





# **Compilation now**



Data program integrated into the "data distribution" process. Ensures literature and databases are identical.





# **Changes in FY21**

- We became an official referee in PRC system
- Much easier to organize (for us and PRC)
- Allows credit to be given to Jun and Balraj
- Now provided with authors responses

| HYSICA                                                   | L REVIEW JO                                    | URNALS                                           |                                  |                                                               |  |
|----------------------------------------------------------|------------------------------------------------|--------------------------------------------------|----------------------------------|---------------------------------------------------------------|--|
| neral Informati                                          | on Policies & Practices                        | Referee FAQ                                      | Guidelines for Referees          | Outstanding Referees                                          |  |
| IOURNALS / MY I                                          | REFERRALS / CK10820/HARTER                     |                                                  |                                  |                                                               |  |
| (nndc_data@br<br>Brookhaven Na<br><b>Status:</b> Availab | ા!.gov)<br>ational Laboratory<br>ble to review |                                                  |                                  |                                                               |  |
| is<br>If you are an e                                    | being considered for pu                        | Iblication in <i>Phys</i><br>we encourage you to | s <b>ical Review C</b> as a Regu | <i>Ilar Article</i> .<br>or colleague to co-review the paper. |  |
| Details                                                  |                                                |                                                  |                                  | 1                                                             |  |

### Still well received by the community

We appreciate the detailed consideration of the manuscript by our colleague at NNDC. This process is undoubtedly a positive contribution to the field, and one which will ultimately raise the overall quality of data available in the literature. We also thank the referee for their

Thank you very much for reviewing our manuscript for data consistency by NNDC. We re-checked our data, so it took some time. We attach the revised version of the manuscript with corrected/added fragments in red.

#### From referees :

I have read through the report of the Nuclear Data team and also the response from the authors. I appreciate the efforts of both groups to ensure there is reliable data in the literature and thank the authors for performing a new analysis.

I have read the response of the authors to my comments and to the data consistency check report by the NNDC. (I welcome this new addition to the review process.)

#### Can be a lot of work ...

... but results in an improvement to published data and chance to interact with authors

Recently – Balraj submitted report with >20 comments. Resulted in response of more than 20 pages.

There were three reasons that 1+ won the argument in our analysis.

 There is a low-lying 1+ level, or candidate, across all the other stable Te nuclei. If these are plotted, assessment of systematics indicates there should be a 1+ in Te130 near 2300 keV energy with a lifetime between 600-900 ns. Lifetimes for the 1(1) and 1(2) levels are shown below.



# XUNDL FY21 statistics

### **Compiled 686 datasets from 353 papers**

#### (FY21 was 483 datasets from 286 papers)

| Center   | Papers | Datasets |
|----------|--------|----------|
| BNL      | 218    | 356      |
| McMaster | 49     | 196      |
| MSU      | 50     | 93       |
| TUNL     | 36     | 41       |

#### Full database is **9628** datasets for **2783** nuclides

\*Additionally 15 papers on masses compiled by McMaster

# Catching up

- Transition from post-to pre publication resulted in some papers missing in database
- With help from Jun and Shaofei we have been closing the gap
- Jun cross referenced XUNDL and NSR; generated list of missing papers









# **ENSDF FY21 statistics**

### **Evaluated 263 nuclides, 14 mass chains**

(FY20 was 144 nuclides, 11 mass chains)

| Center        | Nuclides                                    | Adopted Levels        | Adopted Gammas | Mass<br>Chains |  |  |  |
|---------------|---------------------------------------------|-----------------------|----------------|----------------|--|--|--|
| ANL           | 13                                          | 493                   | 616            | 1              |  |  |  |
| BNL           | 90                                          | 504                   |                | 5              |  |  |  |
| A few to note | A few to note: 2                            |                       |                |                |  |  |  |
|               | urai and Ju                                 | un – one of the 20+ y | ear ord o      | 0.5            |  |  |  |
| A=167 by Ba   |                                             | aloted by Chris       |                | 2              |  |  |  |
| Odd-A supe    | Odd-A superheavies completed by 51 2468 1.5 |                       |                |                |  |  |  |
| ORNL          | 8                                           | 258                   | 409            | 1              |  |  |  |
| TAMU          | 17                                          | 1082                  | 1704           | 1              |  |  |  |
| TUNL          | 3                                           |                       |                |                |  |  |  |

(no contributions from centers outside of USNDP)

Full database is 19526 datasets for 3408 nuclides

### **ENSDF** Outside the DOE

- Iris Dillman (NDAC committee member) arranged for talk at IUPAP W-9 Meeting
- D. Brown (letter to W-9) and E.A. McCutchan (presentation)
- Few slides follow



## **ENSDF Status and Trends**

In 2019 : Evaluated 187 nuclides, 13 from international centers – 7% contribution

In 2020 : Evaluated 144 nuclides, 0 from international centers



Year

- Decline in database currency is disturbing
- Continuing risk of losing more international centers due to retirements
- Will eventually lose relevance to
  - Current/coming online RIB facilities
  - Novel medical isotopes
  - New reactor designs
  - Forensics
  - ...





## A return to the 1970's era of ENSDF ?

- ENSDF has grown into definitive source for Nuclear Structure and Decay data
- · Tools for accessing database, print and web, likewise have evolved
- In process of completely modernizing format and tools

#### BUT .... we need help

- · Return to the original model of ENSDF with broad international contributions
- Dedicated funding at the level of 50% or more
- · Long term commitments to learning and maintaining ENSDF evaluation expertise







## **GitLab for ENSDF tracking**

| Elizabeth Ricard-McCutc | nan > ENSUE Status                                                                                                                                                    |                        |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| E ENSD<br>Project ID    | F Status ≙<br>215                                                                                                                                                     | ★ Star 0 ¥ Fork 0      |
| • 252 Commits 🥇         | 1 Branch 🖉 0 Tags 🗈 21.6 MB Files 🖶 21.6 MB Storage                                                                                                                   |                        |
| 0                       | Auto DevOps It will automatically build, test, and deploy your application based on a predefined CI/CE Learn more in the Auto DevOps documentation Enable in settings | ×<br>O configuration.  |
| main                    | ensdf-status / + • History Find file Wel                                                                                                                              | b IDE                  |
| Elizabeth Riv           | dd file<br>card-McCutchan authored 2 days ago                                                                                                                         | 62e7637d 🛱             |
| README                  | dd LICENSE 🛛 🛛 Add CHANGELOG 🔛 Add CONTRIBUTING 🖾 Set up CI/CD 🖾                                                                                                      | Configure Integrations |
| Name                    | Last commit                                                                                                                                                           | Last update            |
| 🖿 A100                  | Add new directory                                                                                                                                                     | 1 month ago            |
| 🖿 A101                  | Add new directory                                                                                                                                                     | 1 month ago            |
| 🖿 A102                  | Add new directory                                                                                                                                                     | 1 month ago            |
| 🖿 A103                  | Add new directory                                                                                                                                                     | 1 month ago            |
| 🖿 A104                  | Add new directory                                                                                                                                                     | 1 month ago            |
| 🖿 A105                  | Add new directory                                                                                                                                                     | 1 month ago            |
|                         |                                                                                                                                                                       |                        |

- Directory for each A chain
- Recent submissions have been uploaded





# **GitLab for ENSDF Storage**

| main v en                                                                  | sdf-status / A162 | + v                                       | History  | Find file | Web IDE | ¥ ~    | Clone 🗸    |
|----------------------------------------------------------------------------|-------------------|-------------------------------------------|----------|-----------|---------|--------|------------|
| A=162, pdf file generated by NNDC<br>Elizabeth Ricard-McCutchan authored 1 |                   | This directory<br>New file<br>Upload file | 86390802 |           |         | 0802 🛱 |            |
| Name                                                                       | Last commi        | New directory                             |          |           |         | L      | ast update |
|                                                                            |                   | This repository                           |          |           |         |        |            |
| 🚸 .gitkeep                                                                 | Add new dire      | New tag                                   |          |           |         | 1      | month ago  |
| 🕒 A162_nn                                                                  | A=162 evalua      | tion submitted; .ens file                 |          |           |         | 1      | month ago  |
| 😫 A162_nn.pdf                                                              | A=162, pdf fil    | e generated by NNDC                       |          |           |         | 1      | month ago  |

 Can upload as much (versions, reviewer comments, etc) or as little as you like





# **GitLab for ENSDF tracking**

| E ENSDF Status                                                                           | Elizabeth   | n Ricard-McCutchan > ENSDF Status > Issue E | 3oards   |                     |             |                     |              |                    |             |
|------------------------------------------------------------------------------------------|-------------|---------------------------------------------|----------|---------------------|-------------|---------------------|--------------|--------------------|-------------|
| <ul> <li>Project information</li> <li>Repository</li> </ul>                              | Devel       | opment   Search or filter results           | s        |                     |             |                     |              |                    |             |
| D Issues 59<br>List                                                                      | •           | > Being Evaluated D 29                      | ≗ 0 + \$ | > Under Review      | D 12 △3 + 🌣 | > Post-review       | D 17 🛆 0 🕇 🌣 | > Editorial Review | D-1 A 0 + 🜣 |
| Boards                                                                                   | Open        | A=5                                         |          | A=24                |             | A=48                |              | A=64               |             |
| Service Desk<br>Milestones                                                               | 0<br>0<br>0 | #40                                         |          | #3 🛱 2              |             | #6                  |              | #11                |             |
| Iterations           11         Merge requests         0                                 | 0           | <b>A=13</b><br>#41                          |          | A=31<br>#4          |             | <b>A=57</b><br>#8   |              |                    |             |
| <ul> <li>Security &amp; Compliance</li> <li>Deployments</li> <li>Monitor</li> </ul>      |             | <b>A=46</b><br>#5                           |          | <b>A=71</b><br>#25  |             | <b>A=66</b><br>#12  |              |                    |             |
| <ul> <li>Infrastructure</li> <li>Packages &amp; Registries</li> <li>Analytics</li> </ul> |             | <b>A=55</b><br>#7                           |          | <b>A=162</b><br>#15 |             | <b>A=76</b><br>#23  |              |                    |             |
| <ul> <li>Wiki</li> <li>Snippets</li> </ul>                                               |             | <b>A=58</b><br>#9                           |          | <b>A=167</b><br>#21 |             | <b>A=126</b><br>#49 |              |                    |             |
| Ø Settings                                                                               |             | <b>A=62</b><br>#10                          |          | <b>A=196</b><br>#53 |             | <b>A=130</b><br>#22 |              |                    |             |
|                                                                                          |             | <b>A=67</b><br>#13                          |          | <b>A=201</b><br>#32 |             | <b>A=137</b><br>#18 |              |                    |             |
|                                                                                          |             | <b>A=80</b><br>#42                          |          | <b>A=231</b><br>#33 |             | <b>A=141</b><br>#20 |              |                    |             |

- An issue is generated for each mass chain
- Can be assigned 1 of 4 labels
- As much or as little information can be associated with each issue





### Learning Gitlab not a requirement

| E ENSDF Status                                              | Elizabeth | Ricard-McCutchan > ENSDF Status > Issue Boards |                             |                            |                    |
|-------------------------------------------------------------|-----------|------------------------------------------------|-----------------------------|----------------------------|--------------------|
| <ul> <li>Project information</li> <li>Repository</li> </ul> | Develo    | opment v Search or filter results              |                             |                            |                    |
| D Issues 59<br>List                                         | ř         | > Being Evaluated D 29 🖄 0 + 🔅                 | → Under Review D 12 Å 3 + 🌣 | > Post-review D 17 ≜ 0 + ✿ | > Editorial Review |
| Boards                                                      | Open      | A_6                                            | 4-24                        | A=49                       | A-64               |
| Service Desk<br>Milestones                                  | Do D      | #40                                            | #=24<br>#3 🛆 2              | #6                         | #11                |
| Iterations                                                  | 0         | A=13                                           | A=31                        | A=57                       |                    |
| Merge requests 0                                            |           | #41                                            | #4 🛆 1                      | #8                         |                    |
| Security & Compliance                                       |           | A=46                                           | A=71                        | A=66                       |                    |
| Monitor                                                     |           | #5                                             | #25                         | #12                        |                    |
| ✤ Infrastructure                                            |           | A=55                                           | A=162                       | A=76                       |                    |
| Packages & Registries                                       |           | #7                                             | #15                         | #23                        |                    |
| 🖞 Wiki                                                      |           | A=58                                           | A=167                       | A=126                      |                    |
| 🔏 Snippets                                                  |           | #9                                             | #21                         | #49                        |                    |
| Settings                                                    |           | A=62                                           | A=196                       | A=130                      |                    |
|                                                             |           | #10                                            | #53                         | #22                        |                    |
|                                                             |           | A=67                                           | A=201                       | A=137                      |                    |
|                                                             |           | #13                                            | #32                         | #18                        |                    |
|                                                             |           | A=80                                           | A=231                       | A=141                      |                    |
|                                                             |           | #42                                            | #33                         | #20                        |                    |

Issues list can be exported as .csv Excel spreadsheet with status of mass chains will be emailed monthly (if needed)





# **Reviewing time is improving**

| -           |                  |        |
|-------------|------------------|--------|
| A=5         | A=24             | A=48   |
| ¢40         | #3 🗅 2           | #6     |
| <b>\=13</b> | A=31             | A=57   |
| ¢41         | #4 Å 1           | #8     |
| A=46        | A=71             | A=66   |
| ¥5          | #25              | #12    |
| A=55        | A=162            | A=76   |
| ¥7          | #15              | #23    |
| A=58        | A=167            | A=126  |
| ¥9          | #21              | #49    |
| A=62        | A=196            | A=130  |
| ¥10         | #53              | #22    |
| 4=67        | A=201            | A=137  |
| ¥13         | #32              | #18    |
| 4=80        | A=231            | A=141  |
| ¥42         | #33              | #20    |
| A=101       | A=236            | A=147  |
| \$43        | #27              | #29    |
| A=103       | A=249            | A=149  |
| ¥44         | #16              | #31    |
| A=107       | A=253-259,odd    | A=172  |
| ¥45         | #39              | #30    |
| A=118       | Superheavies-odd | A=186  |
| #46         | #38              | #17    |
| A=120       |                  | A=197  |
| +47         |                  | #54    |
| A=124       |                  | A=213  |
| +40         |                  | #19    |
| A=132       |                  | A=242  |
| +34         |                  | #20    |
| A=151       |                  | A=245  |
| ₹5U         |                  | 24     |
| 1=1=1       |                  | 4-1265 |

- Under Review is large now because of FY end
- Even larger is the number of "Post Review" evaluations
- Finalizing evaluations is becoming the new bottleneck

