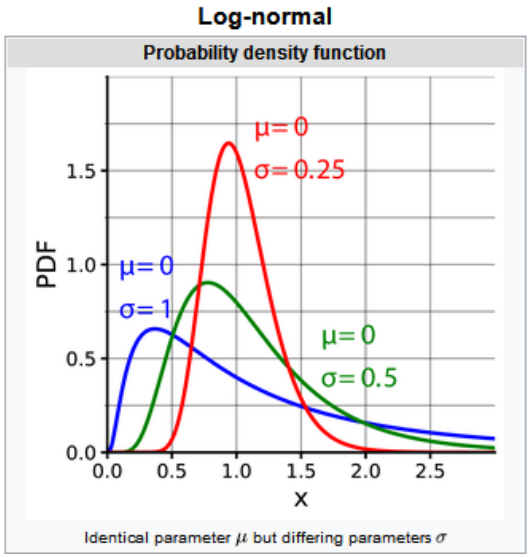
LISE development 16.15.13 - 16.16.13

v.16.16.13
07/24/23

- Update of the Isomer database based on the Atlas of Nuclear Isomers-Second Edition and NNDC
  link
  Project by D.Kaloyanov and F.Krause
  More than 1500 isomers states have been added
- Migration of all LISE databases to sqlite format
  link
  Project by D.Kaloyanov
  Scalability, Security, Usability, Speed, Flexibility
- LISE package optimization with profilers
  link
  Project by S.Tarasova
  - Transmission calculation speed was improved 27%
  - Compilation with MSVC2019:
    - Two bugs have been fixed
    - Thousands warning were analyzed and corrected
- New Abrasion-Ablation excitation energy model :
  Log-Normal
- Update of the AA vs. user CS minimization utility
- 2D-plot X vs.A/q
  link

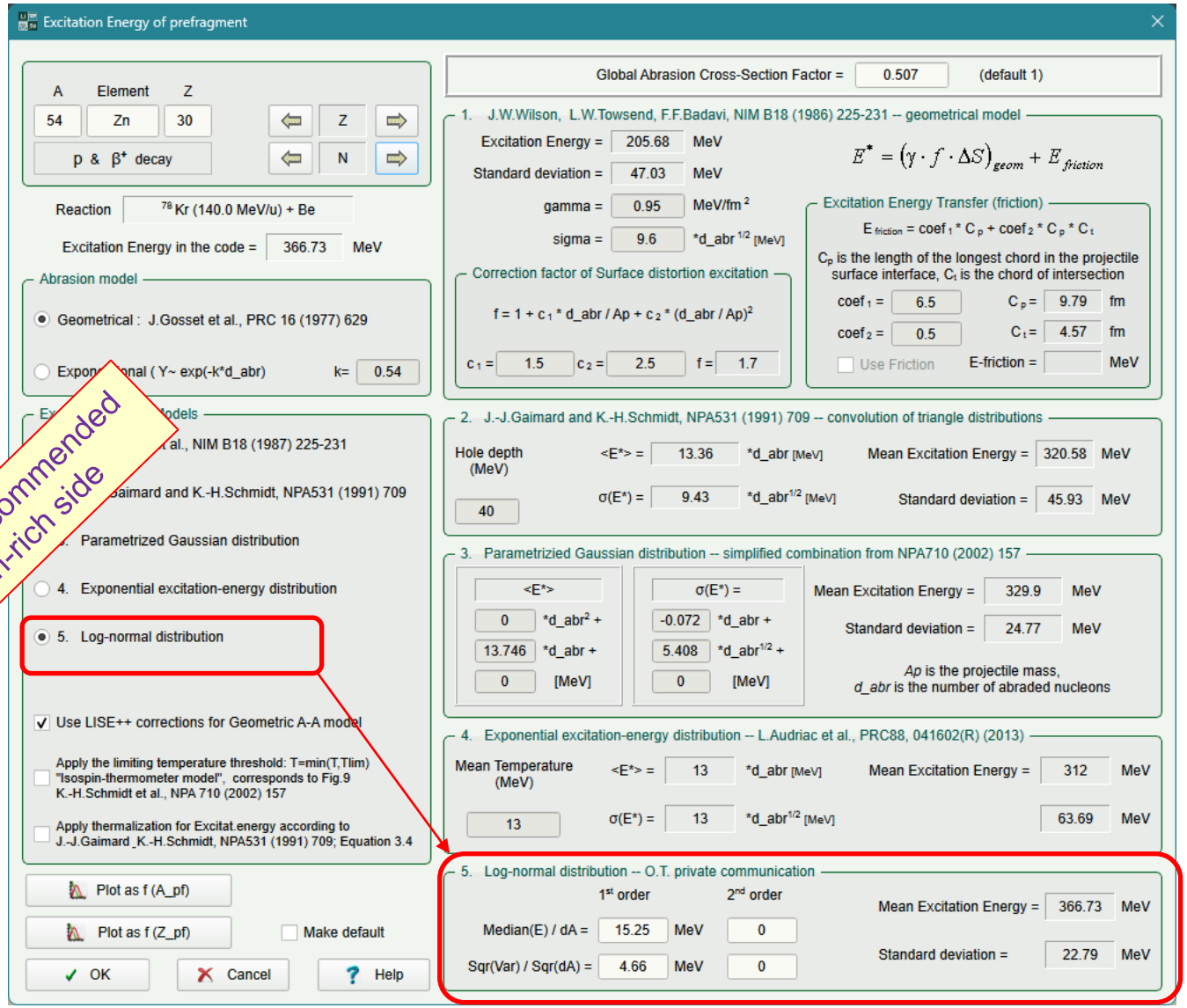
New excitation energy model: Log-Normal

https://en.wikipedia.org/wiki/Log-normal_distribution

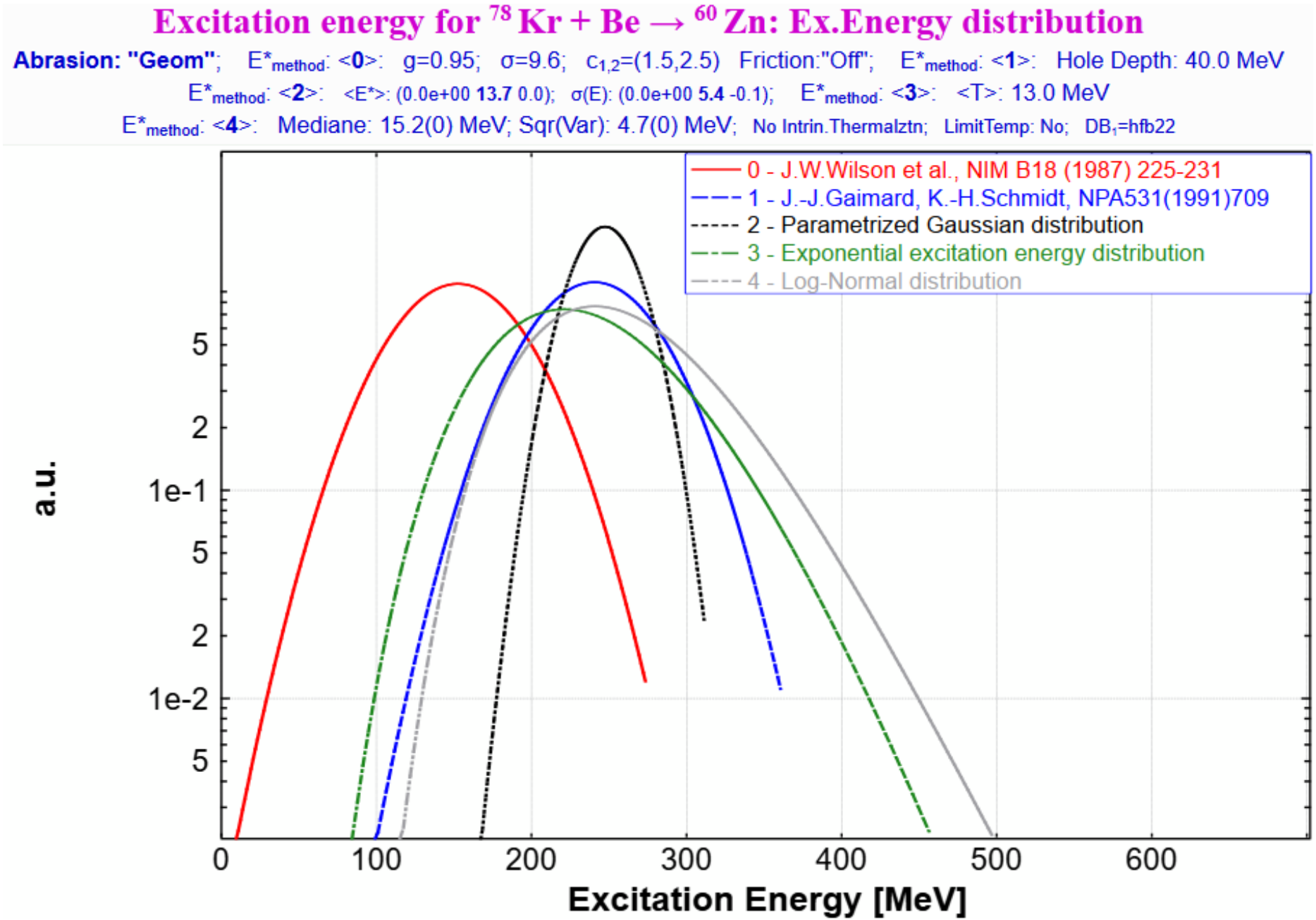


Notation	$\text{Lognormal}(\mu, \sigma^2)$
Parameters	$\mu \in (-\infty, +\infty)$, $\sigma > 0$
Support	$x \in (0, +\infty)$
PDF	$\frac{1}{x\sigma\sqrt{2\pi}} \exp\left(-\frac{(\ln x - \mu)^2}{2\sigma^2}\right)$
CDF	$\frac{1}{2}\left[1 + \operatorname{erf}\left(\frac{\ln x - \mu}{\sigma\sqrt{2}}\right)\right]$
Quantile	$\exp(\mu + \sqrt{2\sigma^2}\,\operatorname{erf}^{-1}(2p-1))$
Mean	$\exp\left(\mu + \frac{\sigma^2}{2}\right)$
Median	$\exp(\mu)$
Mode	$\exp(\mu - \sigma^2)$
Variance	$[\exp(\sigma^2) - 1]\exp(2\mu + \sigma^2)$

This model is recommended for neutron-rich side

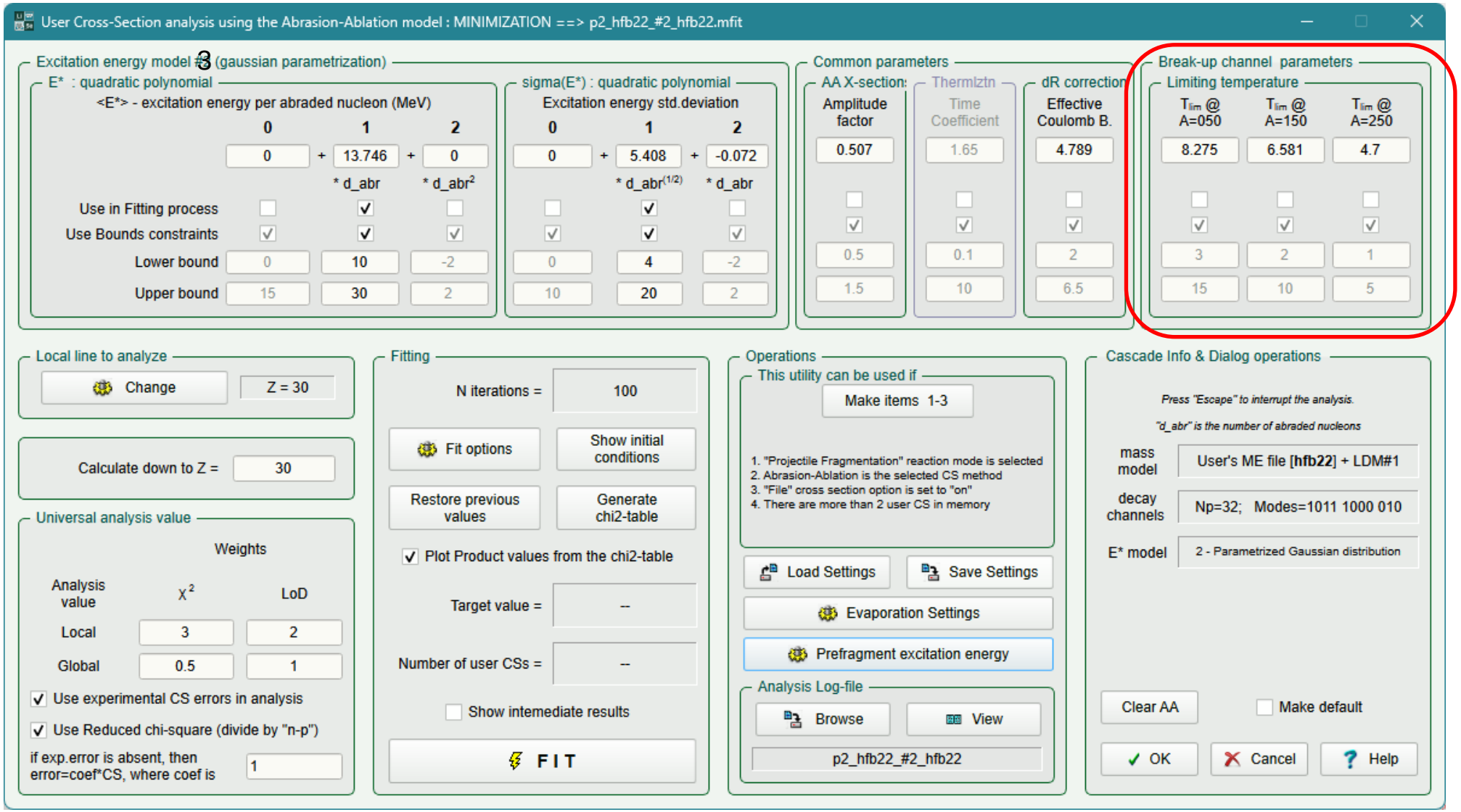


New excitation energy model: Log-Normal



Update of the AA vs. user CS minimization utility

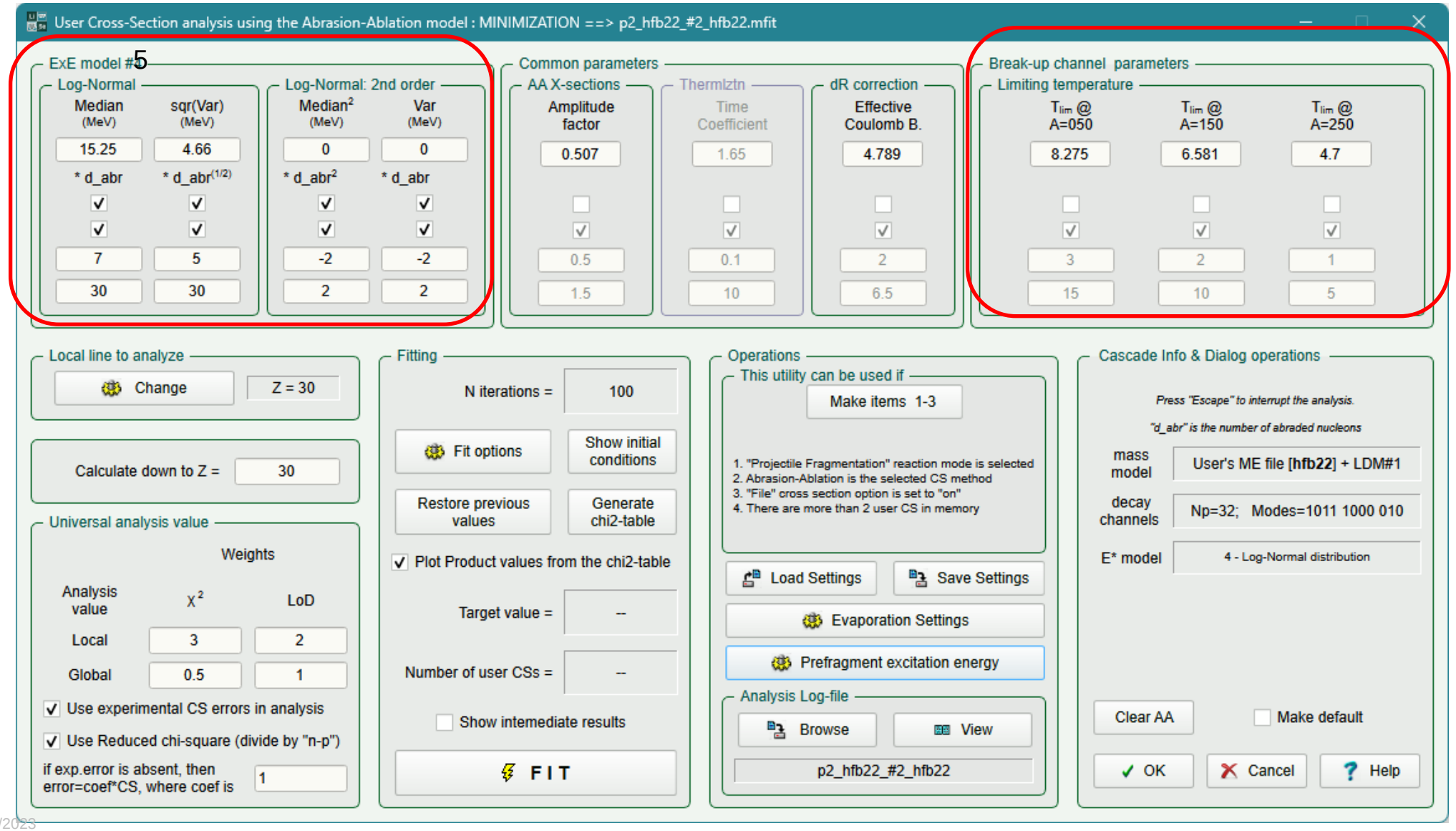
Excitation energy models #3 (Gaussian), #4 (Temperature), #5 (Log-normal) can be used in minimization.
Model #3 was selected for current page



New varied parameters

Update of the AA vs. user CS minimization utility

Excitation energy models #3 (Gaussian), #4 (Temperature), #5 (Log-normal) can be used in minimization.
Model #5 was selected for current page



New varied parameters

LISE development 16.15.8 - 16.16.13 (table)

v.16.16.13
07/24/23

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Migration of all LISE databases to sqlite format link	Project by D.Kaloyanov	Scalability, Security, Usability, Speed, Flexibility

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