TUNL Contributions in the US Nuclear Data Program

Nuclear Data Evaluation Program

J.H. Kelley, Jim Purcell, and Grace Sheu

(H.R. Weller & Kent Leung)

Nuclear Structure Evaluation
TUNL Nuclear Data Evaluation Project

- We are responsible for nuclear structure evaluation in the A=2-20 mass region
  - Energy Levels of Light Nuclei reviews published in Nuclear Physics A
  - ENSDF files for A=2-20
  - XUNDL from A=2-20
- Web interface for A=3-20 Information

TUNL Nuclear Data Evaluation Project

Recent Evaluation Activities

- Updated 11 β & β-particle data sets (more to come)
- Other work in progress:
  - A=12 Evaluation for “Energy Levels”
  - Preparing A=12 ENSDF file
  - Preparing A=3 ENSDF file(Jim Purcell)
  - Evaluation of A=2 (K. Leung & H.R. Weller)

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Recent Compilation Activities

- Committed to XUNDL (A=3-20)
  - 65 data sets 2013 (5-6/month)
- Compilation of ground state decay & β-decay references and data
- Compilation of (p,X) and (α,X) excitation functions
- TUNL Dissertations-
  - http://www.tunl.duke.edu/~gsheu/Theses/TUNL_Theses.shtml

TUNL Nuclear Data Evaluation Project

Triangle Universities Nuclear Laboratory — Duke TUNL UNC NCSU

Energy Levels of Light Nuclei, A = 3 - 20

Nuclear Data Evaluation Project

TUNL Nuclear Data Evaluation

Information on mass chains and nuclides available on this website:

3	4
5	6
7	8
9	10
11	12
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19	20

Group Info
Publications
HTML
General Tables
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ENSDF
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Thermal N Capt.
G.S. Decays
NuDat at BNL
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WWW TUNL

- TUNL Nuclear Data Group: Who we are and what we do.

Our publications on Energy Levels of Light Nuclei, A = 5 - 20:

- Publications: TUNL evaluations of A = 3 - 20, and modified versions of Fay Ajzenberg-Selove's publications of A = 5 - 20, are available here in PDF format. The most recent HTML documents of A = 3 - 20, and EL diagrams of A = 4 - 20 are also available here. Some reprints and preprints may be requested by mail.

- HTML for Nuclides: HTML documents are available for individual nuclides found within the TUNL or FAS evaluations.

Resources relating to our publications:

- General Tables: General Tables in HTML for A = 5 - 10 nuclei.

- Energy Level Diagrams are available for A = 4 - 20 nuclides.

- Tables of Energy Levels: a brief listing of tables of energy levels from the most recent publication for each nuclide A = 4 - 20.

- Site Map and Complete List of Available TUNL Documents: Trying to find a specific TUNL evaluation or preliminary report, HTML document, General Table, Update List or Energy Level Diagram? Click here for a complete list of what's available on our website.

Applications and databases relating to the A = 3 - 20 nuclides:

- ENSDF: Information for A = 2 - 20 nuclides available through the National Nuclear Data Center (NNDC) site.

- Excitation Functions: Compilation of the excitation functions for various (p, X) and (α, X) reactions.

- Thermal Neutron Capture Data: Summary of level and branching intensity data measured in Thermal Neutron Capture.

- Ground-State Decay Data: Summary of half-life, branching intensity, and mass excess data measured in ground state beta- and charged-particle-decay.

- NuDat at BNL: Allows to search and plot nuclear structure and nuclear decay data interactively.

- Palm Pilot Physics Page: Links to Palm applications and databases that are of interest to the Nuclear Physics community.

Helpful links:

- Links: Important links to the National Nuclear Data Center, online nuclear physics journals, and other useful sites.

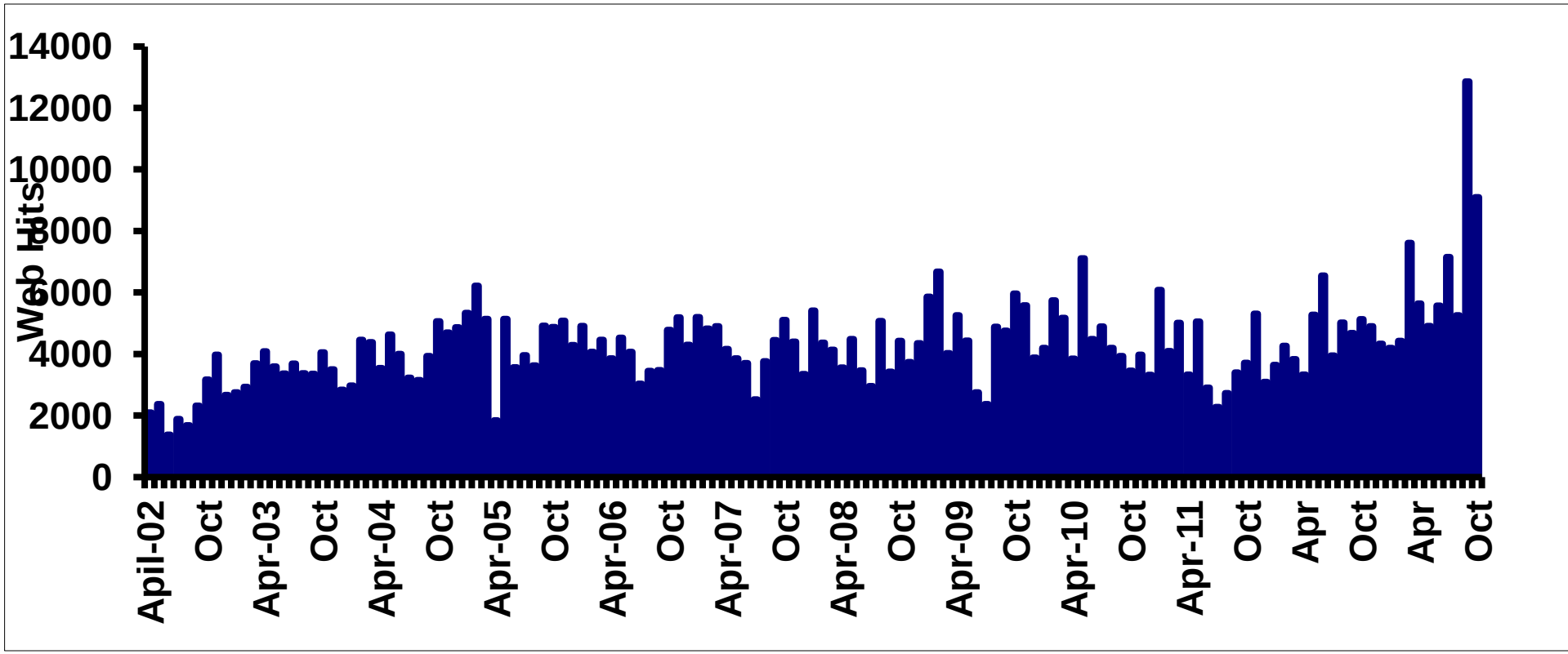
- Citation examples: A brief listing of examples of how to format your bibliography, references or citations from the information you obtain from our website.

- Directory

- Email us with problems, questions, suggestions, etc.

TUNL Nuclear Data Evaluation Project

WWW (April 02 –present)
FY13: Σ=75.9k



Using Analog - finding issues with excluding new search engine "robots"

Top 25 Hottest Articles

Physics and Astronomy > Nuclear Physics A

January to December 2012 full year

RSS Blog This! Print Show condensed

1. **The Ame2003 atomic mass evaluation - (II). Tables, graphs and references**
   Nuclear Physics A, Volume 729, Issue 1, December 2003, Pages 337-676
   Audi, G.; Wapstra, A.H.; Thibault, C.
   Cited by Scopus (2007)
2. **The Nubase evaluation of nuclear and decay properties**
   Nuclear Physics A, Volume 729, Issue 1, December 2003, Pages 3-128
   Audi, G.; Bersillon, O.; Blachot, J.; Wapstra, A.H.
   Cited by Scopus (608)
3. **RI beams dream and reality**
   Nuclear Physics A, Volume 685, Issue 1-4, March 2001, Pages 80-99
   Tanihata, I.
4. **Energy levels of light nuclei A=11**
   Nuclear Physics A, Volume 880, April 2012, Pages 88-195
   Kelley, J.H.; Kwan, E.; Purcell, J.E.; Sheu, C.G.; Weller, H.R.
5. **The nature and reactions of halo nuclei**
   Nuclear Physics A, Volume 685, Issue 1-4, March 2001, Pages 134-145
   Sherrill, B.M.
6. **Molecular dynamics description of fragmentation**
   Nuclear Physics A, Volume 685, Issue 1-4, March 2001, Pages 260-273
   Horiuchi, H.
7. **The Ame2003 atomic mass evaluation - (I). Evaluation of input data, adjustment procedures**
   Nuclear Physics A, Volume 729, Issue 1, December 2003, Pages 129-336
   Wapstra, A.H.; Audi, G.; Thibault, C.
   Cited by Scopus (218)
8. **A compilation of charged-particle induced thermonuclear reaction rates**
   Nuclear Physics A, Volume 656, Issue 1, August 1999, Pages 3-183
   Angulo, C.; Arnould, M.; Rayet, M.; Descouvemont, P.; Baye, D.; Leclercq-Willain, C.; Coc, A.; Barhoumi, S.; Aguer, P.; Rolfs, C.; Kunz, R.; Hammer, J.W.; Mayer, A.; Paradellis, T.; Kossionides, S.; Chronidou, C.; Spyrou, K.; Degl'Innocenti, S.; Fiorentin
   Cited by Scopus (973)
9. **Nuclear molecules**
   Nuclear Physics A, Volume 685, Issue 1-4, March 2001, Pages 146-159
   Freer, M.; Charissa collaboration; DeMoN collaboration
10. **Experimental and theoretical challenges in the search for the quark-gluon plasma: The STAR Collaboration's critical assessment of the evidence from RHIC collisions**
    Nuclear Physics A, Volume 757, Issue 1-2, August 2005, Pages 102-183
    STAR Collaboration; Adams, J.; Aggarwal, M.M.; Ahammed, Z.; Amonett, J.; Anderson, B.D.; Arkhipkin, D.; Averichev, G.S.; Badyal, S.K.; Bai, Y.; Balewski, J.; Barannikova, O.; Barnby, L.S.; Baudot, J.; Bekele, S.; Belaga, V.V.; Bellingeri-Laurikainen, A.;
    Cited by Scopus (1307)
11. **Structure of the N=50 As, Ge, Ga nuclei**
    Nuclear Physics A, Volume 893, November 2012, Pages 1-12
    Sahin, E.; de Angelis, G.; Duchene, G.; Faul, T.; Gadea, A.; Lisetskiy, A.F.; Ackermann, D.; Algora, A.; Aydin, S.; Azaiez, F.; Bazzacco, D.; Benzoni, G.; Bostan, M.; Byrski, T.; Celikovic, I.; Chapman, R.; Corradi, L.; Courtin, S.; Curien, D.; Pramanik,

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FY13 Metrics Table

NSR Compilations	
EXFOR Compilations	
XUNDL Compilations	65
ENSDF Evaluations submitted	
ENDF Evaluations	
Disseminations (in thousands)	76k
Articles	
Reports	1
Invited Talks	

FY13 FTE Table

PhD Permanent	.6
PhD Temporary	.6
Tech. & Admin.	.75
Grad. Student	
Total	1.95

A-chains to be submitted in FY14:

A=3, 12

A-chains to be submitted in FY15:

A=2