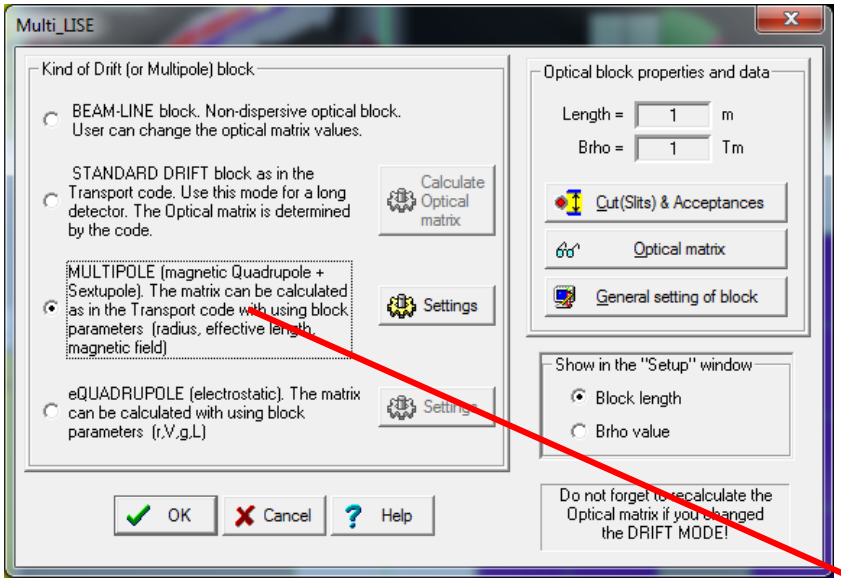
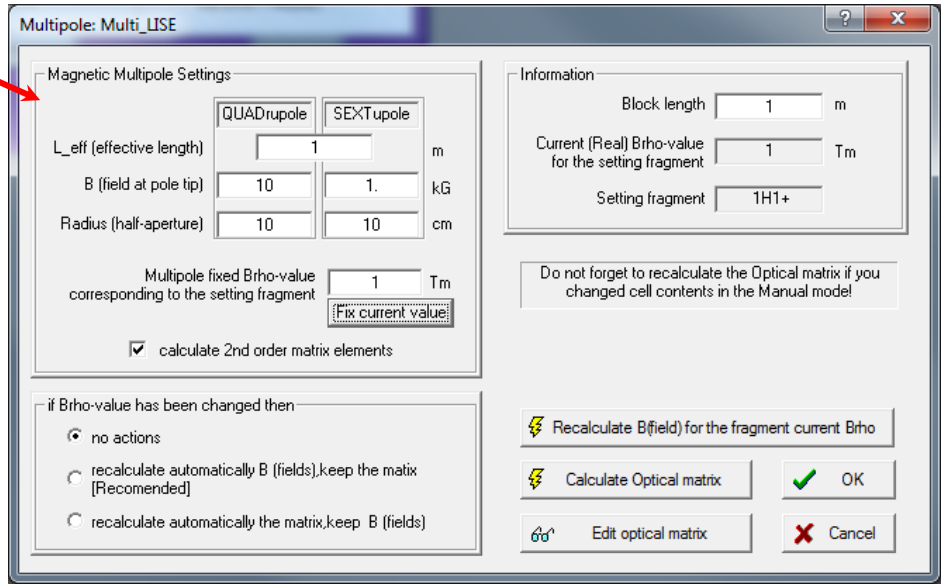
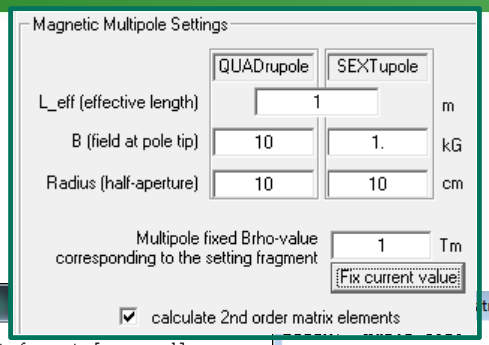
Multipole in LISE^{++}

v.9.8.22
from 01/24/14





LISE^{++} & COSY : Multipole local matrix



LISE^{++}

Block: "Multi_LISE" Matrices: "LOCAL"

Block: "Multi_LISE" Matrices: "LOCAL"

transport format [cm-mrad]

* TRANSFORM 1 *

1	[X]:	-9.9979e-01	-6.5000e-04	0	0	0	0
2	[T]:	+6.5407e-01	-9.9979e-01	0	0	0	0
3	[Y]:	0	0	+1.1833e+01	+3.7286e-01	0	0
4	[F]:	0	0	+3.7290e+02	+1.1833e+01	0	0
5	[L]:	0	0	0	0	+1.0000e+00	0
6	[D]:	0	0	0	0	0	+1.0000e+0(

* TRANSFORM 2 *

1	1:	-6.6674e-03					
1	2:	+8.7200e-06	-1.3330e-05				
1	3:	0	0	+2.9005e-01			
1	4:	0	0	+1.7652e-02	+2.7006e-04		
1	5:	0	0	0	0	0	
1	6:	-3.2704e-04	+4.9662e-04	0	0	0	0
2	1:	-2.1793e-03					
2	2:	+1.3326e-02	+8.7200e-06				
2	3:	0	0	+1.7645e+01			
2	4:	0	0	+1.1202e+00	+1.7652e-02		
2	5:	0	0	0	0	0	
2	6:	-5.0316e-01	-3.2704e-04	0	0	0	0
3	1:	0					
3	2:	0	0				
3	3:	+9.2706e-02	+7.4876e-03	0			
3	4:	-6.2238e-05	+1.9029e-04	0	0		
3	5:	0	0	0	0	0	
3	6:	0	0	-1.8643e-01	-4.0523e-03	0	0
4	1:	0					
4	2:	0	0				
4	3:	-9.2559e-02	+2.8299e-01	0			
4	4:	-3.2753e-02	+7.4254e-03	0	0		
4	5:	0	0	0	0	0	
4	6:	0	0	-7.7810e+00	-1.8643e-01	0	0
5	1:	0					
5	2:	0	0				
5	3:	0	0	0			
5	4:	0	0	0	0		
5	5:	0	0	0	0	0	
5	6:	0	0	0	0	0	0
6	1:	0					

COSY

trices: "LOCAL"

Matrices: "LOCAL"

transport format [cm-mrad]

* TRANSFORM 1 *

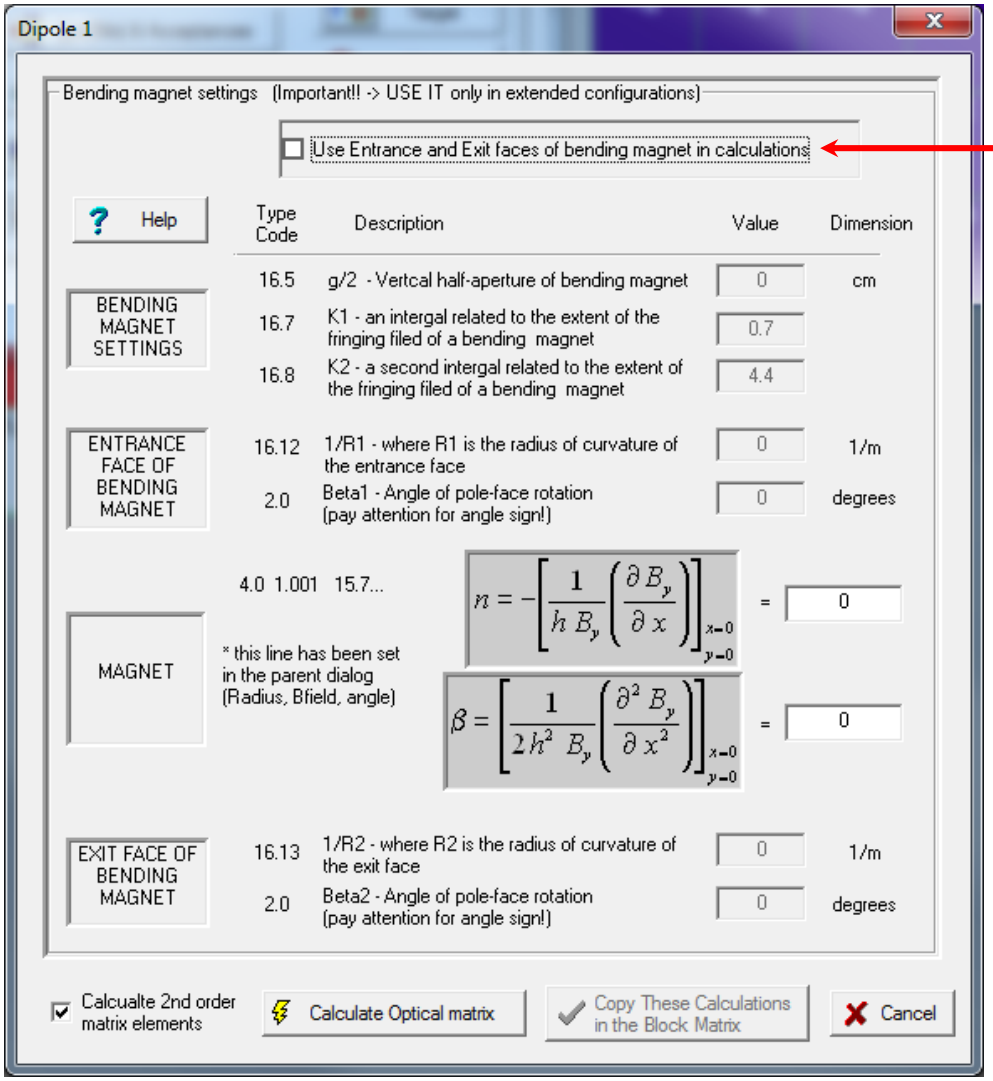
1	[X]:	-9.9979e-01	-6.5000e-04	0	0	0	0
2	[T]:	+6.5407e-01	-9.9979e-01	0	0	0	0
3	[Y]:	0	0	+1.1833e+01	+3.7286e-01	0	0
4	[F]:	0	0	+3.7290e+02	+1.1833e+01	0	0
5	[L]:	0	0	0	0	+1.0000e+00	0
6	[D]:	0	0	0	0	0	+1.0000e+0(

* TRANSFORM 2 *

1	1:	-6.6674e-03					
1	2:	+8.7200e-06	-1.3330e-05				
1	3:	0	0	+2.9005e-01			
1	4:	0	0	+1.7652e-02	+2.7006e-04		
1	5:	0	0	0	0	0	
1	6:	-3.2704e-04	+4.9662e-04	0	0	0	0
2	1:	-2.1793e-03					
2	2:	+1.3326e-02	+8.7200e-06				
2	3:	0	0	+1.7645e+01			
2	4:	0	0	+1.1202e+00	+1.7652e-02		
2	5:	0	0	0	0	0	
2	6:	-5.0316e-01	-3.2704e-04	0	0	0	0
3	1:	0					
3	2:	0	0				
3	3:	+9.2706e-02	+7.4876e-03	0			
3	4:	-6.2238e-05	+1.9029e-04	0	0		
3	5:	0	0	0	0	0	
3	6:	0	0	-1.8643e-01	-4.0523e-03	0	0
4	1:	0					
4	2:	0	0				
4	3:	-9.2559e-02	+2.8299e-01	0			
4	4:	-9.7583e-02	+7.4254e-03	0	0		
4	5:	0	0	0	0	0	
4	6:	0	0	-7.7810e+00	-1.8643e-01	0	0
5	1:	-2.4837e-02					
5	2:	+2.1390e-07	-2.5163e-05				
5	3:	0	0	-1.0781e+00			
5	4:	0	0	-6.9514e-02	-1.1281e-03		
5	5:	0	0	0	0	0	
5	6:	0	0	0	0	0	0
6	1:	0					
6	2:	0	0				
6	3:	0	0	0			

COSY , Q (10) +S (1), R=10cm Br=1 Tm

LISE^{++} Dipole optical matrix calculation



New option “do not use <fringe field> (or Entrance and Exit faces)”, In order to reproduce COSY calculations without fringe fields

LISE^{++} & COSY : A1900 extended configuration

Mutlipoles YES, No fringe fields!

A1900 global matrix

LISE^{++}

Block: "Image4(105)" Matrices: "GLOBAL"

Block: "Image4(105)" Matrices: "GLOBAL"

transport format [mm-mrad]

* TRANSFORM 1 *

1	[X]:	+2.7949e+00	-1.1106e-01	0	0	0	-8.4952e-03
2	[T]:	-1.0590e+00	+4.0010e-01	0	0	0	+8.6800e-04
3	[Y]:	0	0	+1.1928e+00	-5.0011e-02	0	0
4	[F]:	0	0	+6.4010e+00	+5.7009e-01	0	0
5	[L]:	-1.1463e-03	+3.9045e-04	0	0	+1.0000e+00	-1.0882e+01
6	[D]:	0	0	0	0	0	+1.0000e+00

* TRANSFORM 2 *

LISE no faces

1	1:	+1.6231e-03					
1	2:	+5.8183e-03	+2.6980e-03				
1	3:	0	0	+4.4363e-04			
1	4:	0	0	-4.3244e-03	-2.6205e-03		
1	5:	0	0	0	0	0	
1	6:	-1.0420e-02	-1.7351e-02	0	0	0	-5.0796e-04
2	1:	-2.2943e-03					
2	2:	-2.4553e-03	-6.7168e-04				
2	3:	0	0	-1.6697e-04			
2	4:	0	0	-1.8854e-04	+1.6734e-05		
2	5:	0	0	0	0	0	
2	6:	+8.4825e-03	+9.6317e-03	0	0	0	+7.1614e-06
3	1:	0					
3	2:	0	0				
3	3:	+1.1682e-04	+3.4058e-03	0			
3	4:	+3.7339e-03	+4.2435e-03	0	0		
3	5:	0	0	0	0	0	
3	6:	0	0	+1.3403e-02	-4.9402e-03	0	0
4	1:	0					
4	2:	0	0				
4	3:	-3.1952e-03	+6.7089e-03	0			
4	4:	+6.2522e-03	+8.3813e-03	0	0		
4	5:	0	0	0	0	0	
4	6:	0	0	+2.0770e-02	-1.5772e-02	0	0
5	1:	-7.3488e-03					
5	2:	-6.8184e-03	-4.3154e-04				
5	3:	0	0	-4.1834e-04			
5	4:	0	0	-8.9615e-04	-8.9247e-05		
5	5:	0	0	0	0	0	
5	6:	+7.3086e-03	+1.1444e-02	0	0	0	+3.0450e-02

COSY

Block: "Image4(105)" Matrices: "GLOBAL"

Block: "Image4(105)" Matrices: "GLOBAL"

transport format [mm-mrad]

* TRANSFORM 1 *

1	[X]:	+2.7950e+00	-1.1118e-01	0	0	0	-7.5284e-03
2	[T]:	-1.0588e+00	+4.0000e-01	0	0	0	+1.9530e-03
3	[Y]:	0	0	+1.2002e+00	-4.8904e-02	0	0
4	[F]:	0	0	+6.4143e+00	+5.7187e-01	0	0
5	[L]:	-6.7245e-04	+9.9943e-05	0	0	+1.0000e+00	-1.0877e+01
6	[D]:	0	0	0	0	0	+1.0000e+00

* TRANSFORM 2 *

COSY

1	1:	+1.6236e-03					
1	2:	+5.8184e-03	+2.6978e-03				
1	3:	0	0	+4.4375e-04			
1	4:	0	0	-4.3238e-03	-2.6203e-03		
1	5:	0	0	0	0	0	
1	6:	-1.0421e-02	-1.7352e-02	0	0	0	-5.1858e-04
2	1:	-2.2939e-03					
2	2:	-2.4550e-03	-6.7167e-04				
2	3:	0	0	-1.6698e-04			
2	4:	0	0	-1.8849e-04	+1.6694e-05		
2	5:	0	0	0	0	0	
2	6:	+8.4806e-03	+9.6296e-03	0	0	0	-4.0871e-06
3	1:	0					
3	2:	0	0				
3	3:	+1.1274e-04	+3.4081e-03	0			
3	4:	+3.7108e-03	+4.1325e-03	0	0		
3	5:	0	0	0	0	0	
3	6:	0	0	+1.3417e-02	-4.9464e-03	0	0
4	1:	0					
4	2:	0	0				
4	3:	-3.2029e-03	+6.7114e-03	0			
4	4:	+6.0216e-03	+8.0733e-03	0	0		
4	5:	0	0	0	0	0	
4	6:	0	0	+2.0793e-02	-1.5780e-02	0	0
5	1:	-1.2894e-02					
5	2:	-1.4863e-02	-1.3739e-02				
5	3:	0	0	-4.4274e-03			
5	4:	0	0	-3.6906e-03	-1.2394e-02		
5	5:	0	0	0	0	0	
5	6:	+7.3046e-03	+1.1439e-02	0	0	0	+3.0388e-02

LISE^{++} : A1900 extended configuration with/without Faces

LISE^{++}

A1900 global matrix

Block: "Image4(105)" Matrices: "GLOBAL"

Block: "Image4(105)" Matrices: "GLOBAL"

transport format [mm-mrad]

* TRANSFORM 1 *

1	[X]:	+2.7949e+00	-1.1106e-01	0	0	0	-8.4952e-03
2	[T]:	-1.0590e+00	+4.0010e-01	0	0	0	+8.6800e-04
3	[Y]:	0	0	+1.1928e+00	-5.0011e-02	0	0
4	[F]:	0	0	+6.4010e+00	+5.7009e-01	0	0
5	[L]:	-1.1463e-03	+3.9045e-04	0	0	+1.0000e+00	-1.0882e+01
6	[D]:	0	0	0	0	0	+1.0000e+00

LISE no faces

* TRANSFORM 2 *

1	1:	+1.6231e-03					
1	2:	+5.8183e-03	+2.6980e-03				
1	3:	0	0	+4.4363e-04			
1	4:	0	0	-4.3244e-03	-2.6205e-03		
1	5:	0	0	0	0	0	
1	6:	-1.0420e-02	-1.7351e-02	0	0	0	-5.0796e-04
2	1:	-2.2943e-03					
2	2:	-2.4553e-03	-6.7168e-04				
2	3:	0	0	-1.6697e-04			
2	4:	0	0	-1.8854e-04	+1.6734e-05		
2	5:	0	0	0	0	0	
2	6:	+8.4825e-03	+9.6317e-03	0	0	0	+7.1614e-06
3	1:	0					
3	2:	0	0				
3	3:	+1.1682e-04	+3.4058e-03	0			
3	4:	+3.7339e-03	+4.2435e-03	0	0		
3	5:	0	0	0	0	0	
3	6:	0	0	+1.3403e-02	-4.9402e-03	0	0
4	1:	0					
4	2:	0	0				
4	3:	-3.1952e-03	+6.7089e-03	0			
4	4:	+6.2522e-03	+8.3813e-03	0	0		
4	5:	0	0	0	0	0	
4	6:	0	0	+2.0770e-02	-1.5772e-02	0	0
5	1:	-7.3488e-03					
5	2:	-6.8184e-03	-4.3154e-04				
5	3:	0	0	-4.1834e-04			
5	4:	0	0	-8.9615e-04	-8.9247e-05		
5	5:	0	0	0	0	0	
5	6:	+7.3086e-03	+1.1444e-02	0	0	0	+3.0450e-02

Block: "Image4(105)" Matrices: "GLOBAL"

transport format [mm-mrad]

* TRANSFORM 1 *

1	[X]:	+2.7949e+00	-1.1106e-01	0	0	0	-8.3511e-03
2	[T]:	-1.0590e+00	+4.0010e-01	0	0	0	+9.4587e-04
3	[Y]:	0	0	+8.8025e-01	-1.1161e-01	0	0
4	[F]:	0	0	+5.7970e+00	+4.0117e-01	0	0
5	[L]:	-1.1160e-03	+3.7736e-04	0	0	+1.0000e+00	-1.0882e+01
6	[D]:	0	0	0	0	0	+1.0000e+00

LISE with faces

* TRANSFORM 2 *

1	1:	+1.6232e-03					
1	2:	+5.8184e-03	+2.6980e-03				
1	3:	0	0	+4.4422e-04			
1	4:	0	0	-4.3047e-03	-2.5892e-03		
1	5:	0	0	0	0	0	
1	6:	-1.0420e-02	-1.7351e-02	0	0	0	-5.0934e-04
2	1:	-2.2943e-03					
2	2:	-2.4554e-03	-6.7169e-04				
2	3:	0	0	-1.6897e-04			
2	4:	0	0	-1.9601e-04	+1.5390e-05		
2	5:	0	0	0	0	0	
2	6:	+8.4825e-03	+9.6317e-03	0	0	0	+6.3397e-06
3	1:	0					
3	2:	0	0				
3	3:	-3.1597e-05	+5.8301e-03	0			
3	4:	+2.7410e-03	+7.6154e-03	0	0		
3	5:	0	0	0	0	0	
3	6:	0	0	+9.9508e-03	-1.3364e-02	0	0
4	1:	0					
4	2:	0	0				
4	3:	-3.4752e-03	+1.3715e-02	0			
4	4:	+4.4686e-03	+1.6198e-02	0	0		
4	5:	0	0	0	0	0	
4	6:	0	0	+1.5466e-02	-2.9329e-02	0	0
5	1:	-7.3488e-03					
5	2:	-6.8184e-03	-4.3155e-04				
5	3:	0	0	-4.2459e-04			
5	4:	0	0	-9.1178e-04	-8.8040e-05		
5	5:	0	0	0	0	0	
5	6:	+7.3082e-03	+1.1444e-02	0	0	0	+3.0449e-02

Regions show difference between matrices

LISE++ development : version 9.8.8 – 9.8.22

9.8.22 01/24/14

*** LISE optics : FINAL solution for Quad and Sext together**

*** Ideal magnet dialog:**
- solution for Quad and Sext together
- Sextupole through Global equations
- k2s in sextupole mode

9.8.18 01/21/14

*** New default values for Gas Cell utility, Plotting method has been changed**
*** Modification in 2D MC plot output : from GANIL integer format to double**
*** Option "Use Fringe Filed for Dipole" in the Dipole optics dialog**
*** Correction for automatic sext-B recalculation**

9.8.14 01/15/14

*** Plot Statistics file and Contour frame: more digits in output format**

*** Edit Optics Dialog : order of optical matrices are shown for each block**

--- Multipole and dipole dialogs
*** forbidden to calculate matrices if they are linked to COSY files**
*** Check for matrix calculation at exit if dialog cells value were changed**

9.8.10 01/12/14

*** Preliminary: Block Drift new feature "MULTIPOLE" - superposition Quad and Sext fields**

*** "Selection" issue has been solved in the Set-up dialog**
*** "Selection" issue has been solved in the Optics-Edit dialog**
