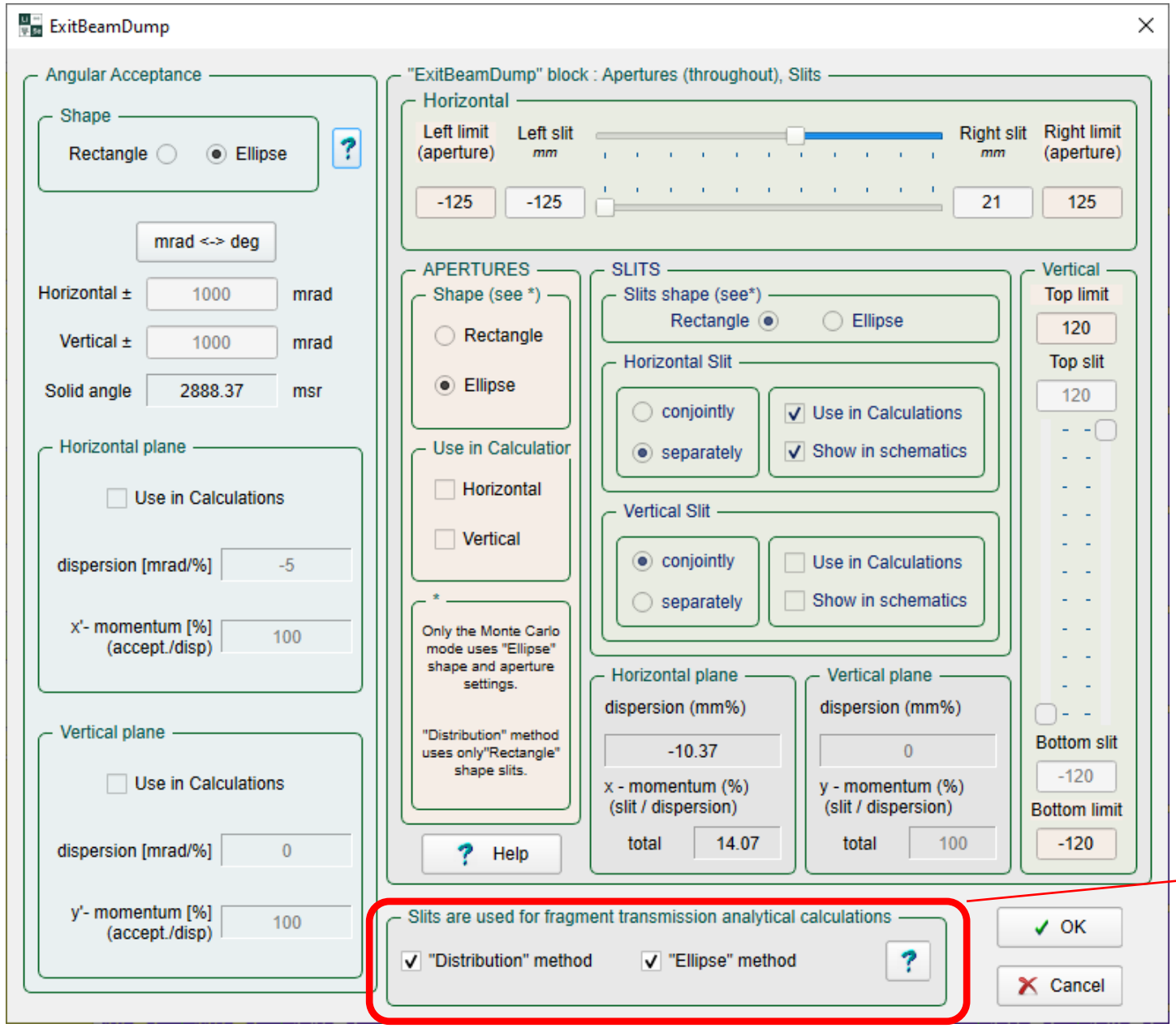
LISE++ *cute* : slits use for transmission methods

v.16.5.31
08/06/22

- Beam dump slits are used to change the momentum distributions of the projectile.
- These slits are usually located after first dipole in the unfocused dispersion plane.
- The use of slots at this location can adversely affect transmission calculations depending on the limitations of the transmission model.

Transmission method	Type of calculations	Where is used	Using slits for fragments in a defocused disprerion plane
Ellipse	analytical	Dialog “Goodies” 2d-plots (ellipse mode) RF-kicker tuning	Non-acceptable. Possible incorrect energy interpolation after a cut.
Distribution	analytical	Principal transmission analytical calculation method (setting fragment, background), 2d-plots PseudoMonteCarlo	No recommended. Overestimated accumulated uncertainties. Possible double transmission cut
Monte Carlo	Monte Carlo	Monte Carlo dialog	welcome

Acceptance / Slits dialog: slits use for transmission methods



“Distribution” transmission method

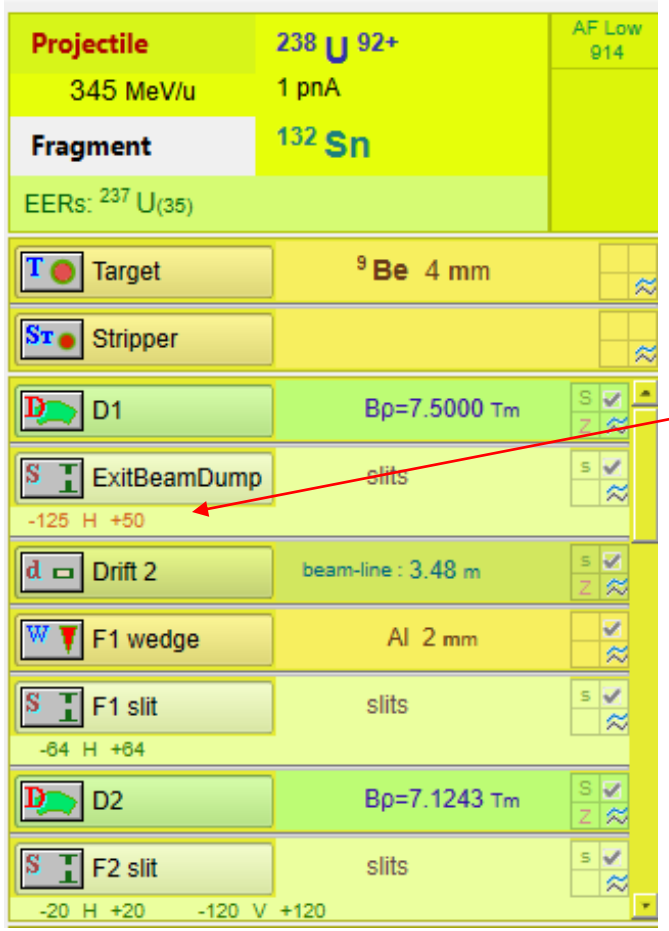
```
bool useSlits = bc->slit.GetWork() &&
        (B->slits.useDistributionMethod || Ce->primaryBeamFlag());
```

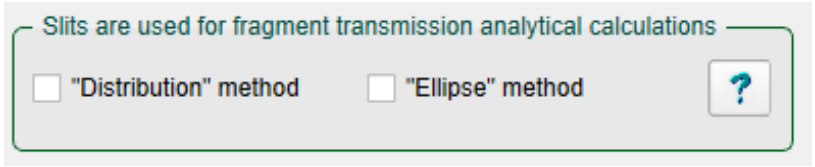
“Ellipse” transmission method

```
bool useEllipseSlits = c->slits.useEllipseMethod || calc->primaryBeamFlag();
 if(c->CheckAllOpticBlock() && useEllipseSlits) PL->PassSlits(c, disx, disy);
```

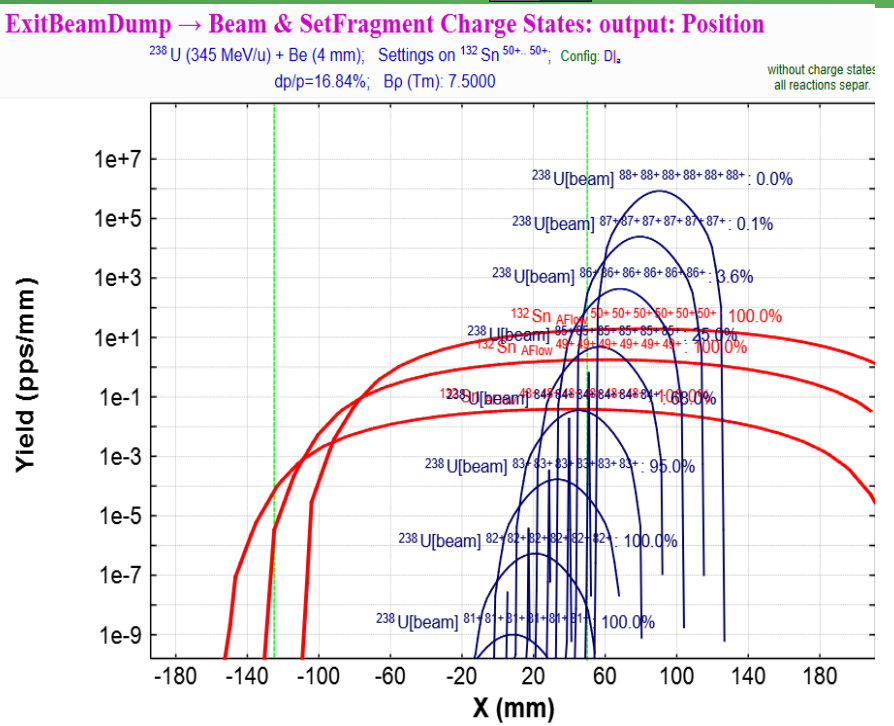
Unchecking a selected method means:
These slits won’t be used for fragments,
and they will be used only for a primary beam.

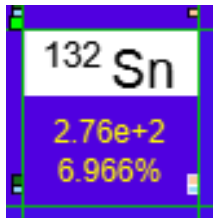
Example: Slits use for the Distribution method



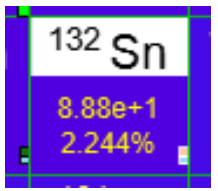


Red color indicates, that these slits are not used for some methods





Beam dump slits are NOT used for fragments with the Distribution method



Beam dump slits are used for fragments with the Distribution method

Example: Slits use for the Distribution method

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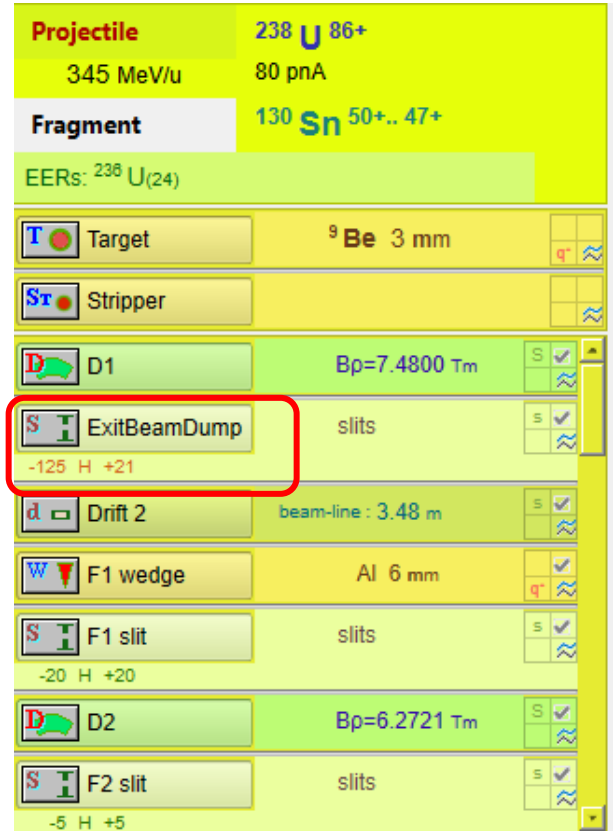

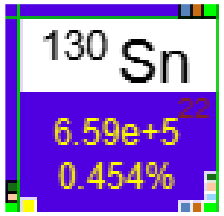

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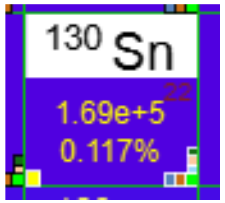

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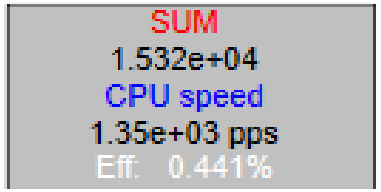

Monte Carlo transmission method

Example: Slits use for the Ellipse method

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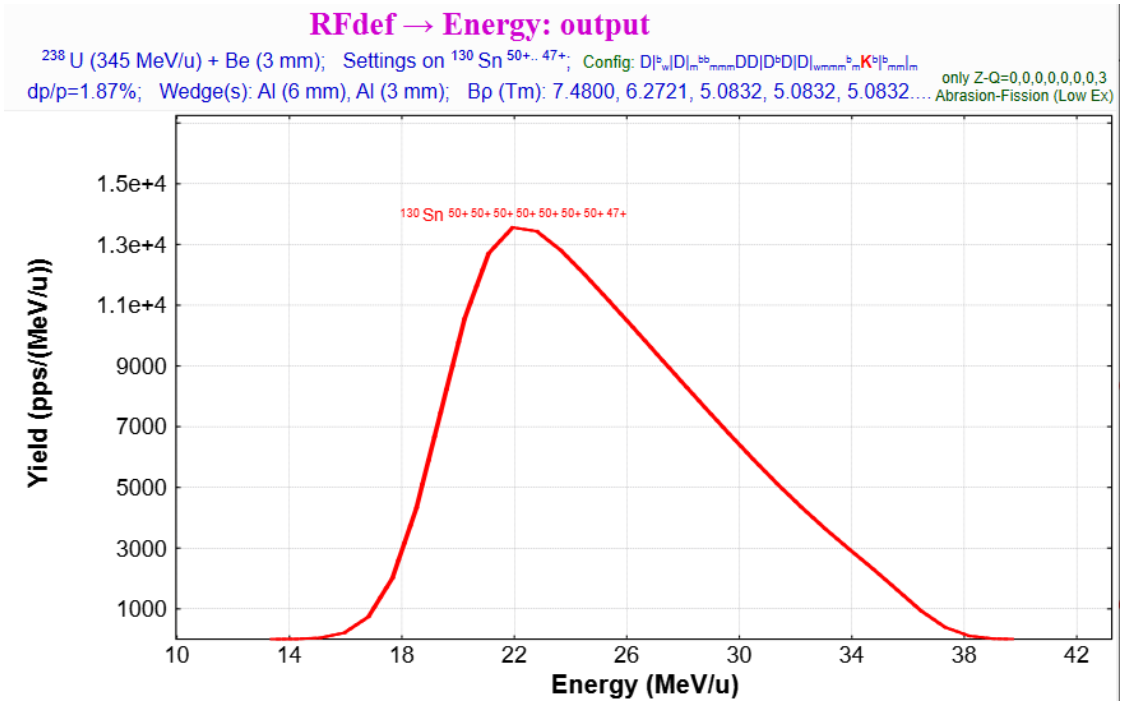
Projectile	238 U 86+
345 MeV/u	80 pnA
Fragment	130 Sn 50+.. 47+
EERs: 238 U(24)	
Target	9 Be 3 mm
Stripper	
D1	Bρ=7.4800 Tm
ExitBeamDump	slits
-125 H +21	
Drift 2	beam-line : 3.48 m
F1 wedge	Al 6 mm
F1 slit	slits
-20 H +20	
D2	Bρ=6.2721 Tm
F2 slit	slits
-5 H +5	



correct

wrong

Calculations for the setting fragment

Values corresponding to Energy

Before the RF separator	<E>-dE	<E>	<E>+dE
Energy [MeV/u]	22.49	26.72	30.96
Time of flight [ns]	675.06	668.35	661.64
Phase [deg]	42.59	358.51	314.42

Calculations for the setting fragment

Values corresponding to Energy

Before the RF separator	<E>-dE	<E>	<E>+dE
Energy [MeV/u]	40.78	41.79	42.79
Time of flight [ns]	649.8	648.72	647.64
Phase [deg]	236.62	229.53	222.45

Beam dump slits are NOT used for fragments with the **Ellipse** method

Beam dump slits are used for fragments with the **Ellipse** method