

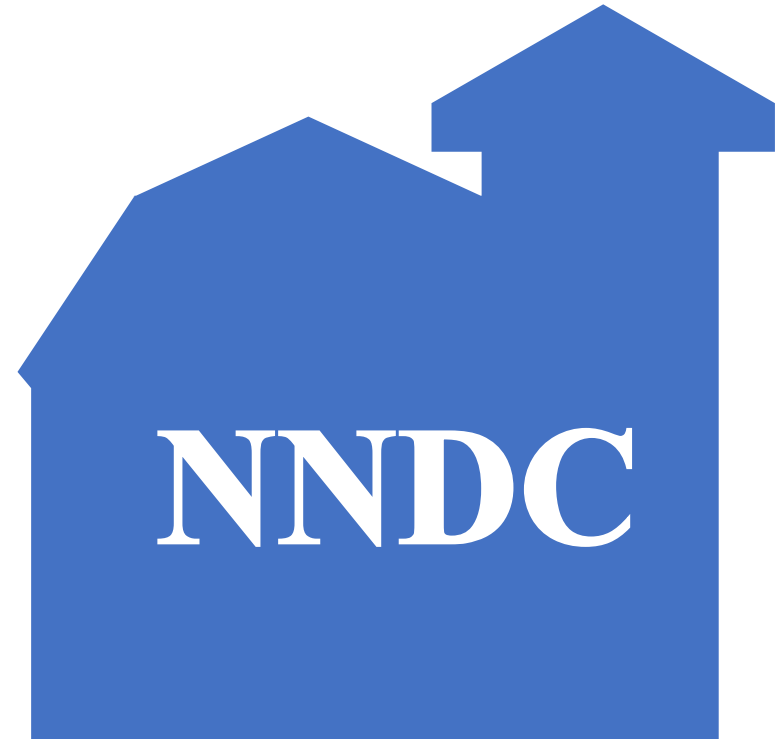
# NNDC Web Development 2019-2020

Benjamin Shu

National Nuclear Data Center  
Brookhaven National Laboratory

# Overview

- **Updates and improvements**
  - MIRD
- **New features**
  - Advanced Cross-Variable Plot
  - Chart of ENSDF
- **Mobile applications**
  - NuRad
  - CapGam Mobile
- **Social media outreach**



# MIRD

- Database of dosage information for medical isotopes
  - Interface re-done for convenience and speed

| <a href="#">43-TECHNETIUM-99</a> <a href="#">43-TECHNETIUM-99M</a> |                                     |                          |                        |
|--|-------------------------------------|--------------------------|------------------------|
| <b>43-TECHNETIUM-99</b>  |                                     |                          |                        |
| Halflife = 2.111E+5 Years  |                                     |                          | Sep-2017               |
| Decay Mode: $\beta^-$  |                                     |                          |                        |
| <u>Radiations</u>  | <u>y(i)<br/>(Bq-s)<sup>-1</sup></u> | <u>E(i)<br/>(MeV)</u>    | <u>y(i)×E(i)</u>       |
| $\beta^-$ 1  | $1.60 \times 10^{-05}$              | $8.170 \times 10^{-02*}$ | $1.31 \times 10^{-06}$ |
| $\beta^-$ 2  | 1.00                                | $8.460 \times 10^{-02*}$ | $8.46 \times 10^{-02}$ |
| $\gamma$ 1   | $6.50 \times 10^{-06}$              | $8.950 \times 10^{-02}$  | $5.82 \times 10^{-07}$ |
| ce-K, $\gamma$ 1   | $7.63 \times 10^{-06}$              | $6.738 \times 10^{-02}$  | $5.14 \times 10^{-07}$ |
| ce-L, $\gamma$ 1   | $1.72 \times 10^{-06}$              | $8.628 \times 10^{-02a}$ | $1.49 \times 10^{-07}$ |

# MIRD

The screenshot shows a web browser window with the URL `nndc.bnl.gov/nudat2/mird/`. The page header includes the National Nuclear Data Center logo and the Brookhaven National Laboratory logo. A navigation bar lists various databases: NuDat, NSR, XUNDL, ENSDF, MIRD, ENDF, CSISRS, and CINDA. The main heading is "Nuclear Decay Data in the MIRD Format". Below this, a paragraph explains that tables of nuclear and atomic radiations will be produced in the MIRD format from the Evaluated Nuclear Structure Data File (ENSDF). A search form is provided with a "Nuclide:" label, a text input field, and a "Search" button. Below the input field, a list of example nuclides is shown: `56ni`, `Ni-56`, `ni56`, and `28-ni-56`. A "Help" link is also present. A disclaimer paragraph states that the program and database were produced by the National Nuclear Data Center at Brookhaven National Laboratory, funded by the U.S. Department of Energy, and that neither BNL nor the USDOE make any warranty or assume any legal responsibility. A final paragraph notes that nuclear decay data are available in other formats and provides a link to the "decay radiation search of NuDat". At the bottom, credits are given to the Database Manager (Elizabeth Ricard-McCutchan), Web Programming (Manuel Emeric, Alejandro Sonzogni), and Maintenance (Benjamin Shu and Adam Hayes).

MIRD

nndc.bnl.gov/nudat2/mird/

Oracle PeopleSoft... GForge GitLab NND Home dev2 WalletCraft SVN Remove JSONLint Jitsi JavaScript Best Pr... ENSDF BNL Box SQL Injection

NND National Nuclear Data Center

BROOKHAVEN NATIONAL LABORATORY Home

NND Databases: NuDat | NSR | XUNDL | ENSDF | MIRD | ENDF | CSISRS | CINDA

## Nuclear Decay Data in the MIRD Format

Tables of nuclear and atomic radiations from nuclear decay and decay scheme drawings will be produced in the Medical Internal Radiation Dose (MIRD) format from the Evaluated Nuclear Structure Data File (ENSDF) for the specified nuclide.

Nuclide:  Search

*56ni, Ni-56, ni56, 28-ni-56*

[Help](#)

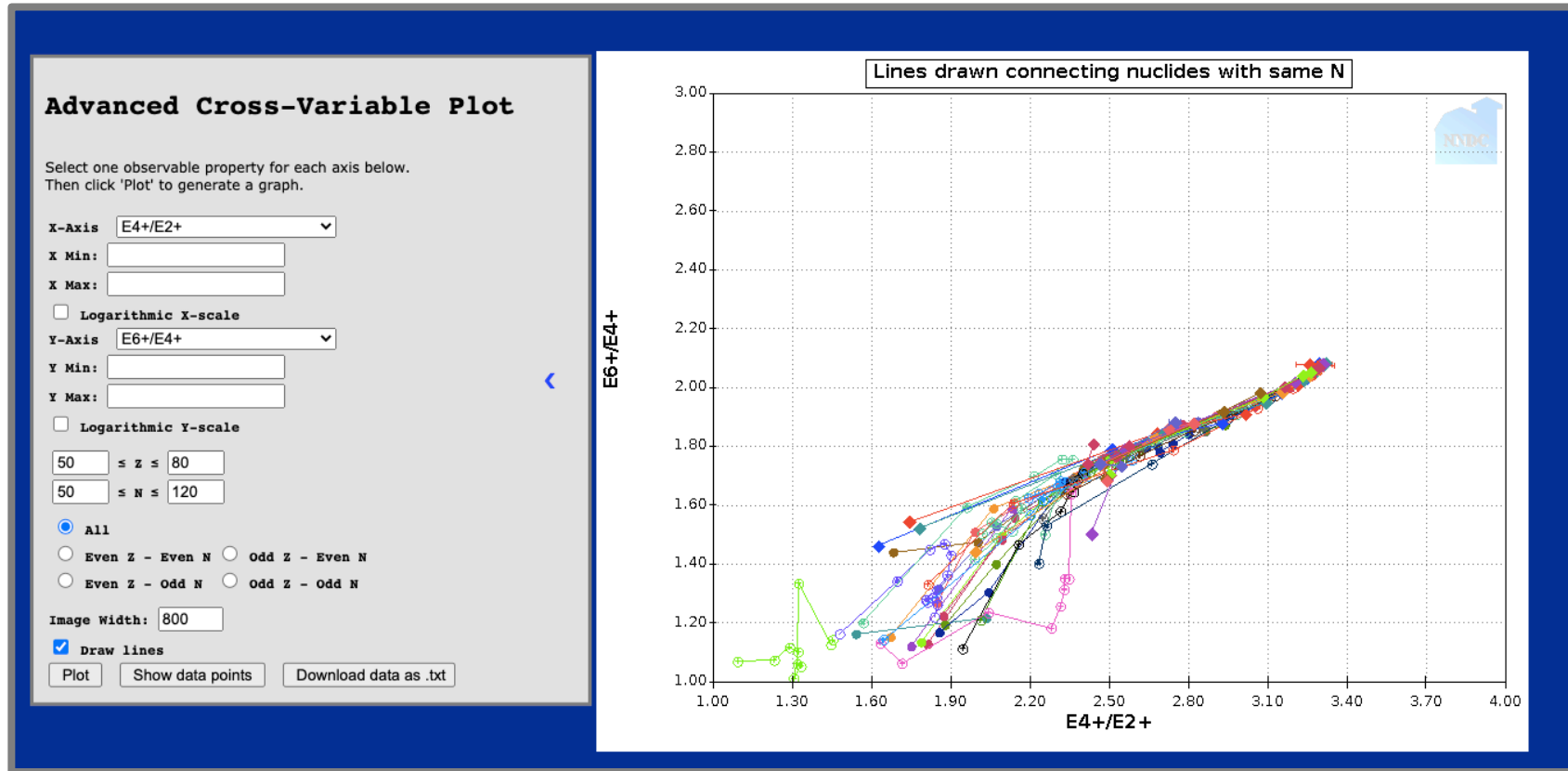
This program and the accompanying data base have been produced by the National Nuclear Data Center located at the Brookhaven National Laboratory, Upton, N.Y., USA, with funding from the U.S. Department of Energy. Neither the BNL nor the USDOE make any warranty or assume any legal responsibility for the contents of the data base.

Nuclear decay data are available in other formats, along with the ability to specify retrieval criteria, in the [decay radiation search of NuDat](#).

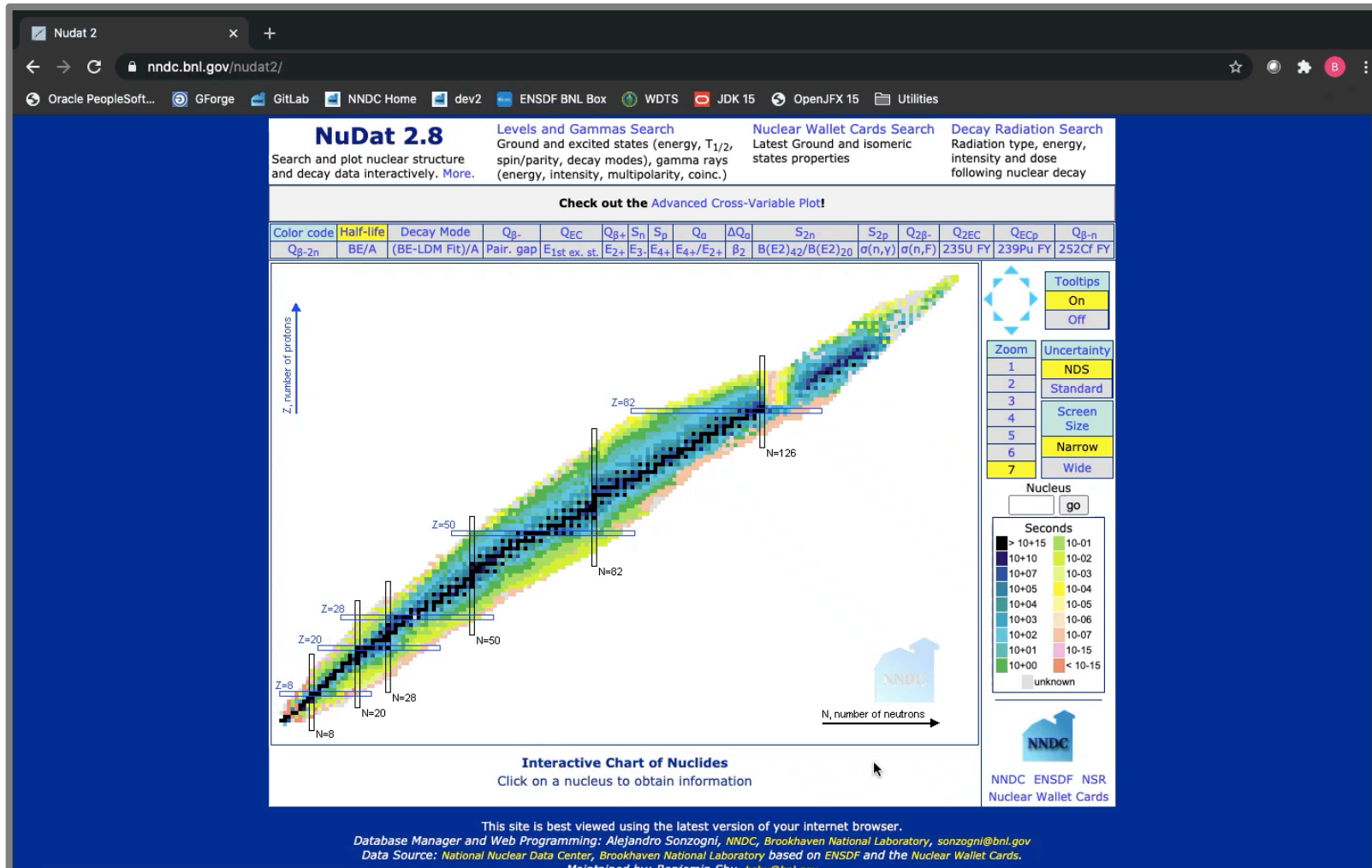
Database Manager: *Elizabeth Ricard-McCutchan, NND, Brookhaven National Laboratory*  
Web Programming: *Original by Manuel Emeric, Alejandro Sonzogni, NND, Brookhaven National Laboratory, Maintained by Benjamin Shu and Adam Hayes, NND, Brookhaven National Laboratory*  
Data Source: *NND, Brookhaven National Laboratory*

# Advanced Cross-Variable Plot

- Plots observable nuclear properties as functions of each other

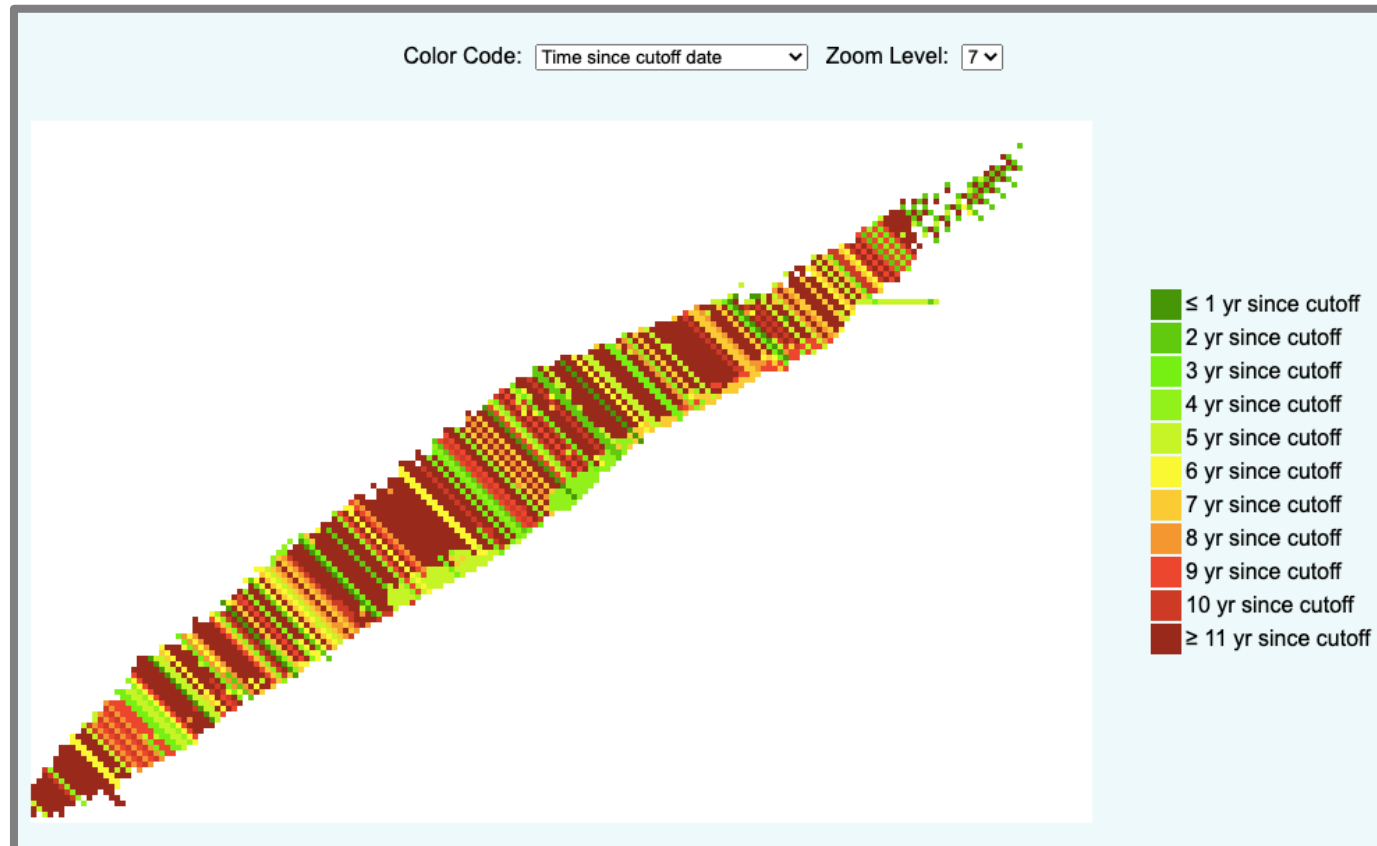


# Advanced Cross-Variable Plot



# Chart of ENSDF

- Interface for visualizing ENSDF database



# Chart of ENSDF

The screenshot shows a web browser window displaying the ENSDF (Evaluated Nuclear Structure Data File) website. The browser's address bar shows the URL `nndc.bnl.gov/ensdf/`. The page header includes the NNDc logo and the text "National Nuclear Data Center" on the left, and the Brookhaven National Laboratory logo on the right. A navigation bar below the header lists various databases: "NNDc Databases: NuDat | NSR | XUNDL | ENSDF | MIRD | ENDF | CSISRS | Sigma".

The main content area features a large blue atomic symbol graphic with the text "ENSDF: Evaluated Nuclear Structure Data File" overlaid. Below this, the text "Search and Retrieval" and "Last updated 2020-11-04" is displayed. A blue notification states "79 new datasets added/modified in the last month!".

There are two search tabs: "Quick Search" (selected) and "By Decay". Below the tabs is a search input field with the placeholder text "Nuclide or mass:" and a "Search" button. Below the input field, a note reads "(208Pb, pb-208, 144, 1n (neutron), etc.)".

Below the search field, there are two dropdown menus: "Color Code: Time since cutoff date" and "Zoom Level: 7".

At the bottom of the page, a partial chart of nuclides is visible, showing a diagonal band of colored dots representing nuclides. A legend at the bottom right indicates that a green square represents " $\leq 1$  yr since cutoff".

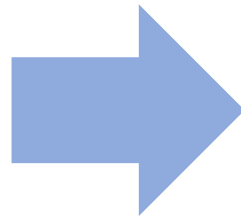


# Mobile Development

- Apps designed for portable, offline access to NNDC data
- Built for distribution on Android and iOS

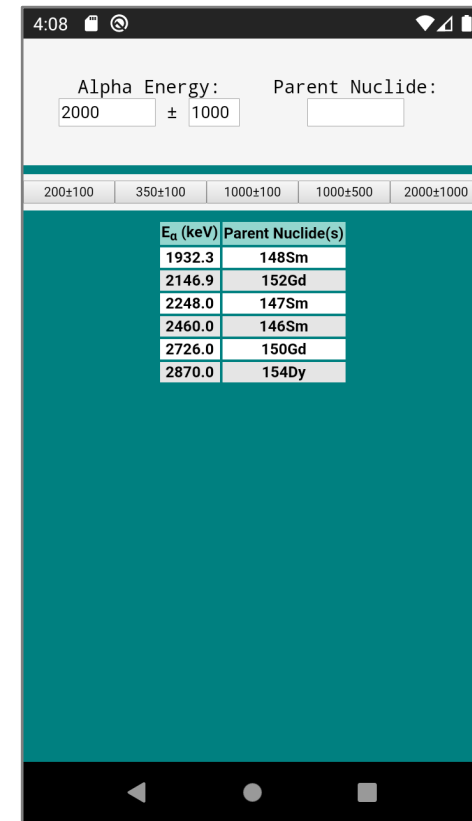
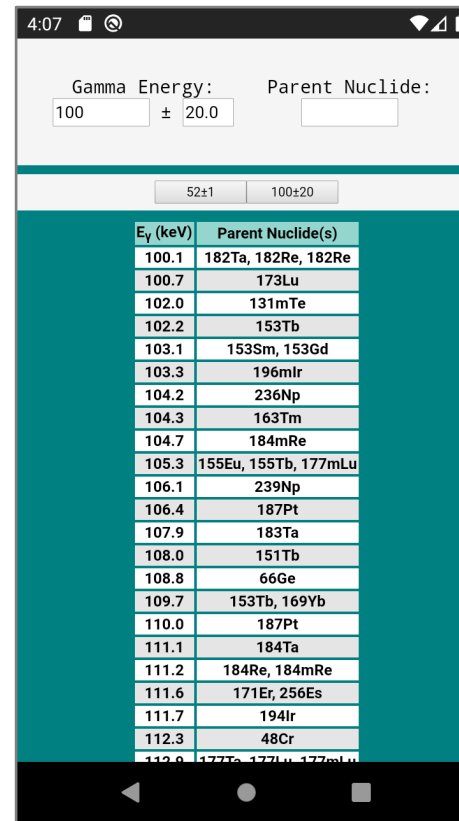
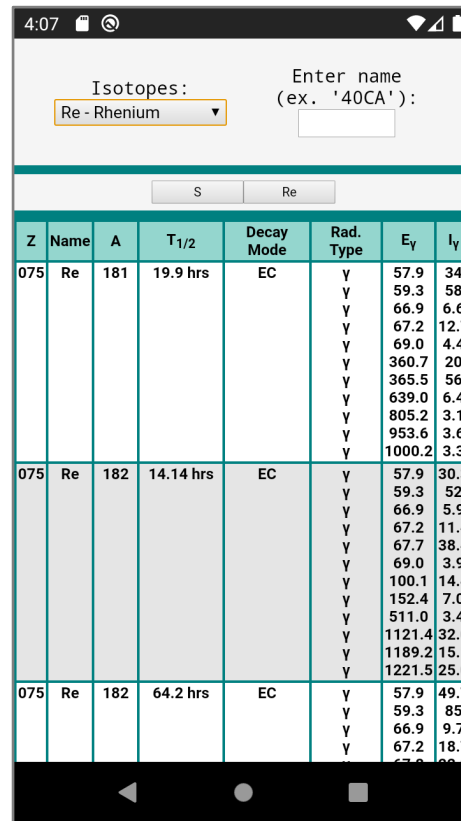
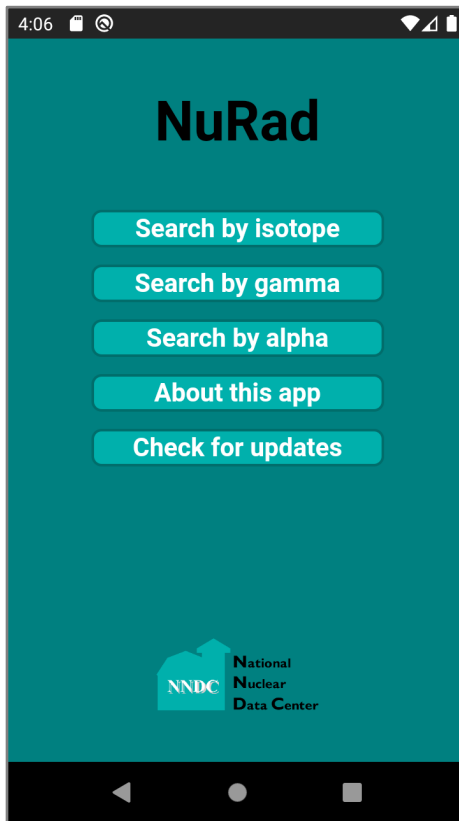


APACHE  
**CORDOVA**™



# NuRad

- Mobile app version of the Wallet Cards for Radioactive Isotopes



4:27



# NuRad

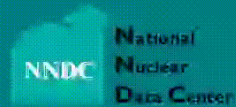
Search by isotope

Search by gamma

Search by alpha

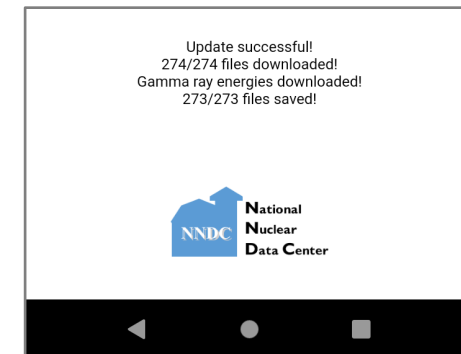
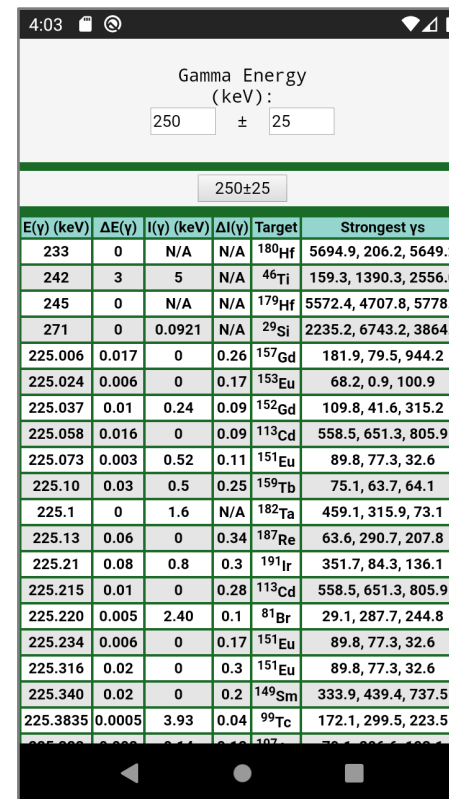
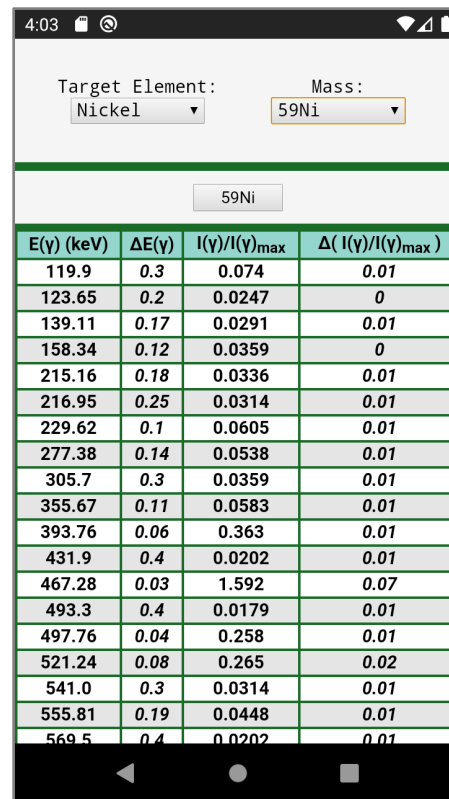
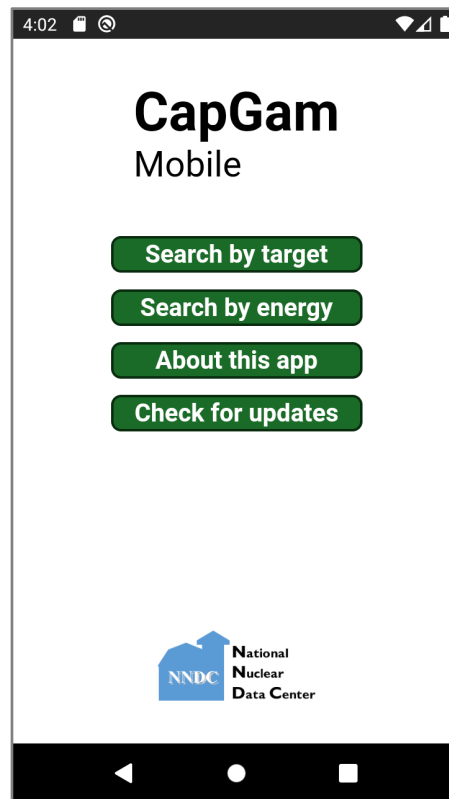
About this app

Check for updates



# CapGam Mobile

- Offline access to thermal neutron capture data sets



4:32



# CapGam

Mobile

[Search by target](#)

[Search by energy](#)

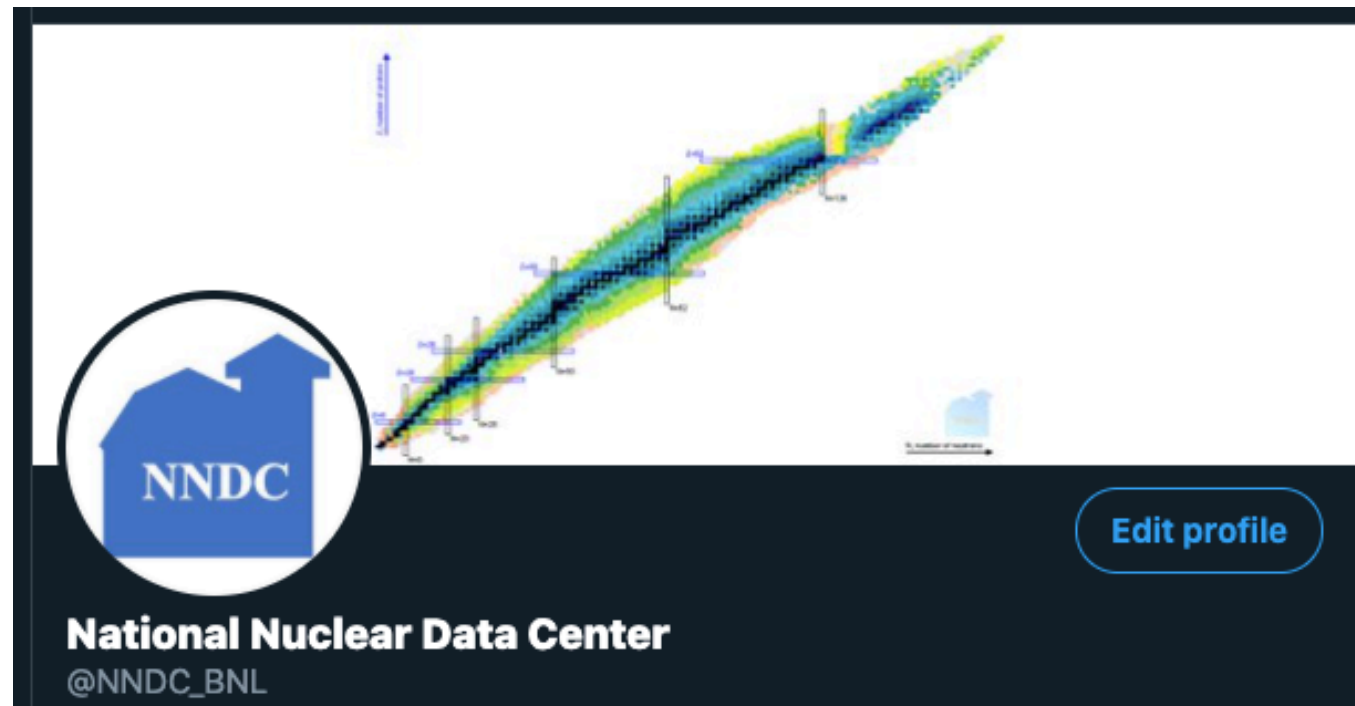
[About this app](#)

[Check for updates](#)



# Social Media

- The NNDC is now on Twitter! (@NNDC\_BNL)
  - [https://twitter.com/NNDC\\_BNL](https://twitter.com/NNDC_BNL)

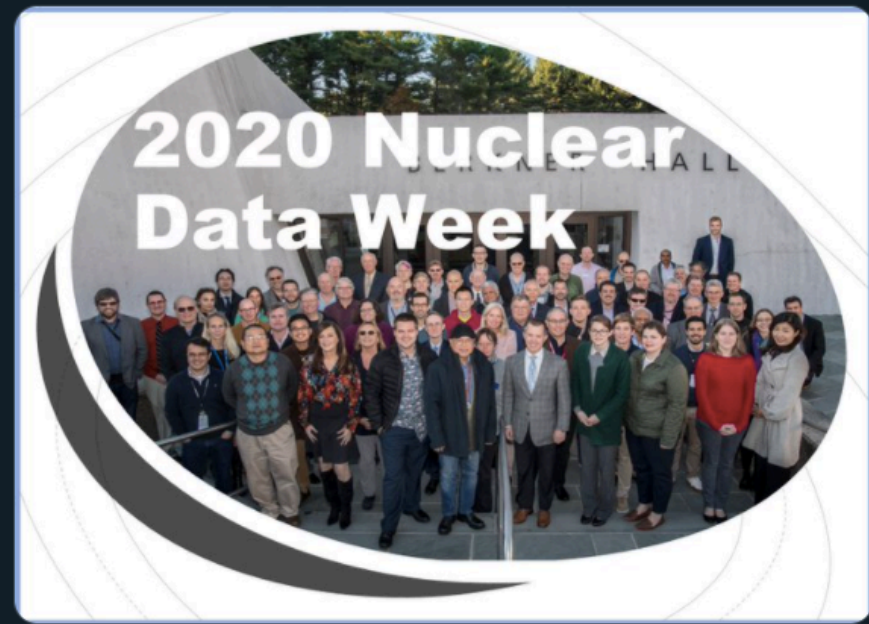


# Social Media

- Announcements for new events and features

Reminder: Registration for Nuclear Data Week 2020 is still open!

[indico.bnl.gov/event/7233/](https://indico.bnl.gov/event/7233/)



Reminder: ENSDF evaluations for mass chain  $A=77$  have been updated!

[nndc.bnl.gov/ensdf/](https://nndc.bnl.gov/ensdf/)

**Search and Retrieval**

**Last updated 2020-11-04**

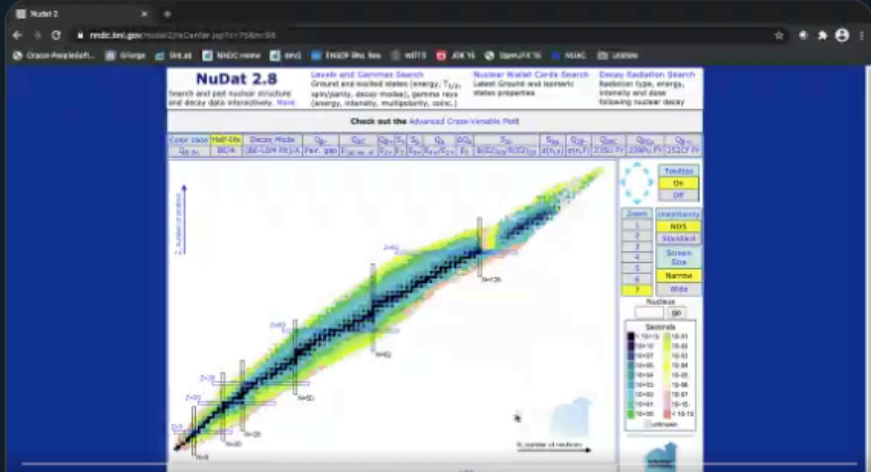
**79 new datasets added/modified in the last month!**

# Social Media

- "How-to" videos for explaining web services

NuDat can provide a comprehensive summary of a nuclide's excited states and gamma transitions:  
[nndc.bnl.gov/nudat2/](http://nndc.bnl.gov/nudat2/)

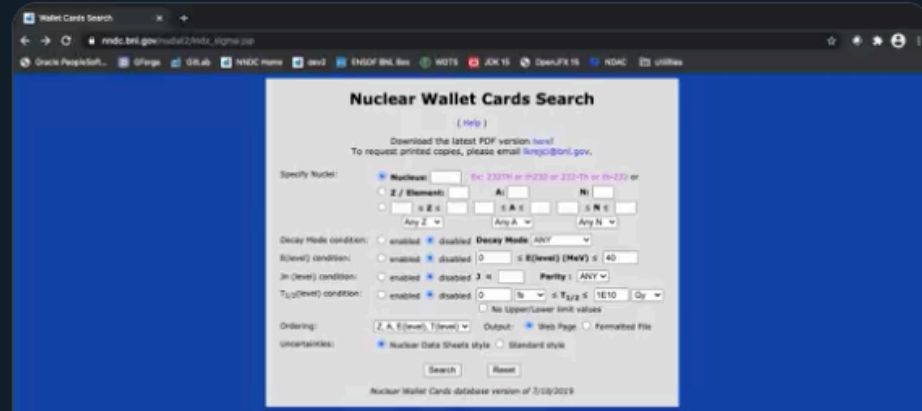
#NNDCCanDo



81 views

0:00 / 0:30

Reminder: If you don't have a copy of the Nuclear Wallet Cards, you can still find ground- and isomer-state properties using the online search:  
[nndc.bnl.gov/nudat2/indx\\_si...](http://nndc.bnl.gov/nudat2/indx_si...)



22 views

0:00 / 0:13



# Suggestions / Feedback

- What changes would you like to see?
  - New features?
  - Website updates?
  - Twitter content?
- [bshu@bnl.gov](mailto:bshu@bnl.gov)