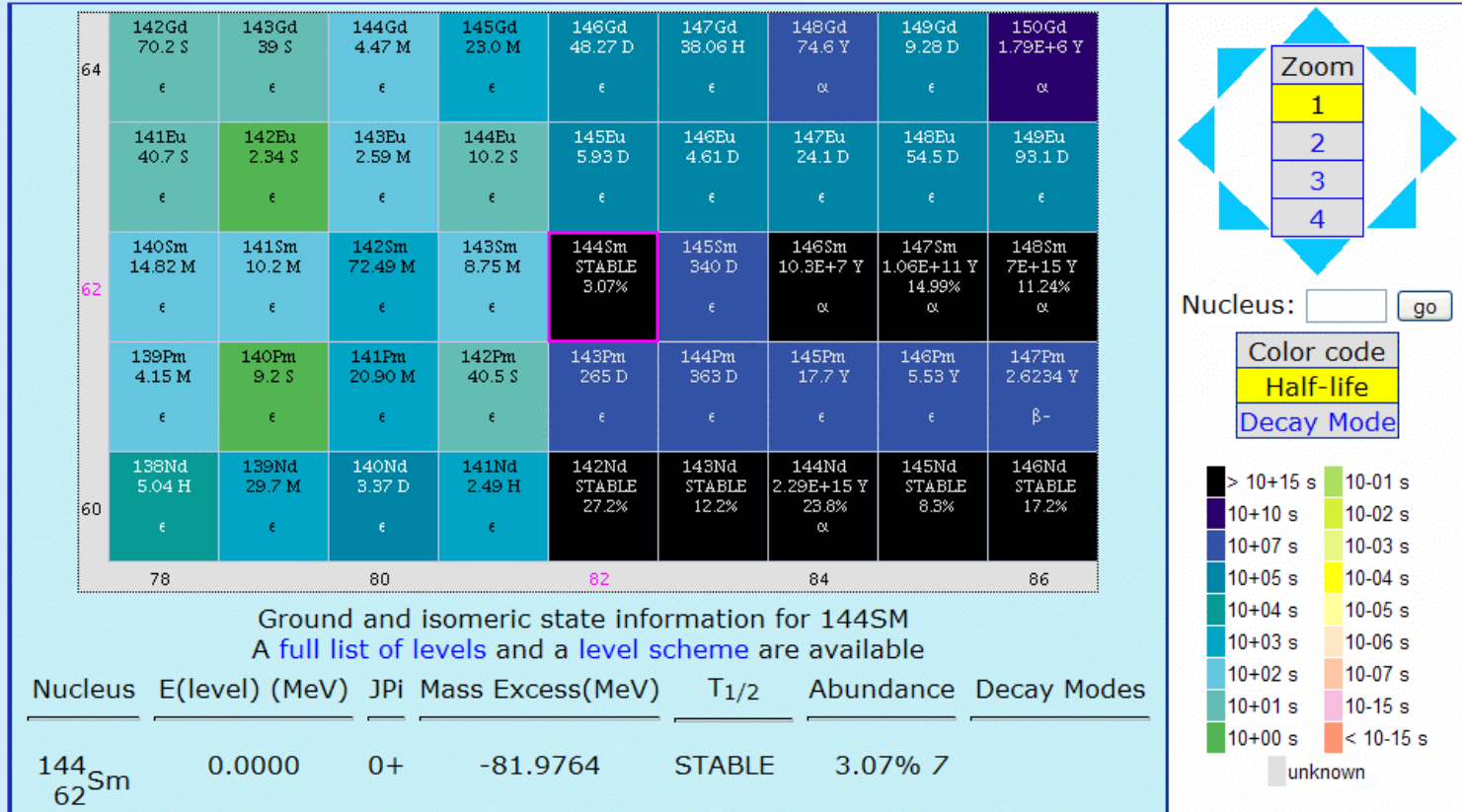
enabled  disabled 0 <= **Intensity (%)** <= 100

Ordering:

Z, A, T<sub>1/2</sub>, E Output:  Web Page  Formatted File

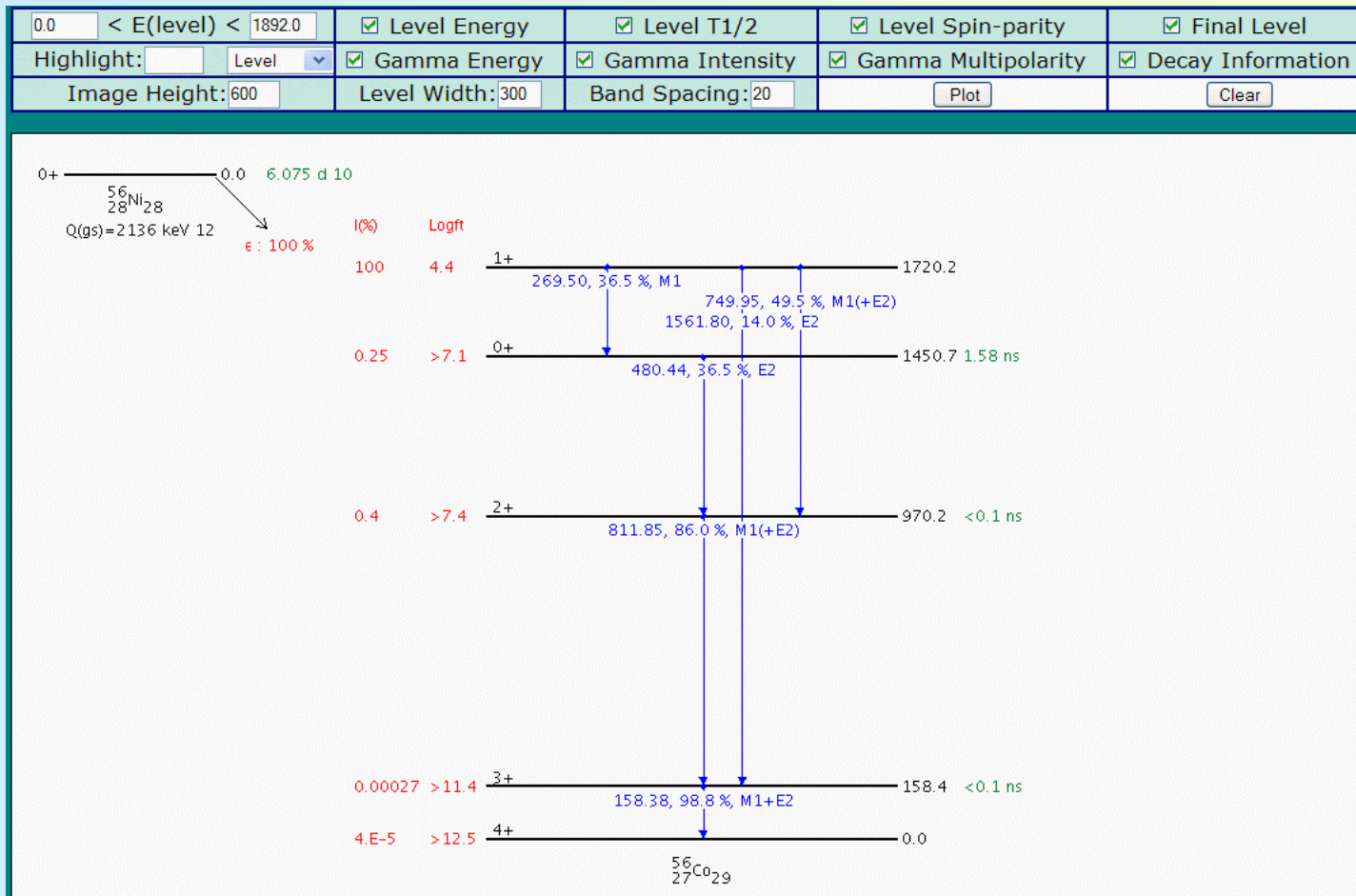
NuDat2 - Decay Radiation database version of 8/12/2004

# Interactive Chart of Nuclei



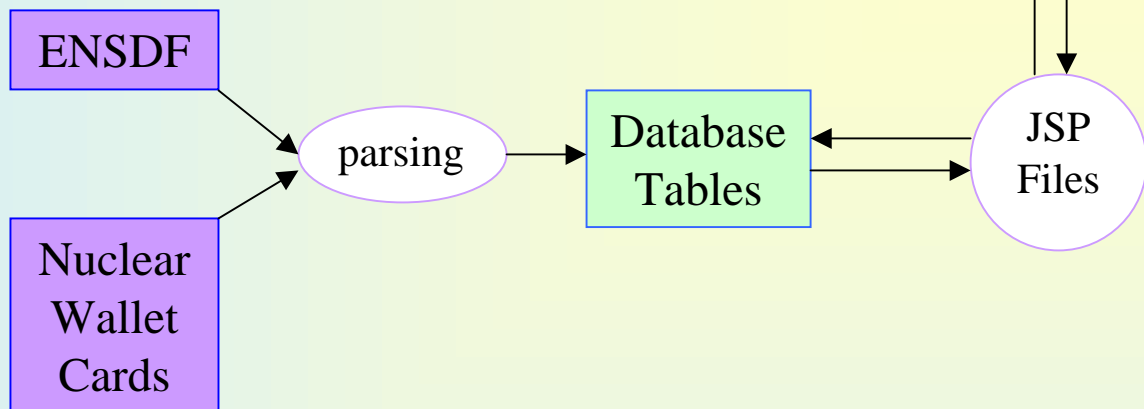
[Links to levels lists and schemes](#)

# Interactive Decay Scheme from Decay Radiation Search



# NuDat Contents

- Level properties from ENSDF Adopted datasets: Energy, Spin-parity,  $T_{1/2}$ , Decay Modes
- Gamma data from ENSDF Adopted datasets: Energy, intensity, multipolarity
- Decay Radiation data from ENSDF Decay datasets: energy, absolute intensities, doses
- Level properties from Nuclear Wallet Cards
- Neutron resonance parameters and thermal



**TABLE 1.** A brief statistics on NuDat contents

Number of nuclei	2918
Number of levels	136348
Number of levels with known $T_{1/2}$	20099
Number of levels with known $J^\pi$	100007
Number of $\gamma$ rays	197476
Number of $\alpha$ transitions	1672
Number of $\beta^-$ and EC/ $\beta^+$ transitions	21140

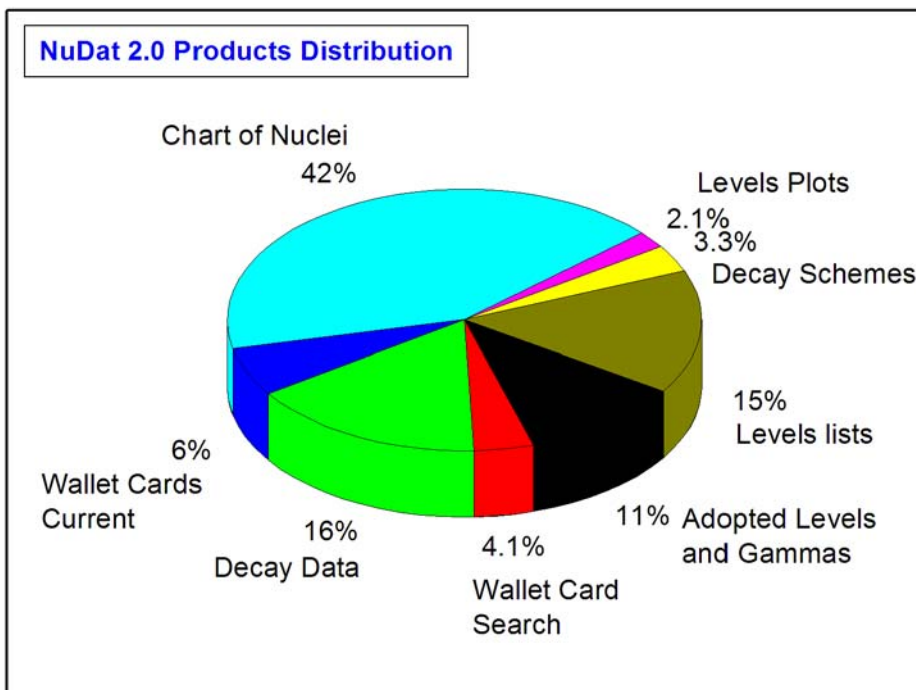
# NuDat 2.0 statistics in the first few months ( very preliminary)

Excluding search engines and NNDC users:  
~ 635 retrievals/day

Region	% *
USA + Canada	52.0
Europe	34.9
Asia	4.6

domain	% *
*.gov	8.2
*.edu	12.1

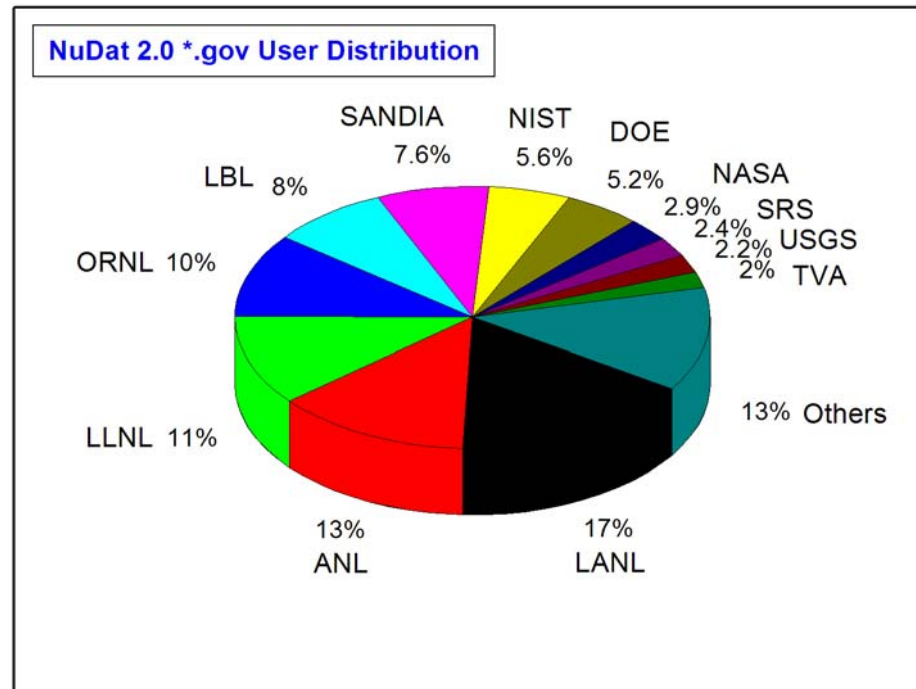
Country	% *
Germany	9.5
France	5.9
Canada	3.9
Japan	3.9
Sweden	3.1
Italy	2.5



\* Approximate values due to retrievals from unresolved numerical IP addresses

# NuDat 2.0 Statistics

Retrieval from host addresses like '\*.gov'





# Summary and Outlook

## 2.1 Version coming soon:

- Better quality graphics: chart of nuclei, levels and decays schemes
- Faster  $\gamma\gamma$  coincidences
- Expanded Nuclei selection (evenness)
- Expanded RadList for ENDF

## Under Study:

- $\gamma\gamma\gamma$  and  $\gamma\gamma\gamma\gamma$  coincidences
- Search on level's XREF's