

TUNL Contributions in the US Nuclear Data Program and NSDD

Nuclear Data Evaluation Program

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

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

Evaluation Activities

- Energy Levels of Light Nuclei
 - Follow style of Fay Ajzenberg-Selove
 - Broad scope of reactions is included – discussion format.
 - Adopted levels/gammas, Energy Level Diagrams
- ENSDF
 - More rigorous information required
 - Better documentation of original sources
 - reaction data sets/decay data sets
 - Adopted levels/gammas, decay widths, etc.

Recent Evaluation Activities

- Published “Energy Levels of Light Nuclei A=11”
- Added A=11 ENSDF data set
- Updated 7 β -n data sets (more to come)
- Other work in progress:
 - A=12 Evaluation for “Energy Levels”
 - A=13 Evaluation for “Energy Levels” (Jim Purcell)
 - Preparing A=12 ENSDF file

Recent Compilation Activities

- Committed to XUNDL (A=3-20)
 - 63 data sets 2012 (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

Information on mass chains and nuclides available on this website:

3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20

Group Info
Publications
HTML
General Tables
Level Diagrams
Tables of EL's
ENSDF
Excitation Functions
Thermal N Capt.
G.S. Decays
NuDat at BNL
Useful Links
Citation Examples

Home
Sitemap
Directory
Email Us

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 Auzenberg-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 charge-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:

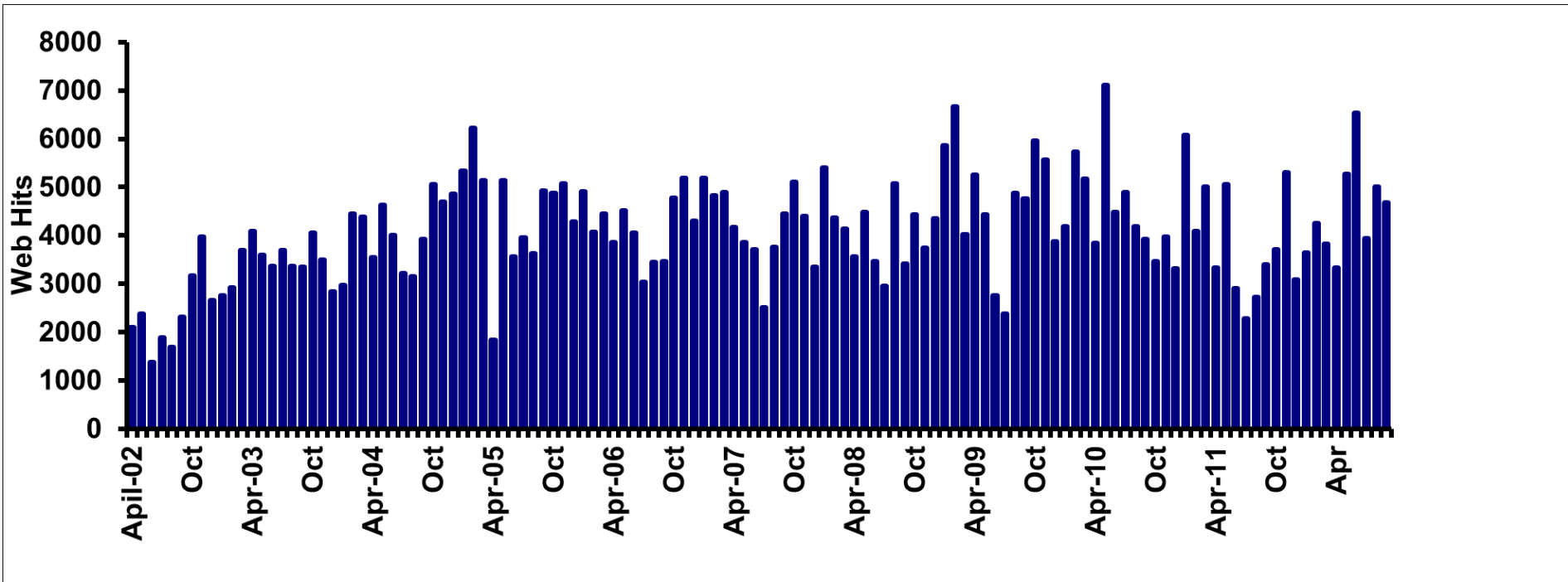
- [Links](#): Important links to the National Nuclear Data Center, online nuclear physics journals, and other useful sites.
- [Citation examples](#): A brief listing of examples of how to format your bibliography, references or citations from the information you obtain from our website.

- [Directory](#)

- [Email us](#) with problems, questions, suggestions, etc.

WWW (April 02 –present)

FY12: $\Sigma=52.6k$

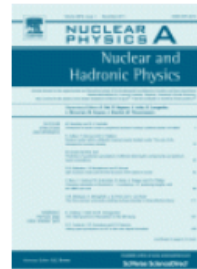


Using Analog - finding issues with excluding new search engine "robots"

Top 25 Hottest Articles

Nuclear Physics A
April to June 2012

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 SciVerse Scopus \(1702\)](#)
- 2. Shell evolution in neutron-rich carbon isotopes: Unexpected enhanced role of neutron-neutron correlation**
Nuclear Physics A, Volume 883, June 2012, Pages 25-34
Yuan, C.X.; Qi, C.; Xu, F.R.
- 3. 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.
- 4. Fission fragment angular distribution measurements for $^{60}\text{Fe}+^{94}\text{Pt}$ reaction at energies near the Coulomb barrier**
Nuclear Physics A, Volume 882, May 2012, Pages 62-70
Prasad, E.; Varier, K.M.; Thomas, R.G.; Vinodkumar, A.M.; Mahata, K.; Appannababu, S.; Sugathan, P.; Golda, K.S.; Babu, B.R.S.; Saxena, A.; John, B.V.; Kailas, S.
- 5. New results on mass measurements of stored neutron-rich nuclides in the element range from Pt to U with the FRS-ESR facility at 360-400 MeV/u**
Nuclear Physics A, Volume 882, May 2012, Pages 71-89
Chen, L.; Plasz, W.R.; Geissel, H.; Knobel, R.; Kozhuharov, C.; Litvinov, Yu.A.; Patyk, Z.; Scheidenberger, C.; Siegien-Iwaniuk, K.; Sun, B.; Weick, H.; Beckert, K.; Beller, P.; Bosch, F.; Boutin, D.; Caceres, L.; Carroll, J.J.; Cullen, D.M.; Cullen, I.J.
- 6. 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 SciVerse Scopus \(518\)](#)
- 7. Neutron star equilibrium configurations within a fully relativistic theory with strong, weak, electromagnetic, and gravitational interactions**
Nuclear Physics A, Volume 883, June 2012, Pages 1-24
Belvedere, R.; Pugliese, D.; Rueda, J.A.; Ruffini, R.; Xue, S.S.
- 8. 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 SciVerse Scopus \(187\)](#)
- 9. QPNM calculation for the ground state magnetic moments of odd-mass deformed nuclei: ^{57}Er isotopes**
Nuclear Physics A, Volume 888, August 2012, Pages 23-33
Yakut, H.; Guliyev, E.; Guner, M.; Tabar, E.; Zenginerler, Z.
- 10. Microscopic insight into the structure of gallium isotopes**
Nuclear Physics A, Volume 884-885, July 2012, Pages 1-20
Verma, P.; Sharma, C.; Singh, S.; Bharti, A.; Khosa, S.K.
- 11. Compound and non-compound nucleus contributions in the evaporation residue cross-sections of $^{20}\text{Ne} + ^{181}\text{Ta} \rightarrow ^{20}\text{Bi} + ?$ reaction at $E^{\text{c.m.}} = 135$ MeV and 162 MeV**
Nuclear Physics A, Volume 884-885, July 2012, Pages 36-50
Kaur, G.; Sharma, M.K.
- 12. Solution of the Schrodinger equation containing a Perey-Buck nonlocality**
Nuclear Physics A, Volume 886, July 2012, Pages 1-16

TUNL Nuclear Data
Evaluation Project