ENSDF Analysis & Utility Codes

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Latest status: http://www.nndc.bnl.gov/nndcscr/ensdf_pgm/code_status.html

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ENSDF Analysis & Utility Codes – Status

- BrIcc version 2.0a – Corrected problem in merging new records into original file
- ComTrans 7.1 and ENSDAT 12.13
  - FORTRAN 95
  - ENSDF translation dictionary file (ra_ensdf_dic.dat) updated to October 18, 2006
  - ENSDAT updated to correspond to the current version of the Nuclear Data Sheets publication program

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ENSDF Analysis & Utility Codes – Status

- FMTCHK 10.1f
  - FORTRAN 95
  - Added coding to recognize new quantities output by BrIcc
  - Corrected problems caused by different ways of ordering multiple PARENT and NORMALIZATION records
  - Relaxed criteria for comparing final level to calculated final level
  - Implemented several checks based on an error report from PNPI in May 2005. This included checking the residual calculated from the target and reaction against the NUCID
  - Corrected problems associated with parsing reactions

ENSDF Analysis & Utility Codes – Status

- GTOL 7.2c
  - Changed logic for processing FL=? so that RI and TI would be included in RI(OUT) and TI(OUT)
  - Added query to allow user to specify theoretical DCC to be assumed (HSICC, BrIcc, or Other)
  - Added some checks in attempt to determine if level should be held fixed in the least-squares fit
  - Added option to place "G" in level energy field. Similar to "F" option but uncertainty will be added in quadrature with that derived from the least-squares adjustment
  - Reworked logic so matrix would be recalculated if "FL=" gamma had not been placed within ±10 keV

ENSDF Analysis & Utility Codes – Status

- PANDORA 7.0a
  - FORTRAN 95
  - Increased dimensions in GAMINT from 150 to 500 to handle primary capture gammas
- RULER 3.1b
  - Corrected initialization problem caused in porting from F77 to F95 (null character in F95 instead of " " in F77 if string not initialized).
  - Added query to allow user to specify theoretical DCC to be assumed (HSICC, BrIcc, or Other)

ENSDF Analysis & Utility Codes
– In Progress and Future Plans

- BrIcc:
  - Extend Z range to 110
  - Update atomic electron binding energies
  - Correct problem in overestimating shell ratio uncertainties
  - Attempt to solve problems in estimating the uncertainty when $|\delta \pm \Delta\delta|$ overlaps zero or there is a significant tail in the probability distribution overlapping zero.
  - Attempt to reduce size of report file

ENSDF Analysis & Utility Codes
– In Progress and Future Plans

- GAMUT: To be done by LBNL (December 2005)

- HSICC: Problem in creating new records when a gamma energy lay below a subshell binding energy corrected. Needs testing before distribution.

ENSDF Analysis & Utility Codes
– In Progress and Future Plans

- LOGFT
  - The logic from the LBNL program ft has been incorporated into LOGFT to calculate 3rd and higher order unique forbidden transitions.
    - Extensive testing and comparison with the LBNL programs beta and ft still remains before release.
  - The program currently assumes that the theoretical values used in calculating the electron-capture fractions have no uncertainties, resulting in an underestimate of the electron-capture fractions uncertainties. This will be corrected using the data of Schönfeld.

ENSDF Analysis & Utility Codes
– In Progress and Future Plans

- RadList
  - Calculation of subshell conversion- and Auger-electron and X-ray intensities will be added and the calculation of continua spectra improved. Logic to properly calculate the beta spectra 3rd and higher order unique forbidden transitions will be added after the new version of LOGFT is released.
  - Update to handle new quantities generated by BrIcc. This will include expanding the atomic data tables to include the O through R atomic electron shells.

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