ENSDF Analysis & Utility Codes

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

ENSDF Analysis & Utility Codes

- Updates since the NSDD2007 Meeting
- RULER Upgrades
- Planned BrIcc Upgrades

ENSDF Analysis & Utility Codes – Updates Since NSDD2007

- ENSDAT – Updated to correspond to the May 4, 2007 version of the NDS publication program
- FMTCHK:
  - Added additional checks for format errors reported by PNPI
  - Corrected some minor program problems

ENSDF Analysis & Utility Codes - Updates

- GTOL
  - Added check for unrealistically large diagonal matrix elements to handle compiler differences
  - Minor program corrections
- RULER – To be discussed next

ENSDF Analysis & Utility Codes - RULER

- Added coding to properly handle Γ's or short $T_{1/2}$'s (as) in the T field of the Level record:
  1. If WIDTH given on Gamma Continuation record, use
  2. Else if WIDTHG0, WIDTHG1,… given on Level Continuation record, use
  3. Else if WIDTHG given on Level Continuation record, use
  4. Else if %G or %IT given on Level Continuation record, use to deduce Γ_γ
  5. Else if other partial Γ's given on Level Continuation record, use to deduce Γ_γ

ENSDF Analysis & Utility Codes - RULER

6. Else calculate reduced transition probabilities **but** do not output to new file.
7. Note: Except for 1. and 2., there may still be problems unless option 7 (% branching ratios) is given on the PN record.

- Completely rewrote the logic for handling asymmetric uncertainties on output.
  - Previous version had occasional problems for very asymmetric uncertainties.

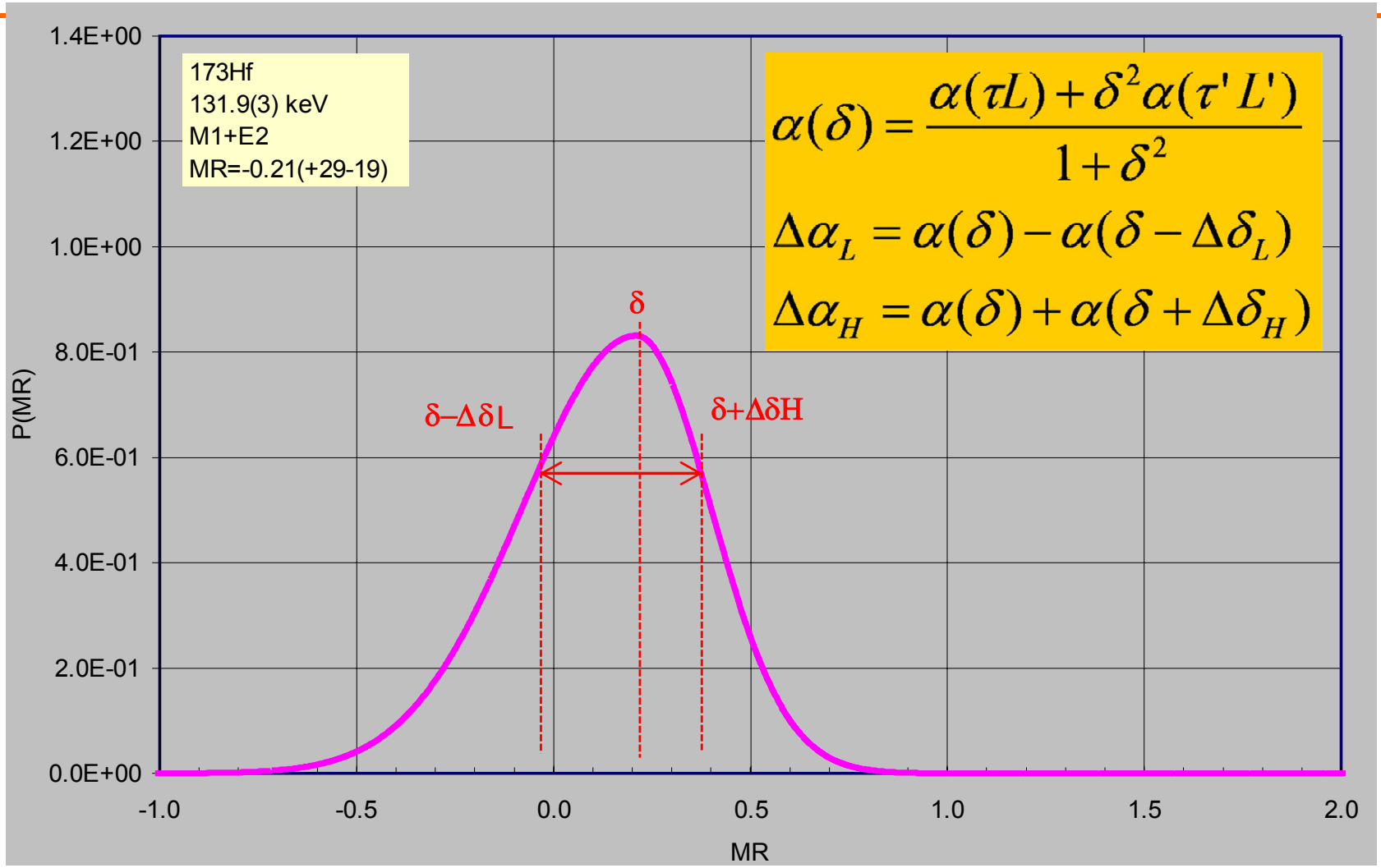
ENSDF Analysis & Utility Codes - RULER

- Added comparison of the calculated BEλW's and BMλW's or old values, if kept, to RUL. Discrepancies are noted (1-2σ, 2-3σ, and >3σ).
  - Some problems with dipole and quadrupole IsoVector and IsoScalar for A=6-44 (*e.g.*, RUL(E1 IS)=0.003 and RUL(E1 IV)=0.3).
  - May be unrealistically large values (*e.g.*, B(M3)(W.u.)) where ΔB(Eλ)(W.u.) or ΔB(Mλ)(W.u.) overlaps zero.
    - Often occurs for the π'L' component of a mixed

ENSDF Analysis & Utility Codes - BrIcc

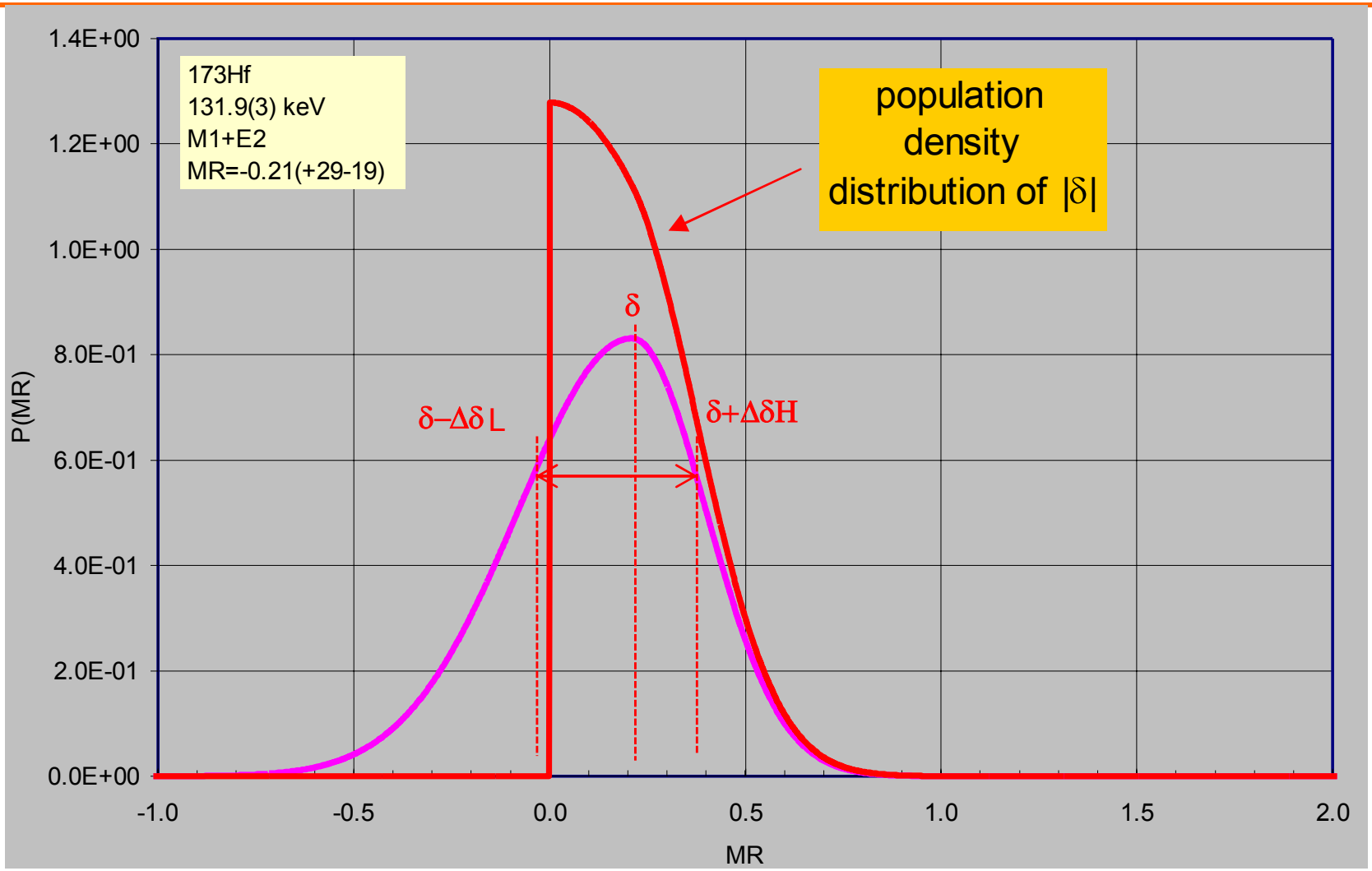
- Planned upgrades for BrIcc (In collaboration with Tibor Kibèdi, *et al.*):
  - Extend Z range to 110.
  - Properly calculate α's when there is an E0 admixture.
  - Correct problem in overestimating shell ratio uncertainties.
  - Possible update/extension of Ω(E0) tables
  - Attempt to solve problems in estimating uncertainties when $|\delta| \leq 2\Delta\delta$
    - $\alpha=(\alpha(\pi L)+\delta^2\alpha(\pi' L'))/(1+\delta^2)$
    - No problems if $\delta \ll 1$ or $\delta \gg 1$ or $|\alpha(\pi L)-\alpha(\pi' L')| \approx 0$

ENSDF Analysis & Utility Codes - Brlcc



Courtesy of Tibor Kibèdi

ENSDF Analysis & Utility Codes - Brlcc



Courtesy of Tibor Kibèdi