

TUNL Contributions in the US Nuclear Data Program

Nuclear Data Evaluation Program

J.H. Kelley, H.R. Weller, Jim Purcell, and
Grace Sheu (Elaine Kwan 50% NNSA)

Program on Preequilibrium Phenomenology

Constance Kalbach Walker

Nuclear Structure Evaluation

TUNL Nuclear Data Evaluation Project

Kelley, Weller

- 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 $A=2-20$
- 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

- ENSDF A=9 added to ENSDF
- Other work in progress:
 - *Energy Levels of Light Nuclei: A=11-12*
 - Evaluation of A=3 for publication in NPA
 - preparing A=10 ENSDF files
- Web
 - compilation of (n_{th}, γ) data –EGAF & prior

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
13	14
15	16
17	18
19	20

Group Info
Publications
HTML
General Tables
Update Lists
Level Diagrams
Tables of EL's
ENSDF
Palm Pilot
Table of Isotopes
Useful Links
Citation Examples

Home
SiteMap
Directory
Email

Search:



- [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 $A = 3 - 10$ and $A = 16 - 20$, and modified versions of Fay Ajzenberg-Selove's publications of $A = 5 - 20$, are available here in PDF format. 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.

• [Update Lists](#) contain important papers published since the most recent evaluation of each nucleus and are available for $A = 3 - 16$ 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 $A = 4 - 20$.

• [SiteMap 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.

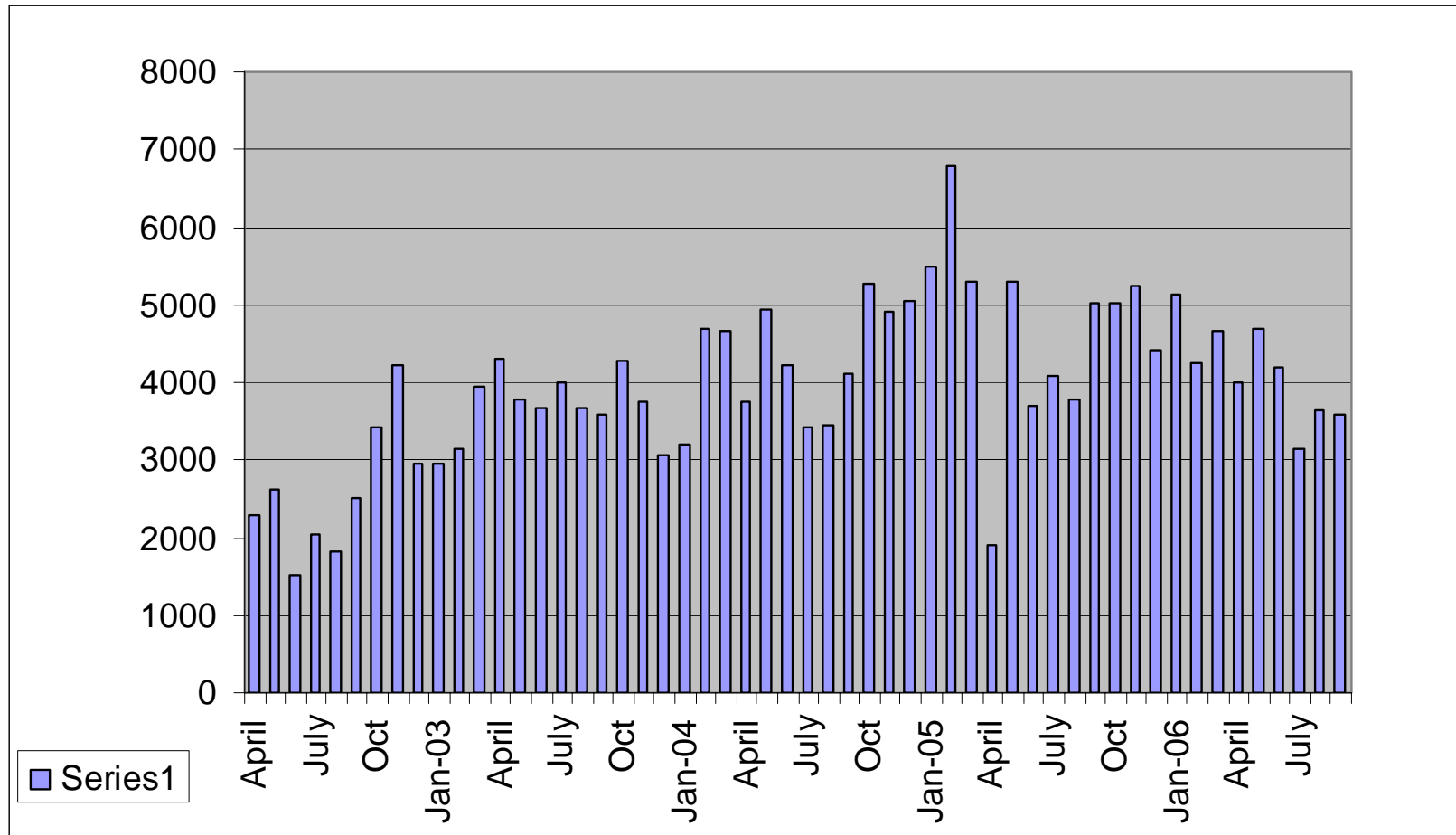
• [Palm Pilot Physics Page](#): Links to Palm applications and databases that are of interest to the Nuclear Physics community.

• [Table of Isotopes v. 1.0 \(1996\)](#): This short version contains only information on $A = 1 - 20$ isotopes.

Helpful links:

• [Links](#) Important links to the National Nuclear Data Center, online nuclear physics journals, and other useful sites.

WWW usage (April 02-present)



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

New server April 05/partial records

TUNL Program on Preequilibrium Phenomenology

(Constance Kalbach Walker)

- Exciton preequilibrium model and code
- Additional direct reaction models for complex particle channels
- Working toward new release of PRECO

2005-2006 Progress

- Progress slowed by funding cut
- Continued work for release of PRECO-2006
- Began studying possibly linked effects
collective model,
surface peaking of first interaction
 M^2 asymptotic dependence

Future Plans

- New release of code PRECO, users manual
- Continue study of linked effects
- Extend breakup model from **deuterons** to **He-3** and **alpha particles**
[complex particles a strength of PRECO]