

//-----
 // 14.3.24 04/17/20
 // * d_Multipole dialog: re-design 100%, connection 95%
 // * d_Quad_electric dialog: re-design 100%, connection 95%
 // * d_Quad_effLength dialog: re-design 100%, connection 95%
 // * d_Finger dialog: re-design 100%, connection 95%
 // * d_Quad_calibration: re-design 100%, connection 95%
 // 95% -- small benchmarks are still needed

Multipole: I1_slits

Magnetic Multipole Settings

L_eff (effective length) mode: <Keep> 0 m

QUADrupole SEXTupole

B (field at pole tip) 13 0 kG

Radius (half-aperture) 5 5 cm

B & S field values in Fitting

QUADrupole SEXTupole

Use in Fitting process

Use Bounds constraints

Lower bound -100 -100 kG

Upper bound 100 100 kG

Block settings, information

Block length 0 m

Current (Real) Brho-value for the setting fragment 4.48951 Tm

Setting fragment 12S

Multipole fixed Brho-value corresponding to the setting fragment (it will be used for scaling) 4.48951 Tm

Fix current value

Calculate 2nd order matrix elements

Allow remote matrices recalculation

B() calibration

no calibration file

Do not forget to recalculate the Optical matrix if you changed cell contents in the Manual mode!

⚡ Recalculate Voltage for the fragment current Erho

⚡ Calculate Optical matrix

🔗 Edit Optical matrix

OK Cancel

if Brho-value has been changed then

no actions

recalculate automatically B (fields), keep the matrix [Recommended]

recalculate automatically the matrix keep B (fields)

Effective multipole length settings

Equal to Block Length (L)

Set manually by user

Calculated : $L_{eff} = L + a \cdot coef$

Note!
 Effective length is used for optical matrix calculation, Block length is used for time-of-flight calculations

coef = 0.7

where
 "L" : block (physical) length [m]
 "a" : half-aperture [m] recommended value is 0.7

Neighbour blocks have to be drifts. Their effective lengths will be recalculated in order to compensate this effective quad length.

Obtained from calibration file $L_{eff} = f(B)$

OK Cancel Help

I1_slits : quadrupole filed calibration

B 13 kG

I A

E=Rx
C=+B Calibration file

Accept value & Exit Quit

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 // * d_Quad_calibration dialog: re-design 100%, connection 95%
 // 95% -- small benchmarks are still needed

Finger (Special slits) block

"Fingers" positions (mm)				
	Center	Width	Left	Right
<input checked="" type="checkbox"/>	6	1	5.5	6.5
<input checked="" type="checkbox"/>	0	2	-1	1
<input checked="" type="checkbox"/>	-6	3	-7.5	-4.5
<input type="checkbox"/>				
<input type="checkbox"/>				

"Finger" settings for analytical transmission calculations

Diffuseness (mm) = default 0.01

Suppression factor = default 1e12

OK Cancel Help Fingers Plot

Electrostatic Quadrupole

Settings

L_eff (effective length) mode: <keep> m

U (voltage) = kV

Radius (half-aperture) = cm

Quad fixed Erho-value corresponding to the setting fragment MJ/C

Calculate 2nd order matrix elements

Allow remote matrices recalculation

Fix current value

Block settings, information

Block length m

Current (Real) Erho-value for the setting fragment MJ/C

Setting fragment

U (voltage) parameter in fitting

Use in Fitting

Use Bounds constraints

Bounds (kV)

lower

upper

Do not forget to recalculate the Optical matrix if you changed cell contents in the Manual mode!

if Erho-value has been changed then

no actions

recalculate automatically U (voltage), keep the matrix [Recommended]

recalculate automatically the matrix, keep U (voltage)

⚡ Recalculate Voltage for the fragment current Erho

⚡ Calculate Optical matrix

🔗 Edit Optical matrix

OK Cancel

//-----
 // 14.3.25 04/18/20
 // * d_Matrix_single dialog: DONE!
 // * d_Matrix_singleBeam dialog: DONE!
 // * d_Matrix_doubleBeam dialog: re-design 100%, connection 10%

// d_Matrix_singleBeam is temporary linked with Disperse Optic Block dialogs
 // d_Matrix_doubleBeam should be

The image shows two overlapping software dialog boxes. The 'Dialog' box on the left is titled 'Dispersive block (M-dipole)' and contains several input fields and buttons. The 'D1' box on the right is a matrix calculation dialog with a table of values and a 'Beam (sigma)' section.

Dialog Box (Left):

- Dispersive block (M-dipole):**
 - Strength:
 - Brho: 0.00 Tm
 - B: 0.00 T
 - I: 0.00 A
 - Bend Sector:
 - Radius = 3 m
 - Angle = 45 deg
 - Length = 12.1 m
- Optical block properties and data:**
 - Section-Element construction property:
 - S-block (Section) E-block (Element)
 - Setting Charge state for the Block (Z-q): 0
 - Tweak: 0.100 %
 - Calculate Values using:
 - Setting fragment from:
 - Target
 - D2
 - Calculate other blocks:
 - Up-stream
 - ALL
 - Down-stream
 - Buttons: Slits & Acceptances, Optical matrix, General block settings, Calibration file, Matrix calculation, Allow remote matrices calculations.

D1 Dialog Box (Right):

1. X	-2.28459	0.009	0	0	0	29.2533	[mm]
2. T	1.06245	-0.44189	0	0	0	-0.00283	[mrad]
3. Y	0	0	0.73853	0.0022	0	0	[mm]
4. P	0	0	3.74271	1.36526	0	0	[mrad]
5. L	3.10738	-1.2927	0	0	1	5.7769	[mm]
6. D	0	0	0	0	0	1	[%]
	/[mm]	/[mrad]	/[mm]	/[mrad]	/[mm]	/[%]	

Det = 1.00000

Buttons: Import/link COSY map, [Matrix icon], [Matrix icon]

Beam (sigma):

- 3.068
- 2.856
- 0.739
- 11.546
- 8.365
- 0.07

Dimensional: mm cm

Buttons: Ok, Cancel

//-----
 // 14.3.26 04/19/20
 // * d_Rotate block dialog: DONE!
 // * d_Shift block dialog: DONE!
 // * d_Matrix_doubleBeam dialog: re-design 100%, connection 50%
 // d_Matrix_doubleBeam has been finally linked with Disperse Optic Block dialogs

Axis Shift (position, direction) [X]

Dimension: mm cm General block settings

Optical Axis Shifts:

d X: 0 mm
 d T: 12.5 mrad
 d Y: 0 mm
 d P: 0 mrad
 d T: 0.716 degrees
 d P: 0 degrees

Rotate 1 [X]

Angle: -90

Optical matrix - D2 [X]

$G_i = L_i \cdot G_{i-1}$
 G - Global, L - Block (Local)

Dimensional: mm cm

Matrices: Block (local) Global

Second Order LOCAL matrix: Non Exist only for Monte Carlo transmission

Block (Local)

1. X	-1.01866	-0.1222	0	0	0	-29.3222	[mm]
2. T	0.00364	-0.98124	0	0	0	-0.10926	[mrad]
3. Y	0	0	1.14196	-0.0019	0	0	[mm]
4. P	0	0	4.1278	0.86894	0	0	[mrad]
5. L	-0.02179	2.8759	0	0	1	7.0771	[mm]
6. D	0	0	0	0	0	1	[%]
	/[mm]	/[mrad]	/[mm]	/[mrad]	/[mm]	/[%]	

Det= 1.00000

Global

1. X	2.19737	0.04483	0	0	0	-59.1198	[mm]
2. T	-1.05082	0.43363	0	0	0	-0.00034	[mrad]
3. Y	0	0	0.83626	-0.00008	0	0	[mm]
4. P	0	0	6.30069	1.19541	0	0	[mrad]
5. L	6.21267	-2.56376	0	0	1	12.2105	[mm]
6. D	0	0	0	0	0	1	[%]
	/[mm]	/[mrad]	/[mm]	/[mrad]	/[mm]	/[%]	

Det= 1.0001

Beam (sigma)

4.693
2.806
0.836
11.452
16.612
0.07

Lnik to COSY map
 COSY map filename

///-----
 // 14.3.27 04/20/20
 // * d_Delay (efficiency) block dialog: DONE!
 // d_Delay_file dialog is not yet completed
 // * Update of optical matrix base class (flags, masks, ...)
 // * d_Matrix_doubleBeam dialog: re-design 100%, connection 80%

Delay (efficiency) block

Time (drift, extraction or breeding)

Use	Mass	Time, sec
<input checked="" type="checkbox"/>	Light <= 50	1e-06
	50 < Medium < 150	1e-06
	150 <= Heavy	1e-06

Efficiency

Use	Mass	Efficiency, %
<input checked="" type="checkbox"/>	Light <= 50	100
	50 < Medium < 150	100
	150 <= Heavy	100

Efficiency as function of RATE

Use	Mass	Efficiency file
<input checked="" type="checkbox"/>	Light <= 50	...
	50 < Medium < 150	...
	150 <= Heavy	...

Buttons: General block settings, OK, Cancel, Help

Optical matrix - D2

$G_i = L_i \cdot G_{i-1}$
 G - Global, L - Block (Local)

Dimensional: mm cm

Matrices: Block (local) Global

Second Order LOCAL matrix: Non Exist only for Mo transmi

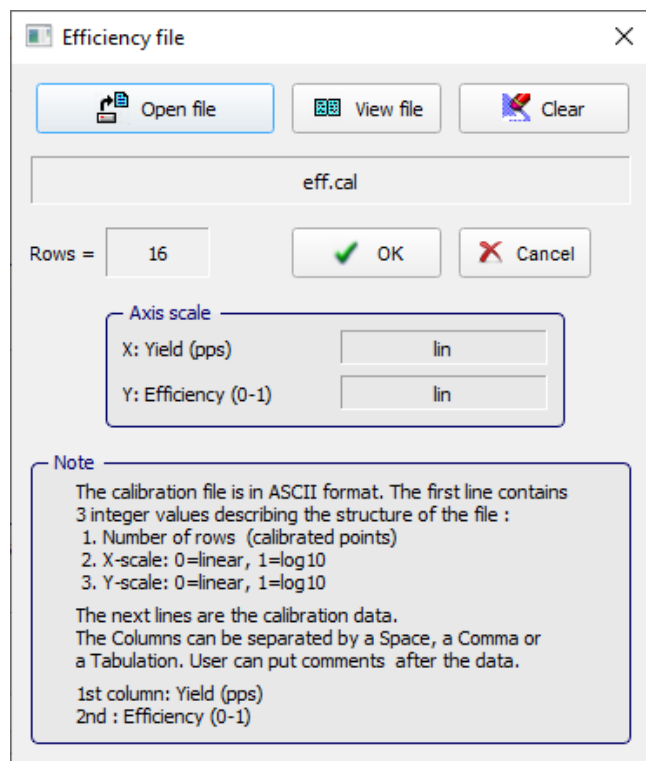
Block (Local)							Global						
1. X	-1.01866	-0.1222	0	0	0	-29.3222	1. X	2.19739	0.04483	0	0	0	-59.121
2. T	0.00364	-0.98124	0	0	0	-0.10926	2. T	-1.05083	0.43363	0	0	0	-0
3. Y	0	0	1.14196	-0.0019	0	0	3. Y	0	0	0.83626	-0.00008	0	0
4. P	0	0	4.1278	0.86894	0	0	4. P	0	0	6.30069	1.19541	0	0
5. L	-0.02179	2.8759	0	0	1	7.0771	5. L	6.21266	-2.56373	0	0	1	12.2084
6. D	0	0	0	0	0	1	6. D	0	0	0	0	0	1
	/[mm]	/[mrad]	/[mm]	/[mrad]	/[mm]	/[%]		/[mm]	/[mrad]	/[mm]	/[mrad]	/[mm]	/[%]

Det = 1.00000

Buttons: Import/link COSY map, Spectrometer matrix, Ok, Cancel, Help

Dispersive (M-dipole) Link to COSY map

//-----
 // 14.3.28 04/21/20
 // * d_Delay_file dialog: DONE!
 // * d_Isotope_extnd dialog: re-design 100%, connection 20%
 // * d_Matrix_doubleBeam dialog: finally DONE!
 // (only 1st order optics)
 // * ShowSetup (left panel): updated to show drift blocks



D1	Bp=3.0000 T·m	
D1-X		
z030	standard : 56.4 cm	
Q031TA	MULT : 8.5903 kg	
z032	standard : 13.58 cm	
Q033TB	MULT : -10.584 kg	
z034	standard : 13.58 cm	
Q035TC	QUAD : 9.3041 kg	
z036	standard : 58.6 cm	
I1-focX		
I1-focY		
I1-AD		
Image1(037)	slits	
-100 H +100 -100 V +100		
z038	standard : 58.6 cm	
Q039TA	QUAD : 9.32 kg	
z040	standard : 13.58 cm	
Q041TB	MULT : -10.445 kg	

//-----
 // 14.3.29 04/22/20
 // "Drift" type dialogs finally have been revised, benchmarked, and updated for signals
 // * d_Drift dialog: DONE!
 // * d_Multipole dialog: DONE!
 // * d_Quad_electric dialog: DONE!
 // * d_Finger dialog: DONE!
 // * d_Quad_effLength dialog: DONE!

// * d_Buncher dialog : re-design 100%, connection 20%

// * Revision of main LISE++ signals (Refresh, Cleaning, Renew etc)

// * Updating drift-type icons

D	tuning12	Bp=3.0000 T·m
d	z015	standard : 39.6 cm
Q	Q017TA	QUAD : 10.475 kG
Sf	z018	3 fingers : 12 mm
Q	Q019TB	QUAD : -9.7677 kG
F	Fit z19R	
d	z020	standard : 17.2 cm
Q	Q021TC	QUAD : 7.057 kG
d	z022	standard : 3 Tm
F	D1-Y	
D	D1	Bp=3.0000 T·m
F	D1-X	
S	z030	slits
Q	Q031TA	MULT : 8.5903 kG
d	z032	standard : 13.58 cm
Q	Q033TB	MULT : -10.584 kG

//-----
 // 14.3.30 04/23/20
 // * d_Isotope_extnd (Decay analysis) dialog: **DONE!**
 // * d_Isotope dialog: re-design 100, **DONE!** (one of our first Qt dialogs)

// disperse base classes construction
 // * d_Block_base class : 80% completion
 // * d_Dipole_base class : 70% completion

// * d_Dipole_magnetic dialog : 70% completion

