v.15
12/30/20

Ported
(without satellites)

- 224 dialogs
- 116 plots
- 587 cpp-files
- 13 c-files
- 418 h-files

The LISE^{++} package has been ported to Qt-framework for compatibility with multiple operating systems. The benefits include 64-bit operation, cross-platform compatibility (Windows, macOS, Linux), and the ability to take advantage of future computational improvements.

LISE^{++} version 15, created using the Qt framework, is named LISE$^{++}_{cute}$ to indicate a new generation different from the previous LISE^{++} Borland-based versions. Pronunciation: still [lis plʌs plʌs] or [lis kyo͞ot].

In the near future, the creation of a LISE$^{++}_{core}$ library will be undertaken. This library will allow to integrate LISE^{++} calculations within control systems, in order to directly assist the tuning of fragment separators. This functionality will be tested at FRIB and FAIR. For example, the direct integration of LISE^{++} software with the ARIS controls at FRIB will enable operators to update inputs to calculations based on experimental measurements.

Contents

- Porting process completed
- Download & contacts
- Application for
  - Windows
  - macOS
  - Linux
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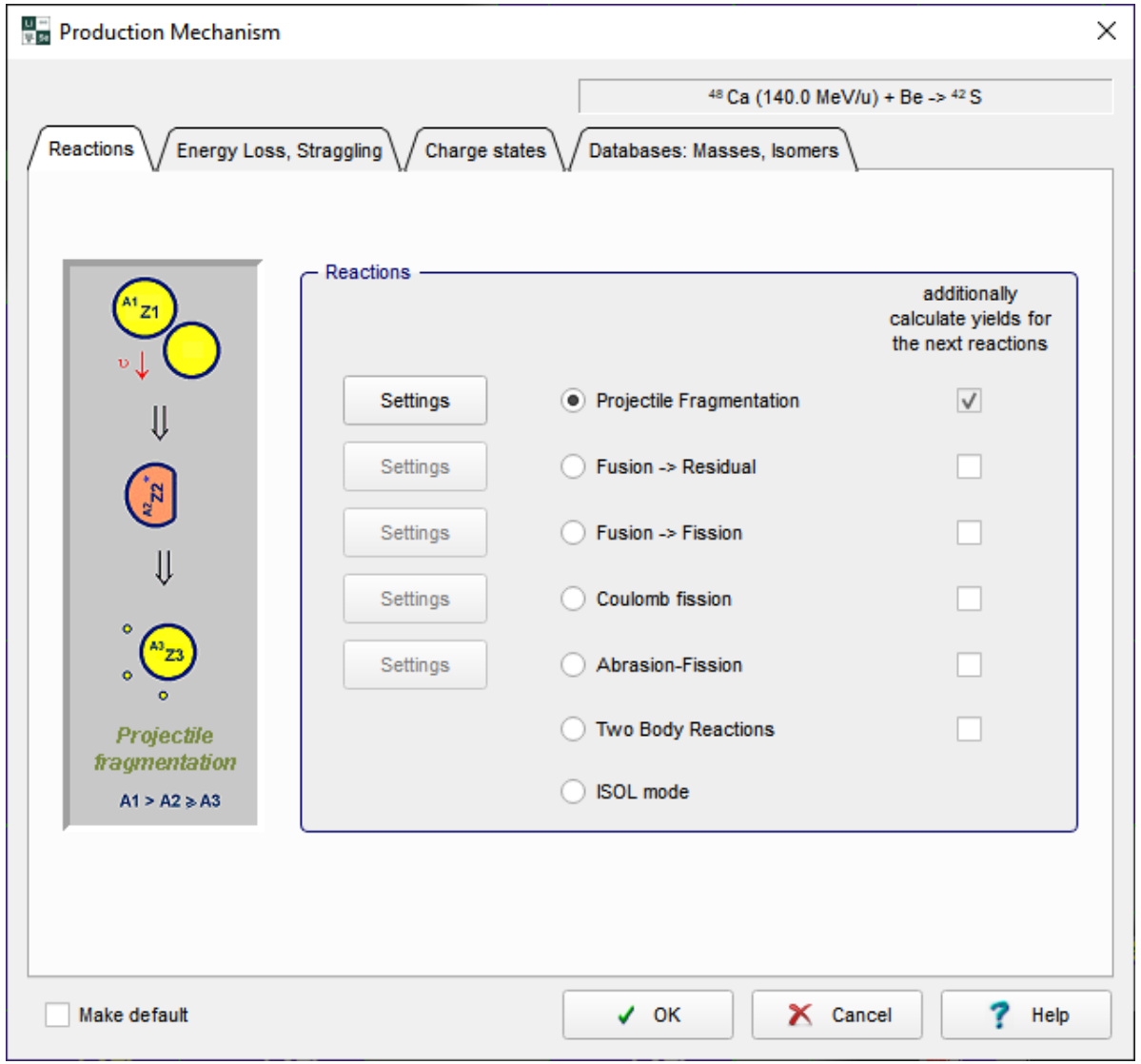
- Application font size
- New feature: Show/Hide disable blocks
- Array operations in the Spectrometer design dialog
- Left setup panel
  - Features
  - Labels and actions
- ATIMA 1.4
- Monte Carlo dialog updates
- porting team and next steps



LISE^{++} *cute* : DONE!

2016

Nuclear Instruments and Methods in Physics Research B 376 (2016) 168–170

Plans for performance and model improvements in the LISE^{++} software

M.P. Kuchera, O.B. Tarasov, D. Bazin, B.M. Sherrill, K.V. Tarasova

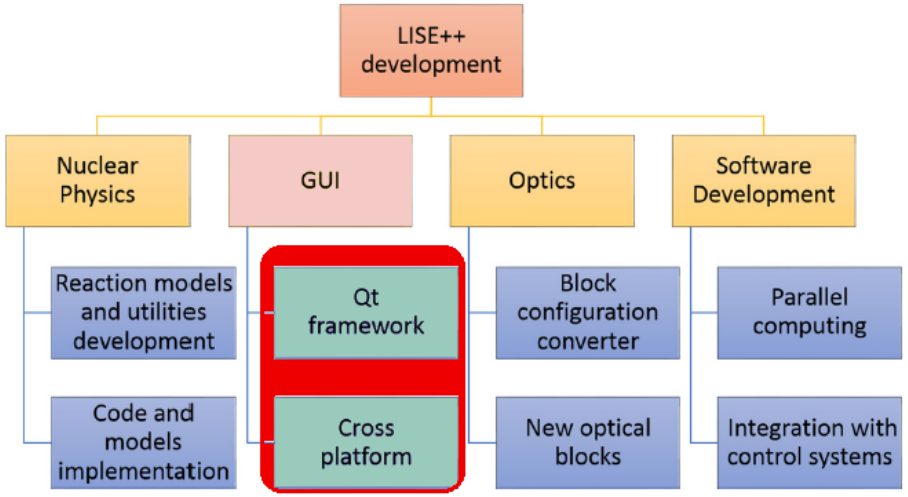
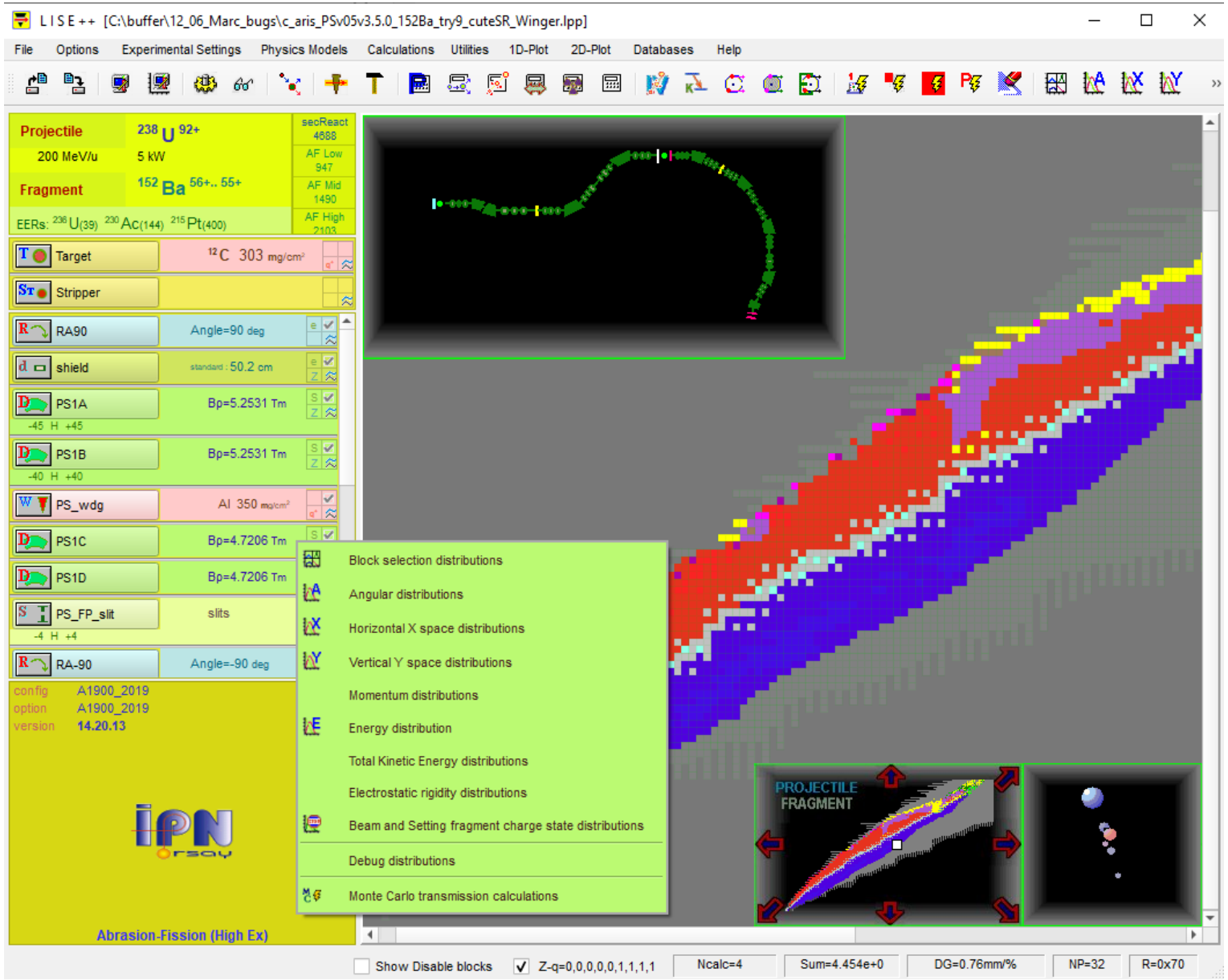


Fig. 1. A schematic diagram of the LISE^{++} development plans.

The LISE^{++} software suite is undergoing a major transportation to a new graphics framework in order to support modern compilers and computing methods.

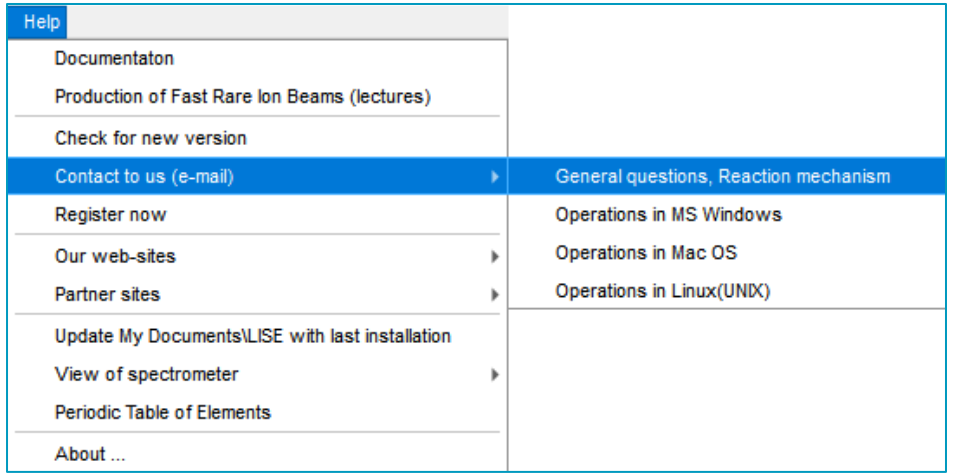
Qt *framework*. For compatibility with future operating systems, the graphics framework is being transported to Qt. Benefits include provisions for 64-bit operation, cross-platform compatibility, and the ability to take advantage of computational advances. Qt was chosen as the graphics framework based on its cross-platform capabilities, large feature set, and widespread use in cross-platform C++ applications. Qt is a package of C++ graphics libraries that has great benefits for developing applications for nearly all operating systems and devices. The code remains essentially identical for all platforms, which allows for easy compilation of executable programs for any operating system or device. We will release Windows, Mac, and Linux versions of the software.

2020

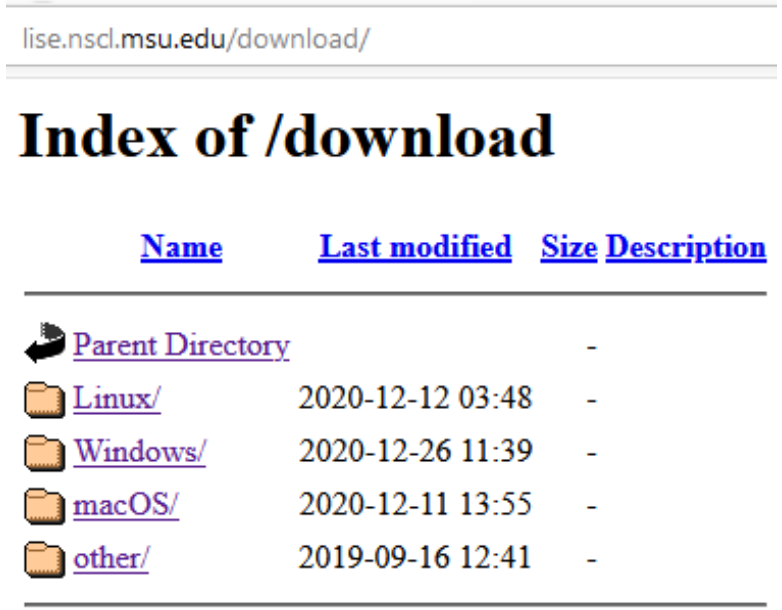


LISE++ *cute* : download & contacts

Version availability		Contact for operations
• Windows:	12/30/20	TARASOV@FRIB.MSU.EDU
• macOS:	12/30/20	BAZIN@FRIB.MSU.EDU
• Linux:	12/30/20	ZHANGT@FRIB.MSU.EDU

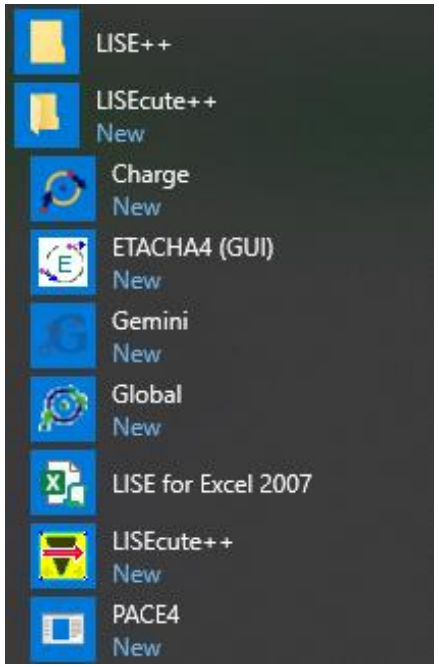


http://lise.nscl.msu.edu/download/



LISE++cute as 64-bit code is installed in “/Program Files/LISEcute” folder,
that allows to keep the previous Borland version in “/Program Files (x86)/LISE” folder.

	LISE++cute (64 bits)	LISE++ (32 bits)
Versions:	≥ 14	≤ 13
Icon on Desktop :	LISEcute++	LISE++
Folder in Program Files :	LISEcute	LISE
App name in Program Files:	LISE++.exe	LISE++.exe
Folder in Documents :	LISEcute	LISE
Folder in StartUp menu:	LISEcute++	LISE++
Associations with lpp & lcn files	Yes	No



by D.Bazin

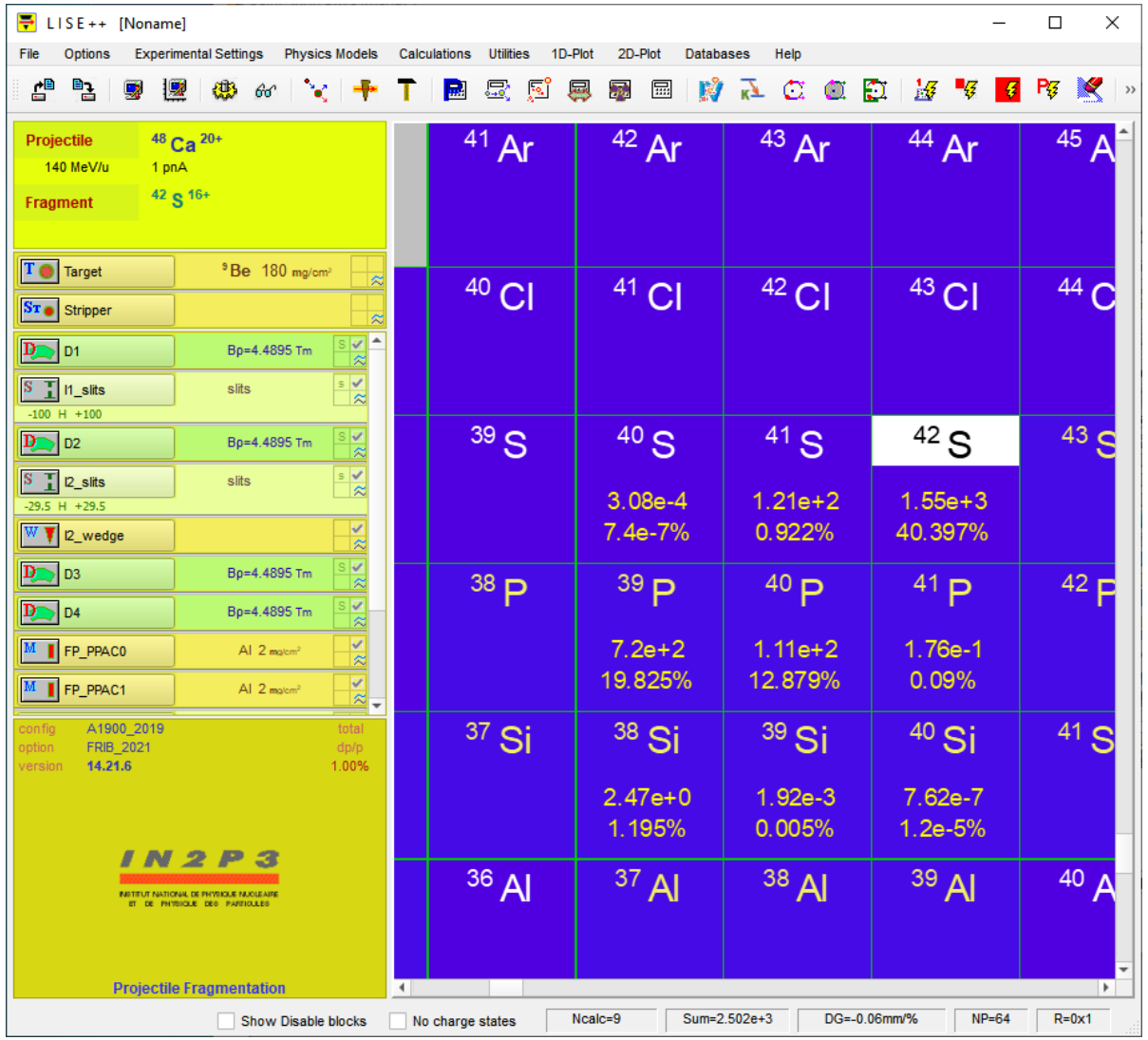
- LISE++ cute is installed as a macOS app bundle that can be placed anywhere.
- However, it is recommended to place the LISE++ app bundle in the “Applications” folder.
- When starting LISE++ cute for the first time, a working folder named “LISEcute” is created in the “Documents” folder if it doesn’t exist.
- This version has been tested on Catalina (10.15.7) as well as High Sierra (10.13.6)
- Some caveats and details specific to the macOS implementation.
  - LISE++ cute doesn’t display well in dark mode (work in progress).
  - When used on a laptop, it is preferable to use an external mouse rather than the trackpad: the zoom in and out actions are difficult to control.
  - A mouse with clickable wheel is the best choice: click wheel to calculate isotope, double-click to erase calculation.
  - The default font size might be too small: please change it in the preference panel (size 12 seems to work best on macOS).

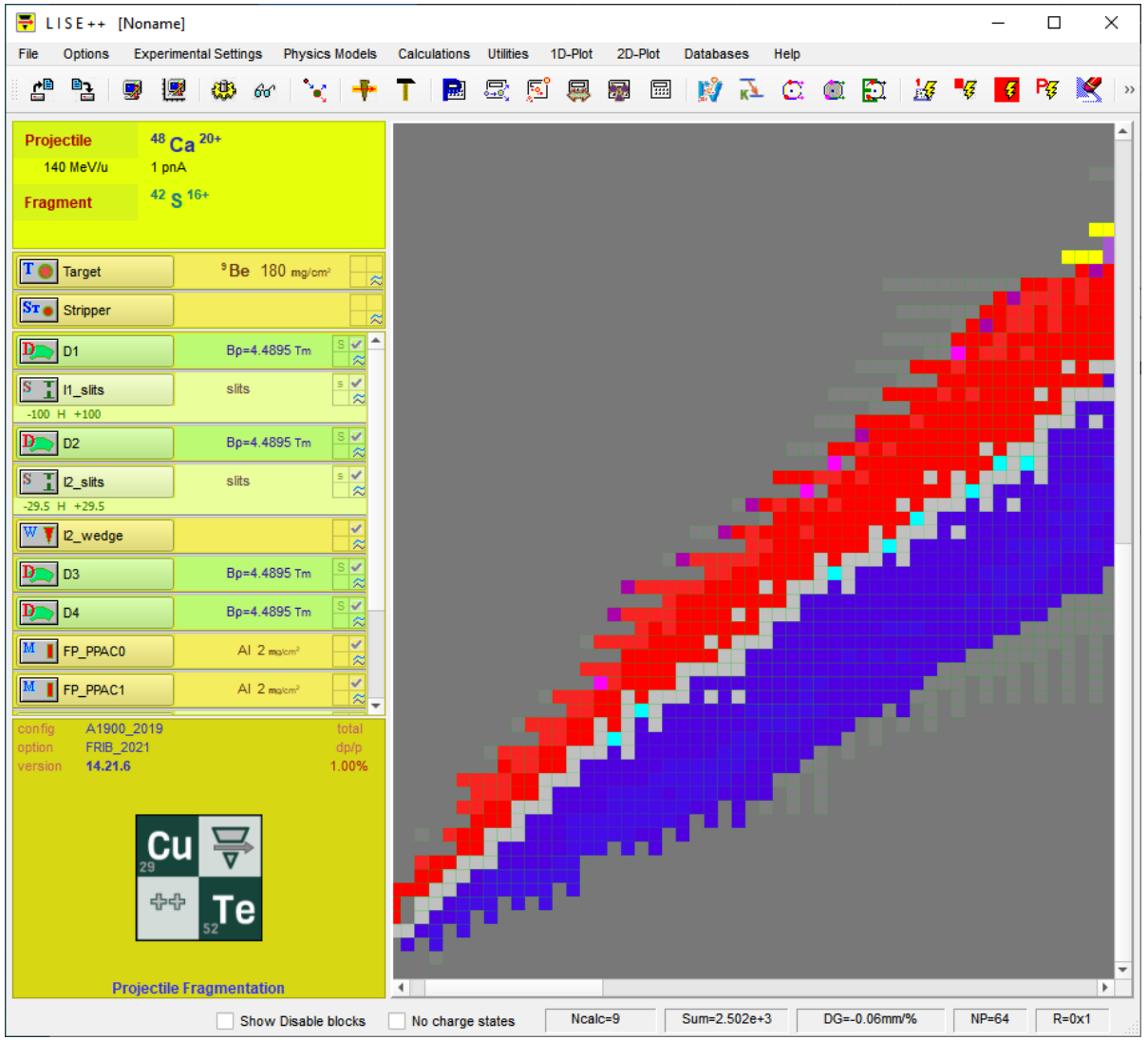
by T.Zhang

- Tested on Debian Buster (10), distributions released later than Ubuntu Xenial (16.04) should work as well
- Run with self-extractable script:
  - Download lise-<version>.run file, chmod +x lise-<version>.run if it is not runnable
  - Type ‘./lise_<version>.run’ in the directory where the file is
  - Get into the new created folder ‘lise-app’ and type ‘./run_lise.sh’to start
- Run with Debian package (for Debian, Ubuntu, etc.)
  - Install lise-app_<version-string>.deb by ‘dpkg -i’ or by double-clicking on Ubuntu (Debian may needs extra packages)
  - Menu entry named LISE++ should appear in your system menu, or type ‘lise++’ in the Terminal to start LISE++ cute
- Known issues:
  - Dialogs pop up from the sub-controls in device setting dialog appear behind

Mouse actions with the Table of Nuclides (1)

Zooming In / Out : mouse wheel rotation

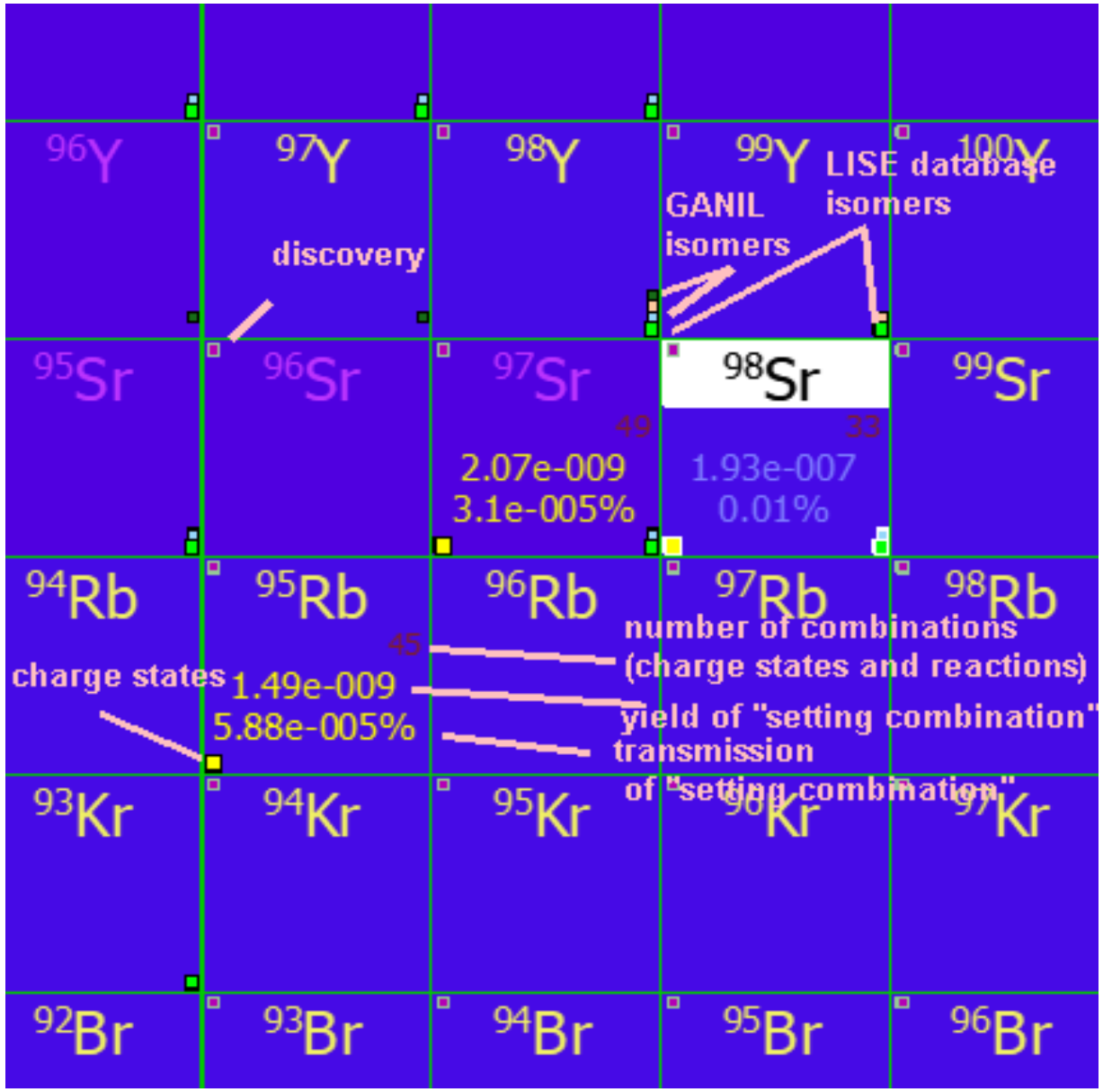




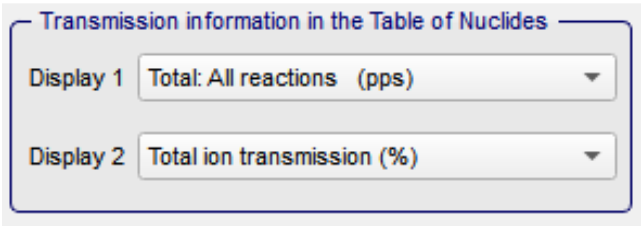
Mouse actions with the Table of Nuclides (2)

button	click	action
Left	single	drag mode (press and release)
Left	double	show database information
Middle	single	calculate transmission (no transmission statistics window)
Middle	double	clear transmission information of this isotope
Middle	rotation	zoom in/out
Right	single	calculate transmission, show transmission statistics window
Right	double	calculate transmission, show transmission statistics window, and then close

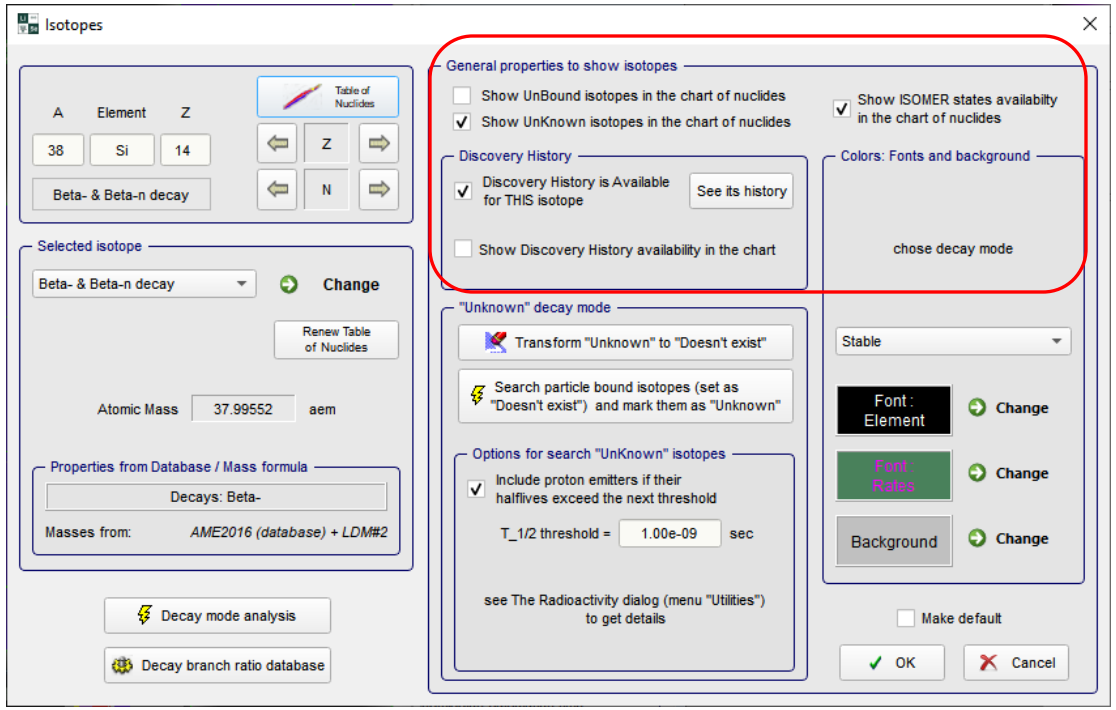
Isotope transmission and database information in the Table of nuclides



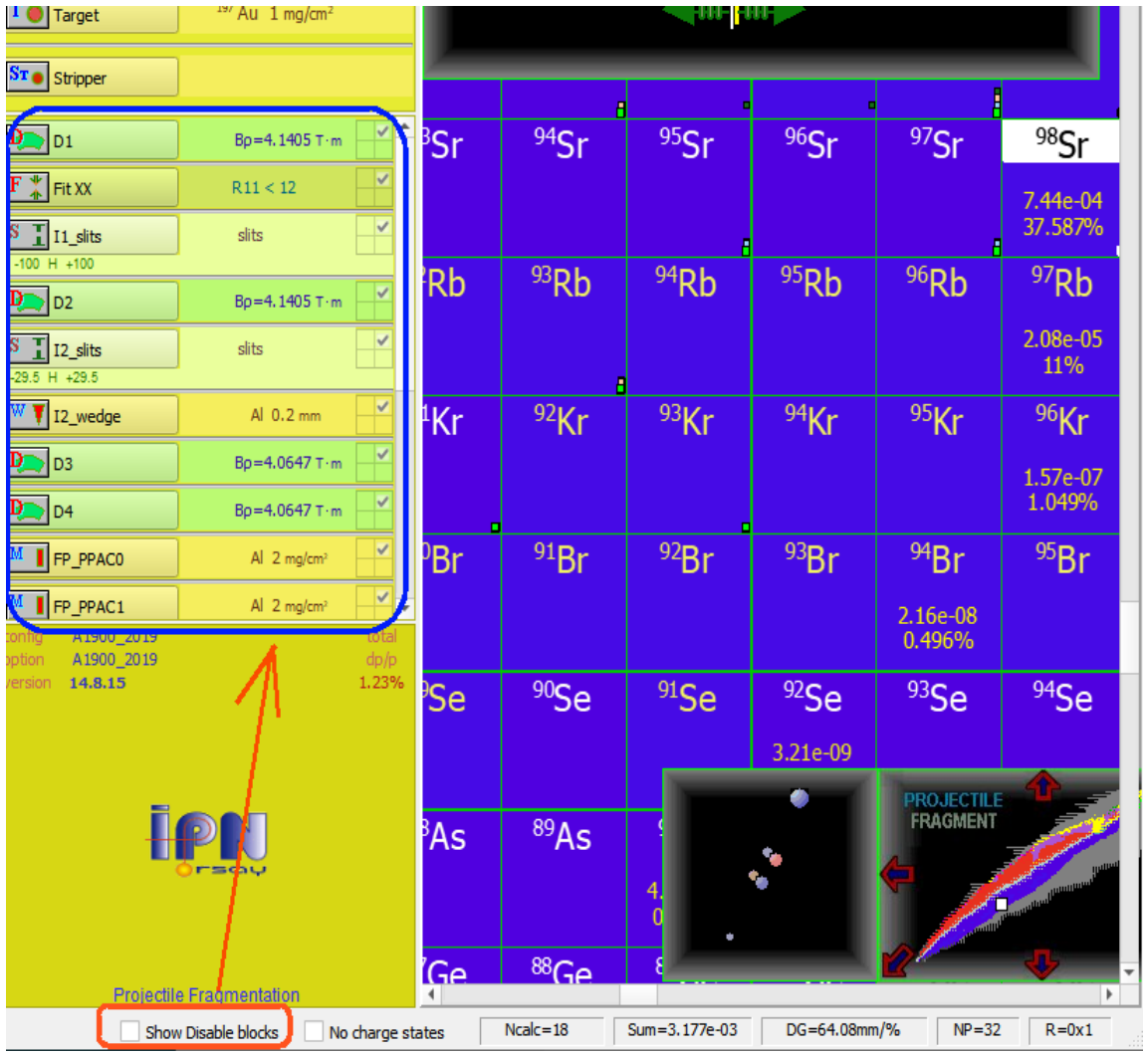
Preference dialog in Options menu

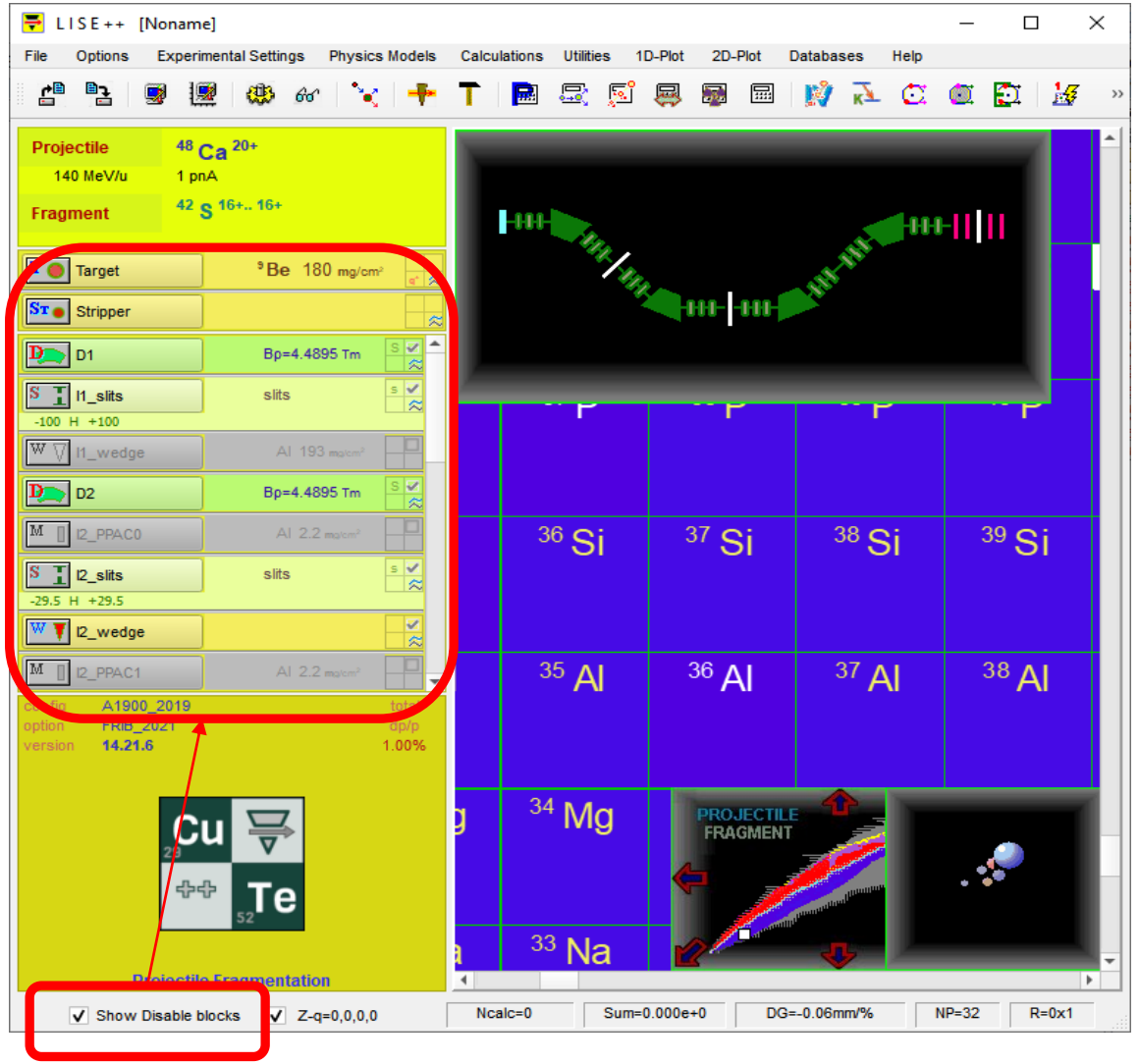


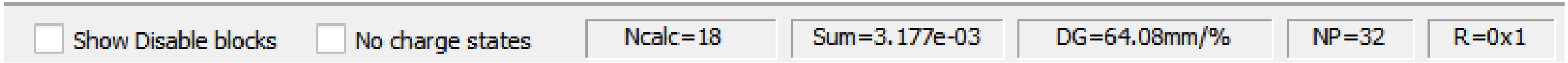
Isotopes dialog in Options menu



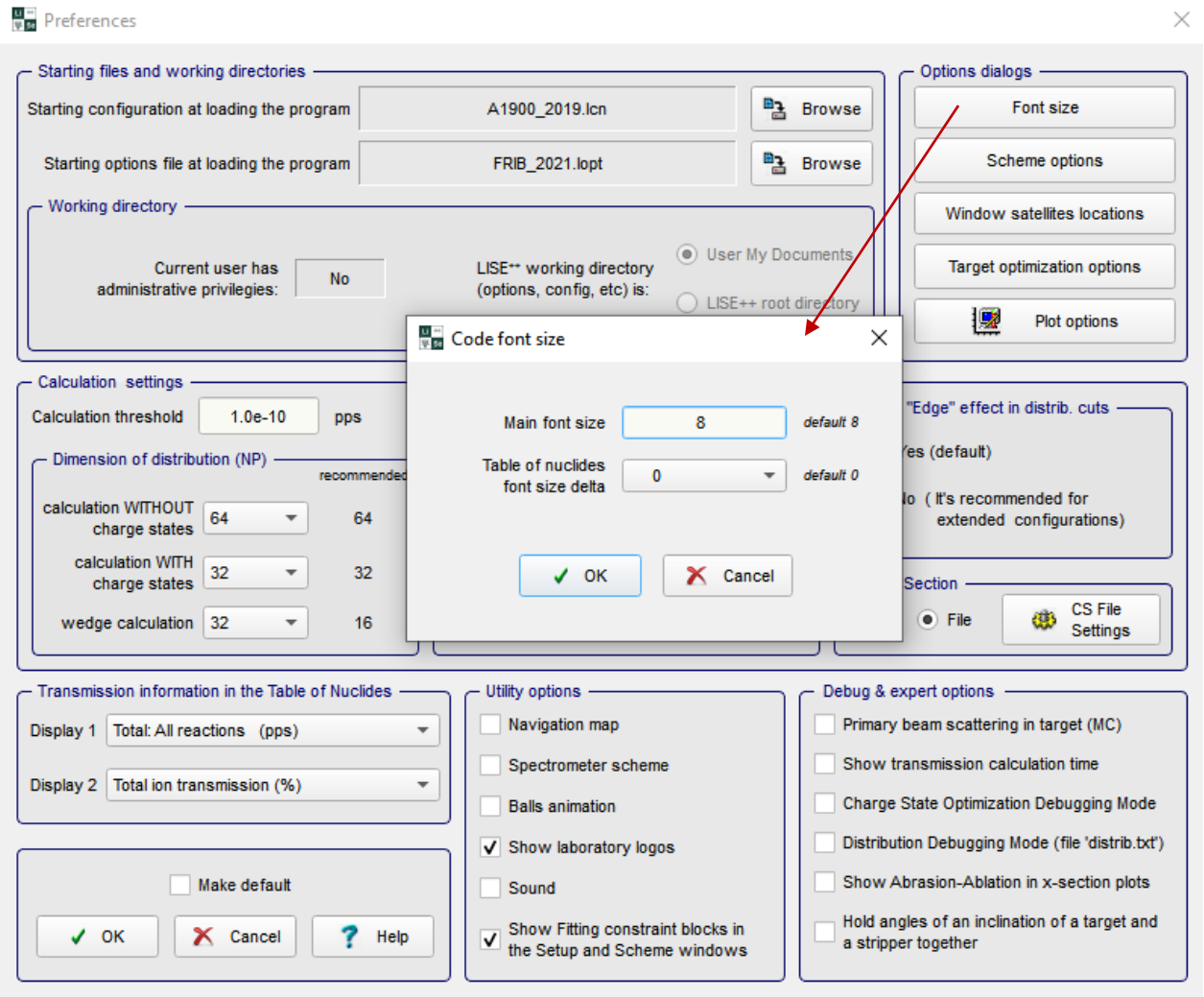
New feature: Show/Hide disable blocks







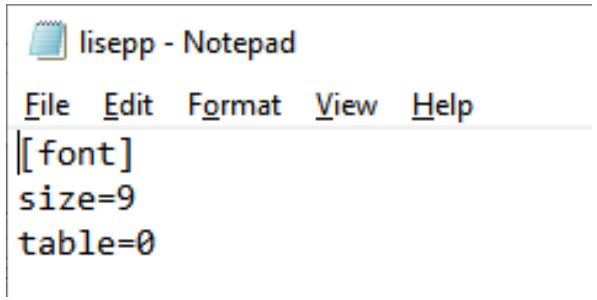
Application font size



After it is necessary to reload the application

or editing “lisepp.ini” file

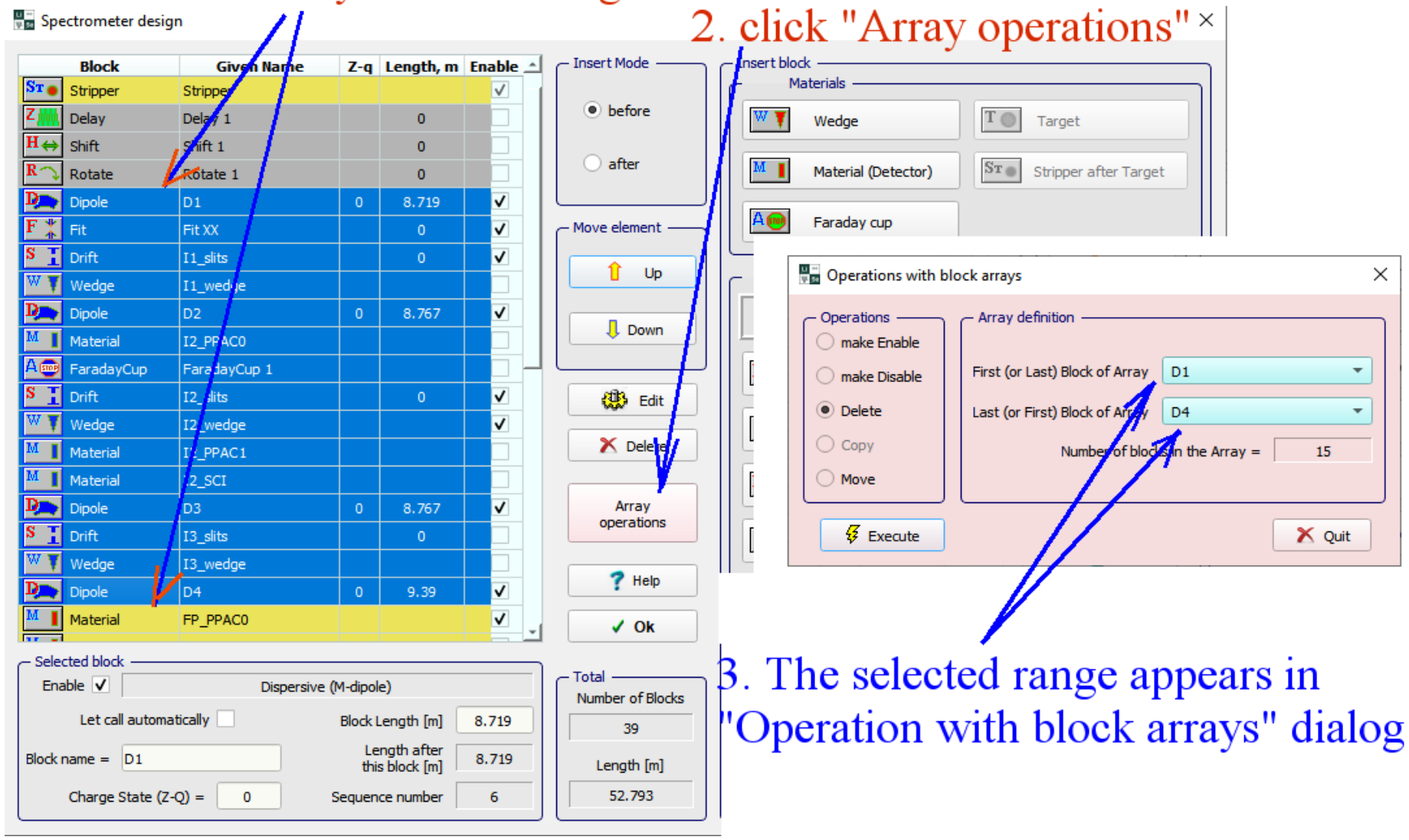
(by default after installation in Documents/LISEcute/)



Array operations in the Spectrometer design dialog

1. select by mouse a range of blocks

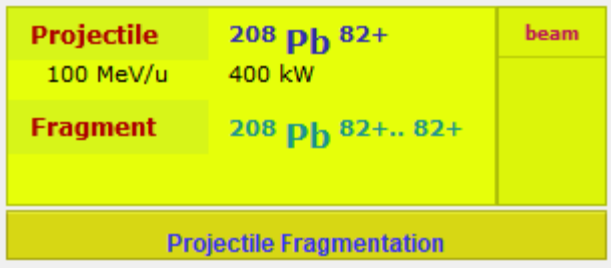
2. click "Array operations"

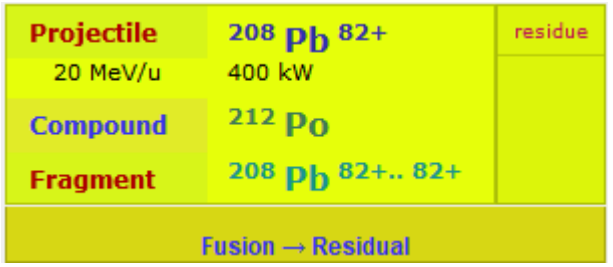


3. The selected range appears in "Operation with block arrays" dialog

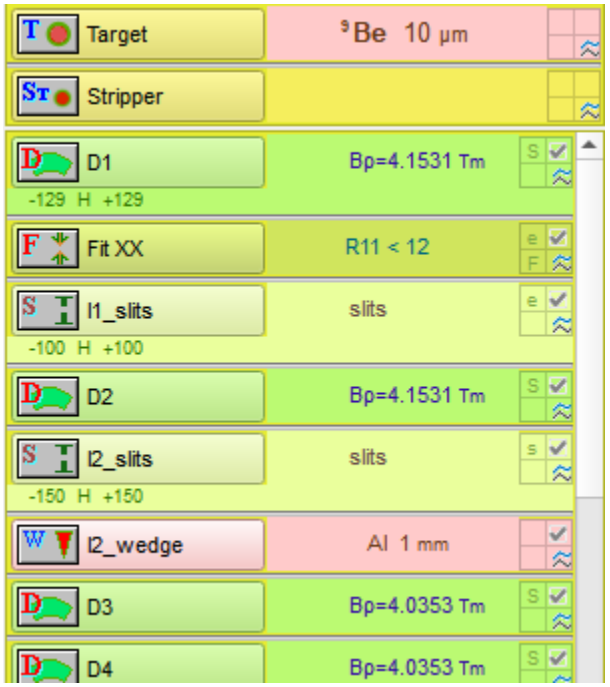
Left setup panel: features

Reactions

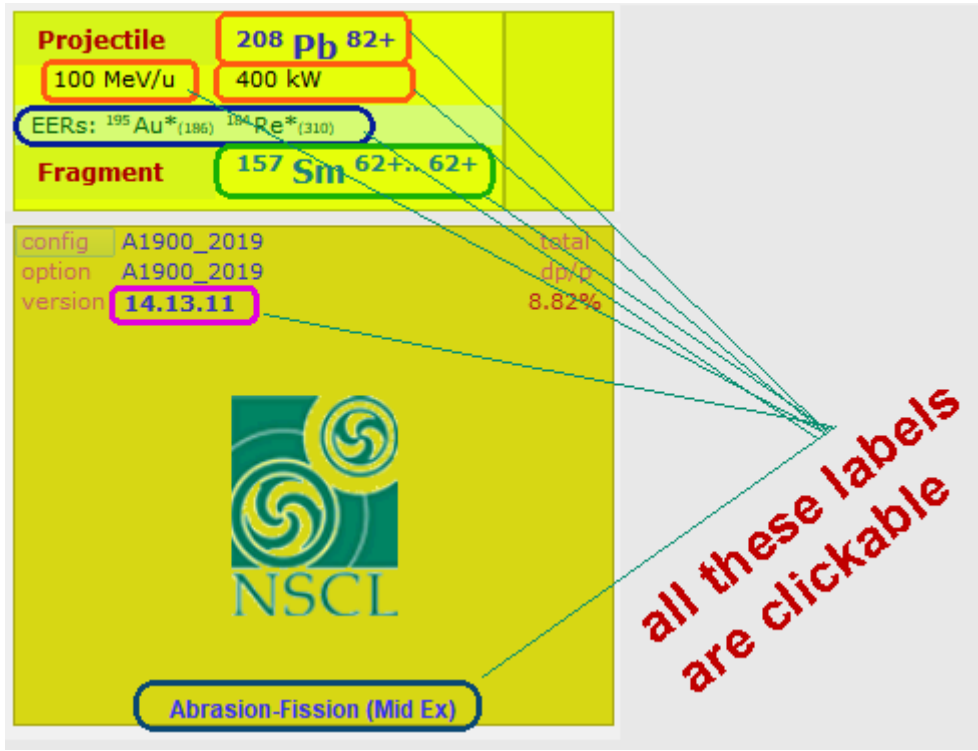




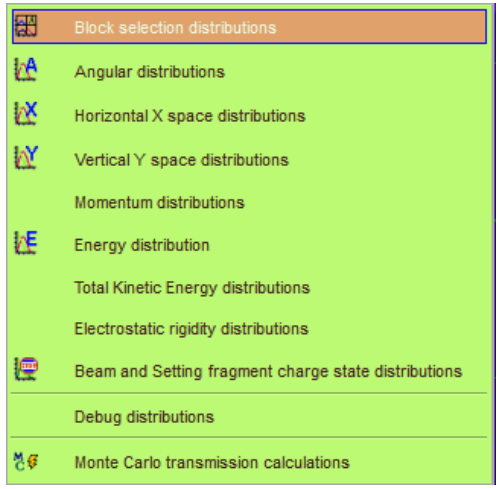
"Secondary Target"
Production material

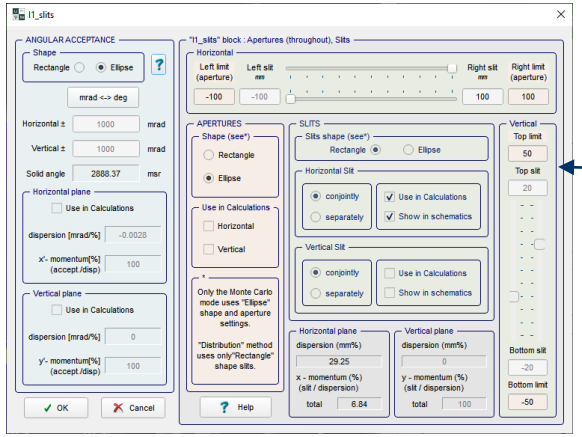


New class "ClickableLabel"



Left setup panel: labels and actions





Right mouse button click

Left mouse button click

Compound block:
G – gas

Optical block:
S,s – section
E,e – element

MC plots after this block

Block Enable/Disable

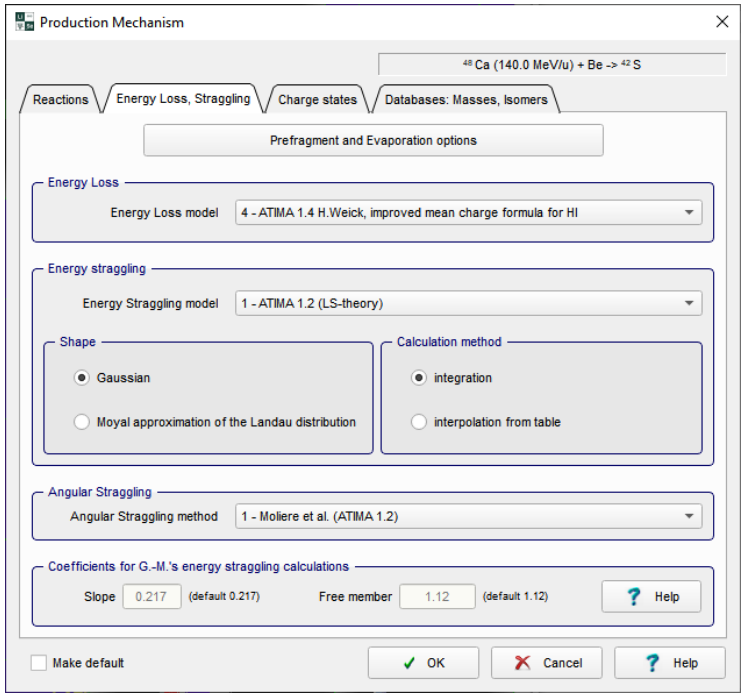
Optical block:
Z – COSY map
f – used in optics minimization

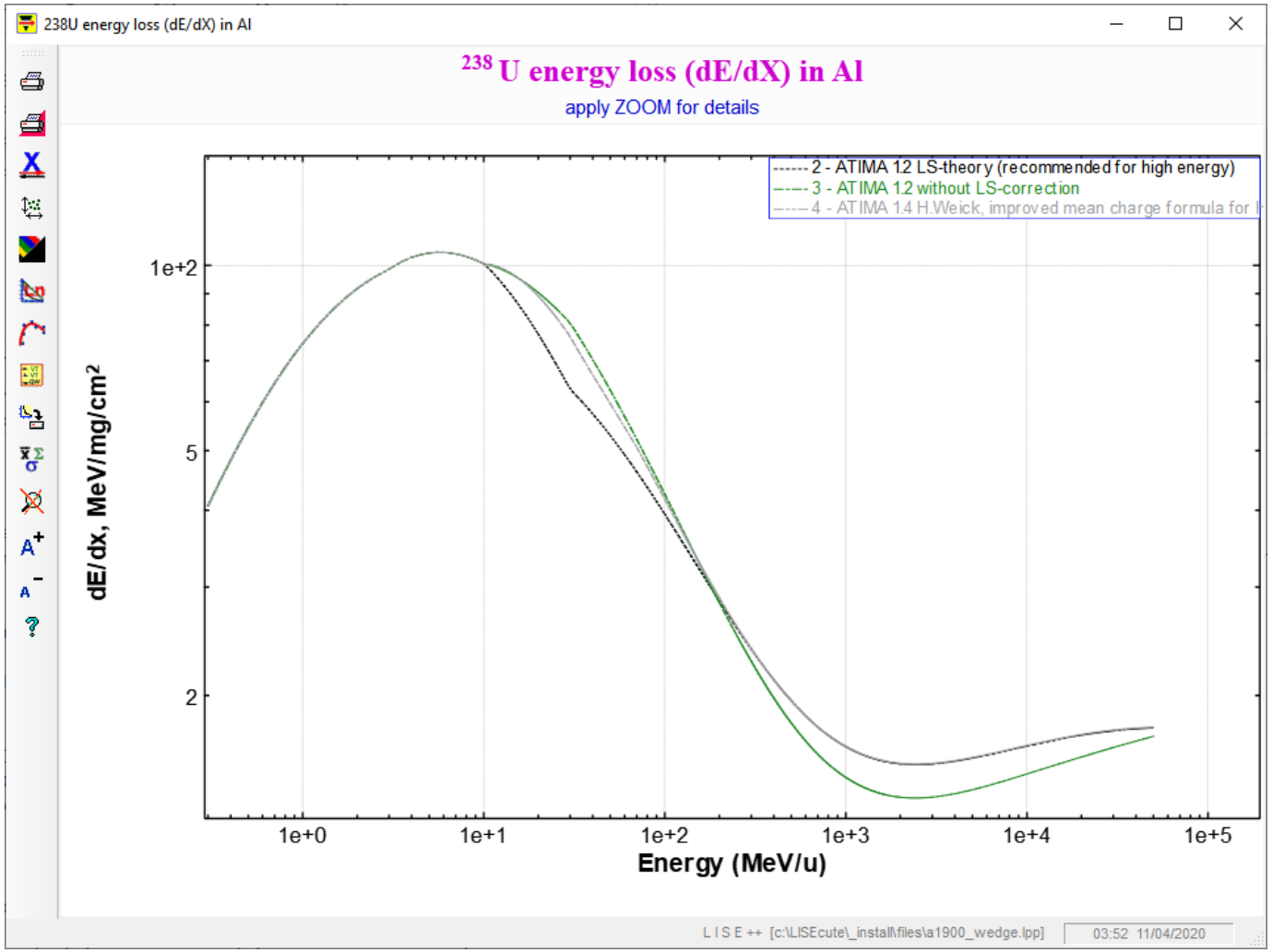
Compound block:
q+ – use in Q-state calculations

Implementation of ATIMA1.4 (catima1.5)

Complete agreement with ATIMA14 site results were obtained

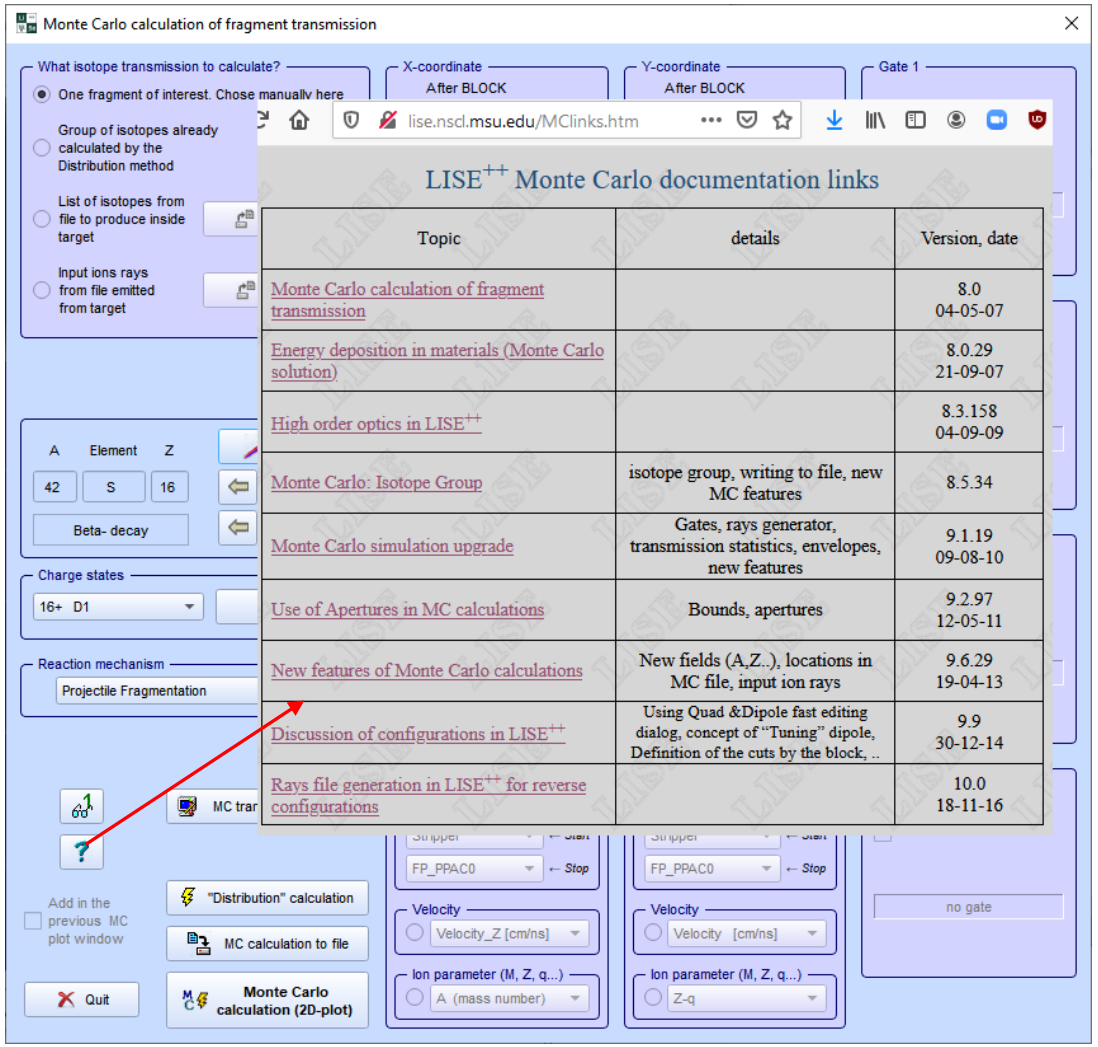
ATIMA 1.4 is set as default Eloss model in version 15



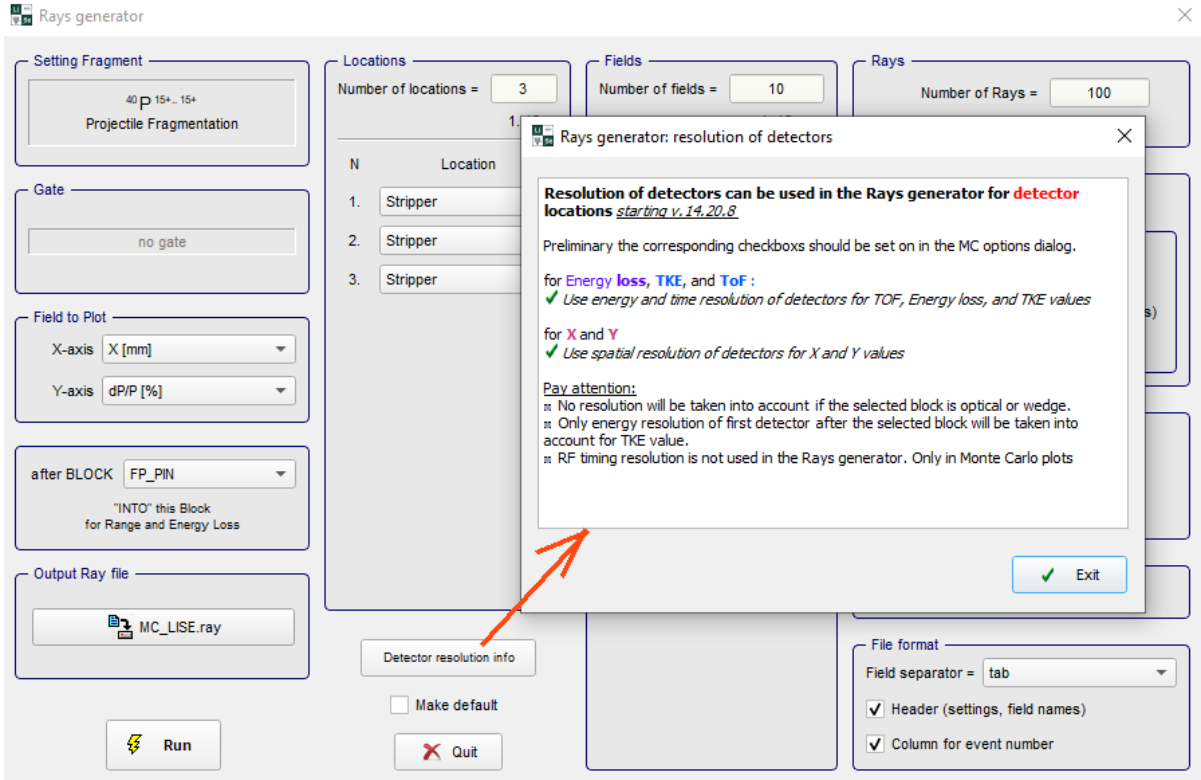


Acknowledgements to Drs. H.Weick and A.Prochazka

Monte Carlo dialog updates

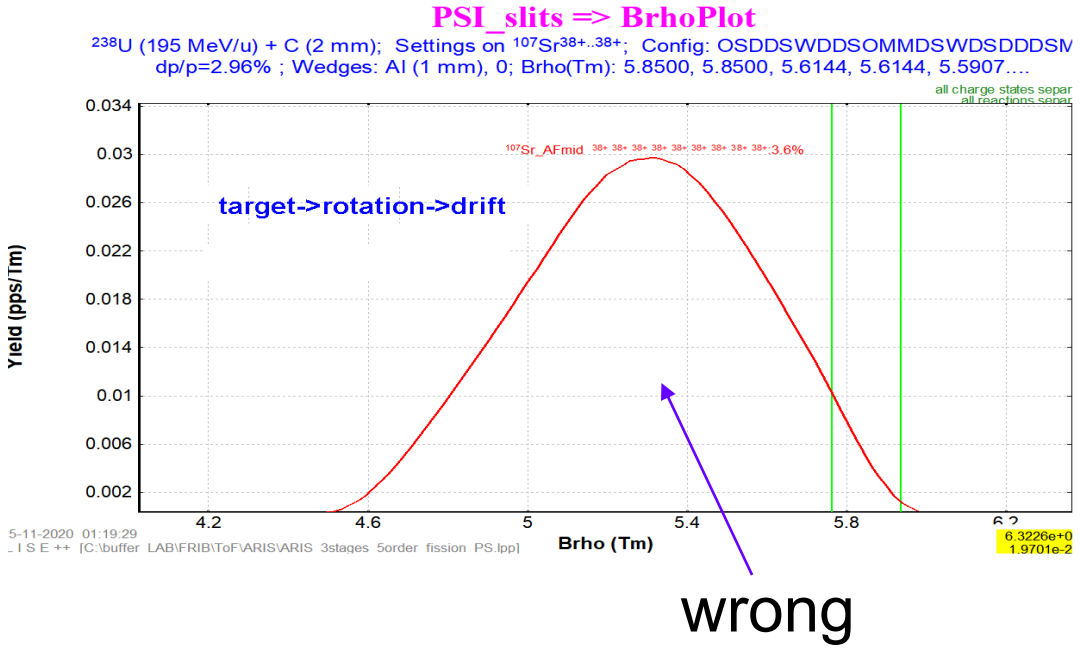


NEW: Using detector resolution in the MC ray generator (MC file) for Detector (material) blocks

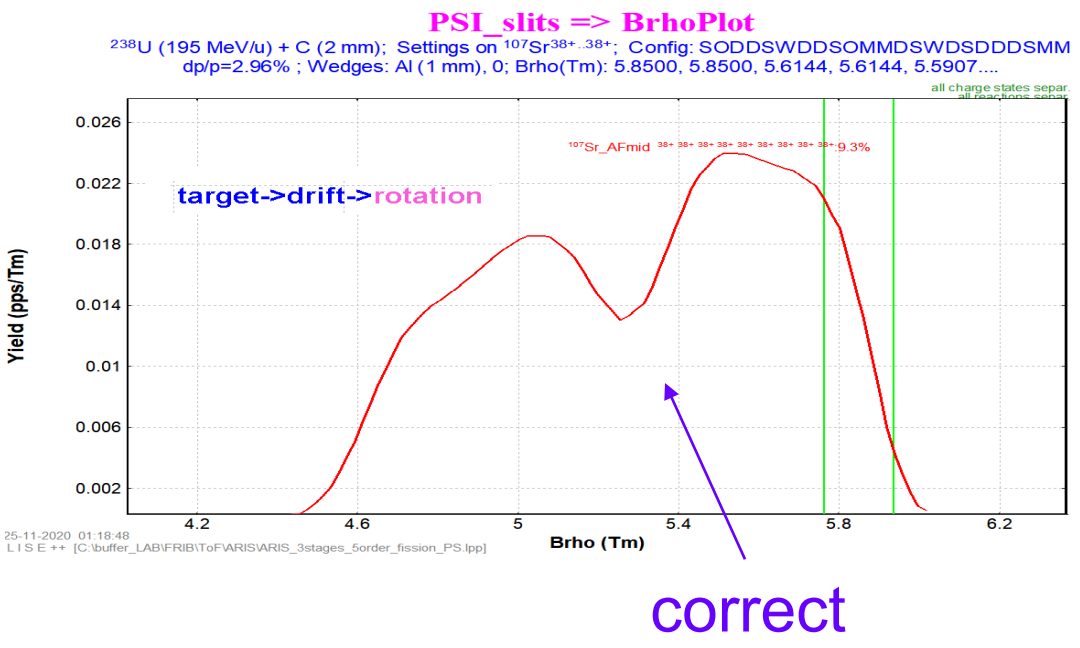


Bug with DF-distribution in fission mode with rotation block

1. Takes only place if the rotation block is located just after target in the Fission mode
2. In ARIS configuration the “dummy dipole” is used to be after a target, it is a reason why this bug was not observed.
3. The bug was fixed in version 14.
4. Bug’s origin is DF-energy distribution in the D4-distribution class



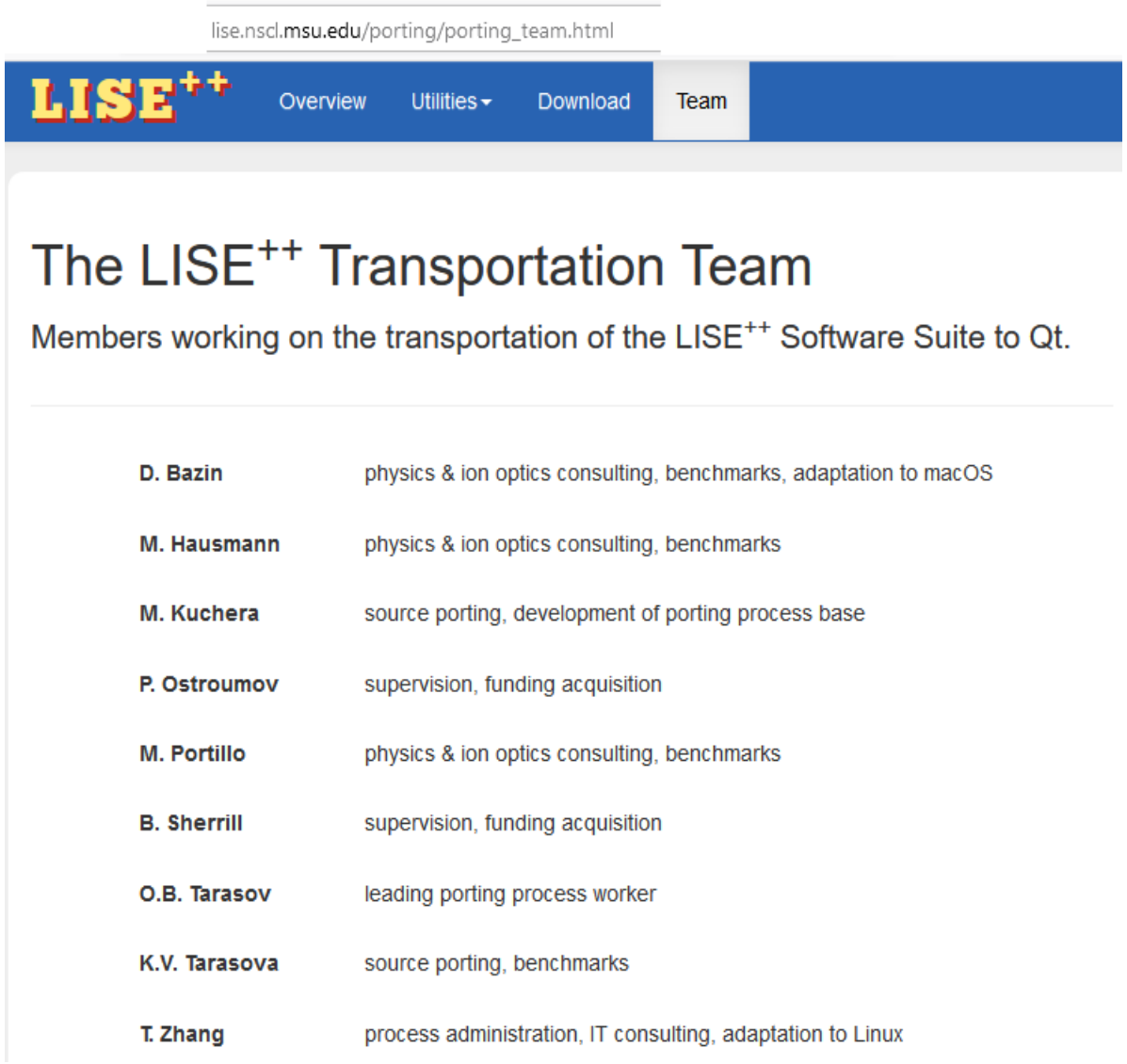
wrong



correct

Borland versions (≤13) is not longer supported.
Bugs in these versions will only be fixed in LISE$^{++}_{cute}$ (≥ 14)

LISE$^{++}_{cute}$ porting team and next steps



NEXT

Creation of LISE$^{++}_{core}$ library

http://lise.nscl.msu.edu/porting/porting_team.html