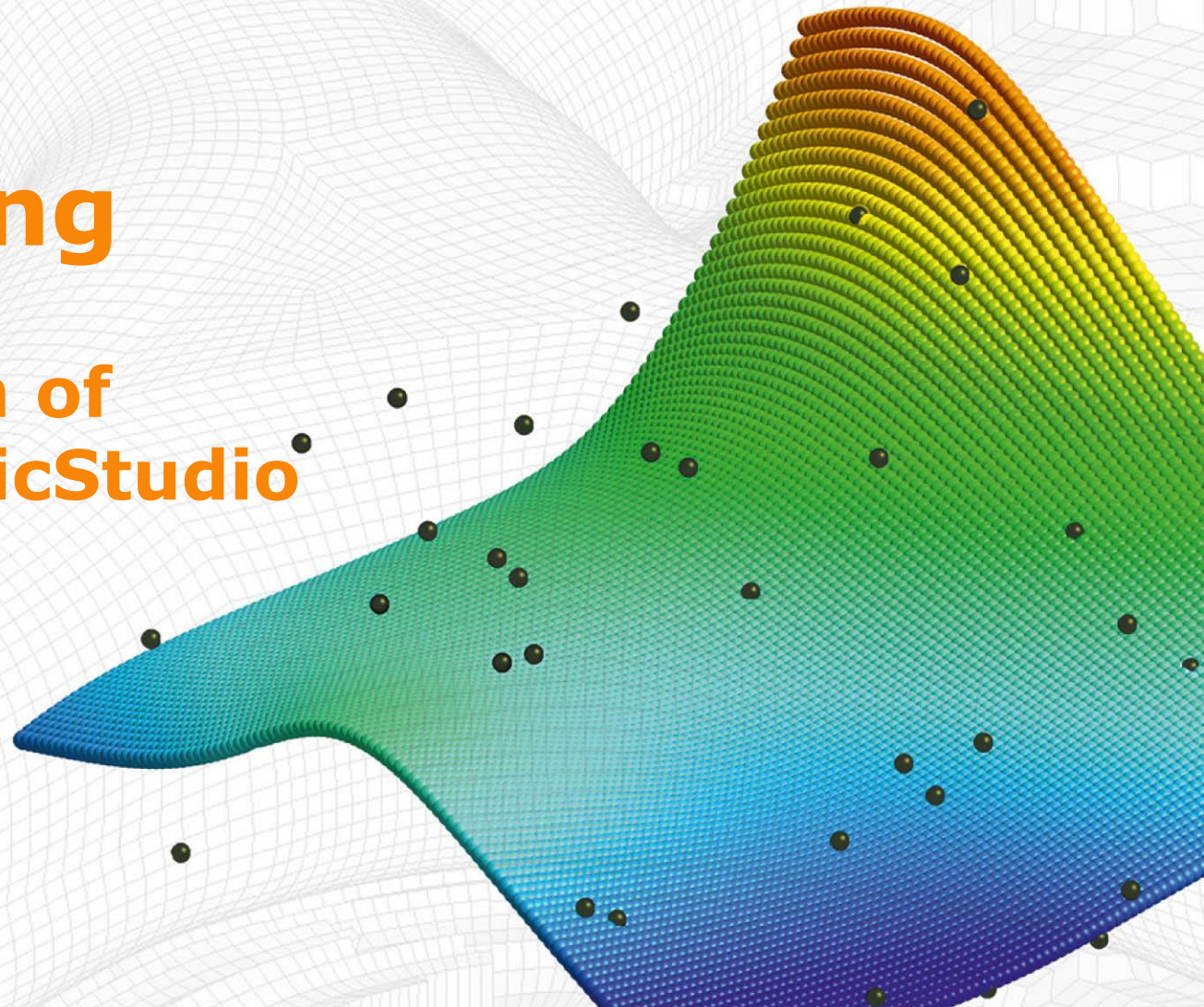


Example

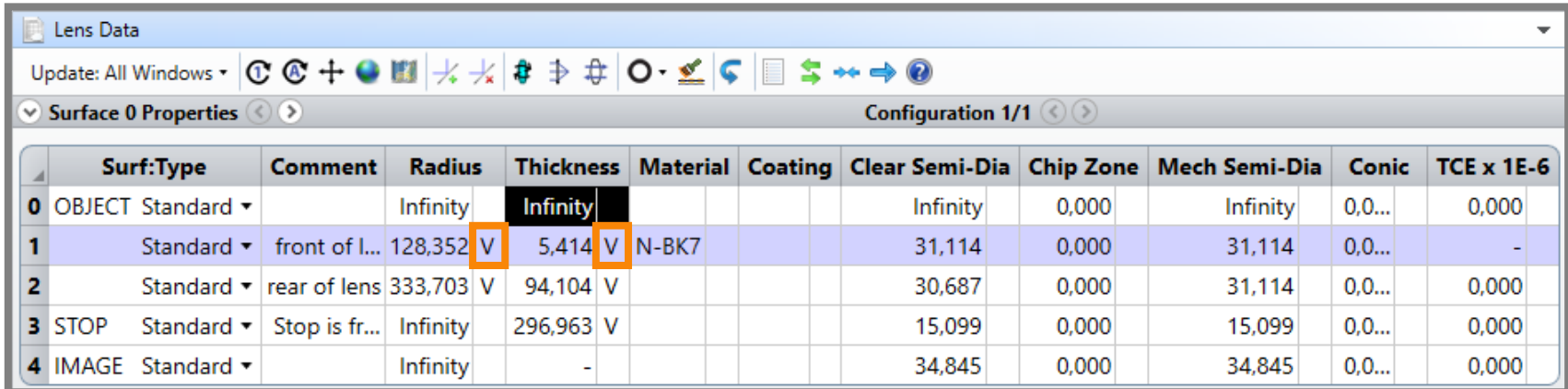
optiSLang

**Integration of
Zemax OpticStudio**



Zemax parametrization

- Open Zemax project
- Zemax Lens Data Editor: Define input parameters that should be varied in optiSLang with "V"



Lens Data

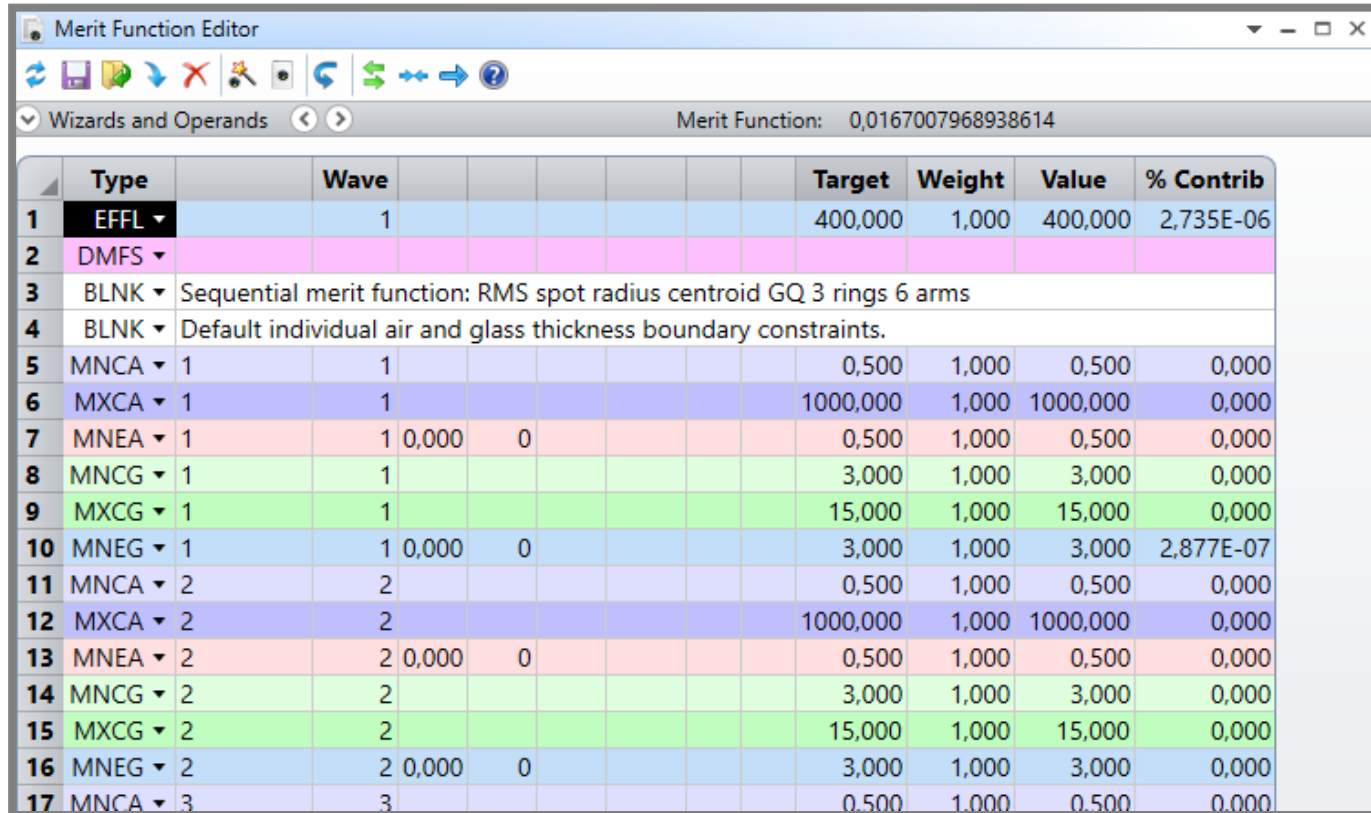
Update: All Windows

Surface 0 Properties Configuration 1/1

	Surf>Type	Comment	Radius	Thickness	Material	Coating	Clear Semi-Dia	Chip Zone	Mech Semi-Dia	Conic	TCE x 1E-6
0	OBJECT Standard		Infinity	Infinity			Infinity	0,000	Infinity	0,0...	0,000
1	Standard	front of l...	128,352	V 5,414 V	N-BK7		31,114	0,000	31,114	0,0...	-
2	Standard	rear of lens	333,703	V 94,104 V			30,687	0,000	31,114	0,0...	0,000
3	STOP Standard	Stop is fr...	Infinity	296,963	V		15,099	0,000	15,099	0,0...	0,000
4	IMAGE Standard		Infinity	-			34,845	0,000	34,845	0,0...	0,000

Zemax parametrization

- Define all outputs of the system in Merit Function Editor. Only these can be used in optiSLang for further analysis.



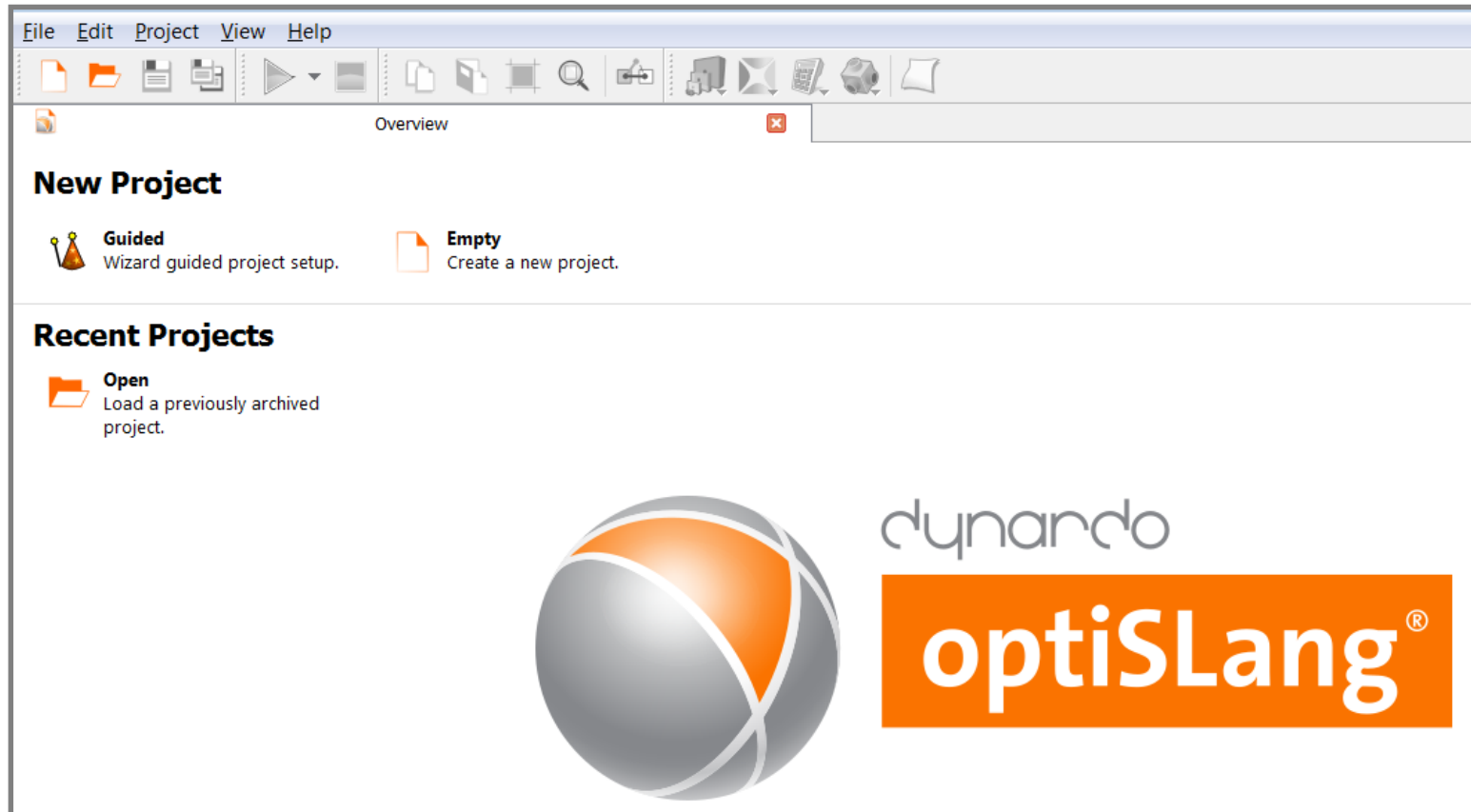
Merit Function Editor

Wizards and Operands Merit Function: 0,0167007968938614

	Type	Wave						Target	Weight	Value	% Contrib
1	EFFL	1						400,000	1,000	400,000	2,735E-06
2	DMFS										
3	BLNK		Sequential merit function: RMS spot radius centroid GQ 3 rings 6 arms								
4	BLNK		Default individual air and glass thickness boundary constraints.								
5	MNCA	1						0,500	1,000	0,500	0,000
6	MXCA	1						1000,000	1,000	1000,000	0,000
7	MNEA	1	0,000	0				0,500	1,000	0,500	0,000
8	MNCG	1						3,000	1,000	3,000	0,000
9	MXCG	1						15,000	1,000	15,000	0,000
10	MNEG	1	0,000	0				3,000	1,000	3,000	2,877E-07
11	MNCA	2						0,500	1,000	0,500	0,000
12	MXCA	2						1000,000	1,000	1000,000	0,000
13	MNEA	2	0,000	0				0,500	1,000	0,500	0,000
14	MNCG	2						3,000	1,000	3,000	0,000
15	MXCG	2						15,000	1,000	15,000	0,000
16	MNEG	2	0,000	0				3,000	1,000	3,000	0,000
17	MNCA	3						0,500	1,000	0,500	0,000

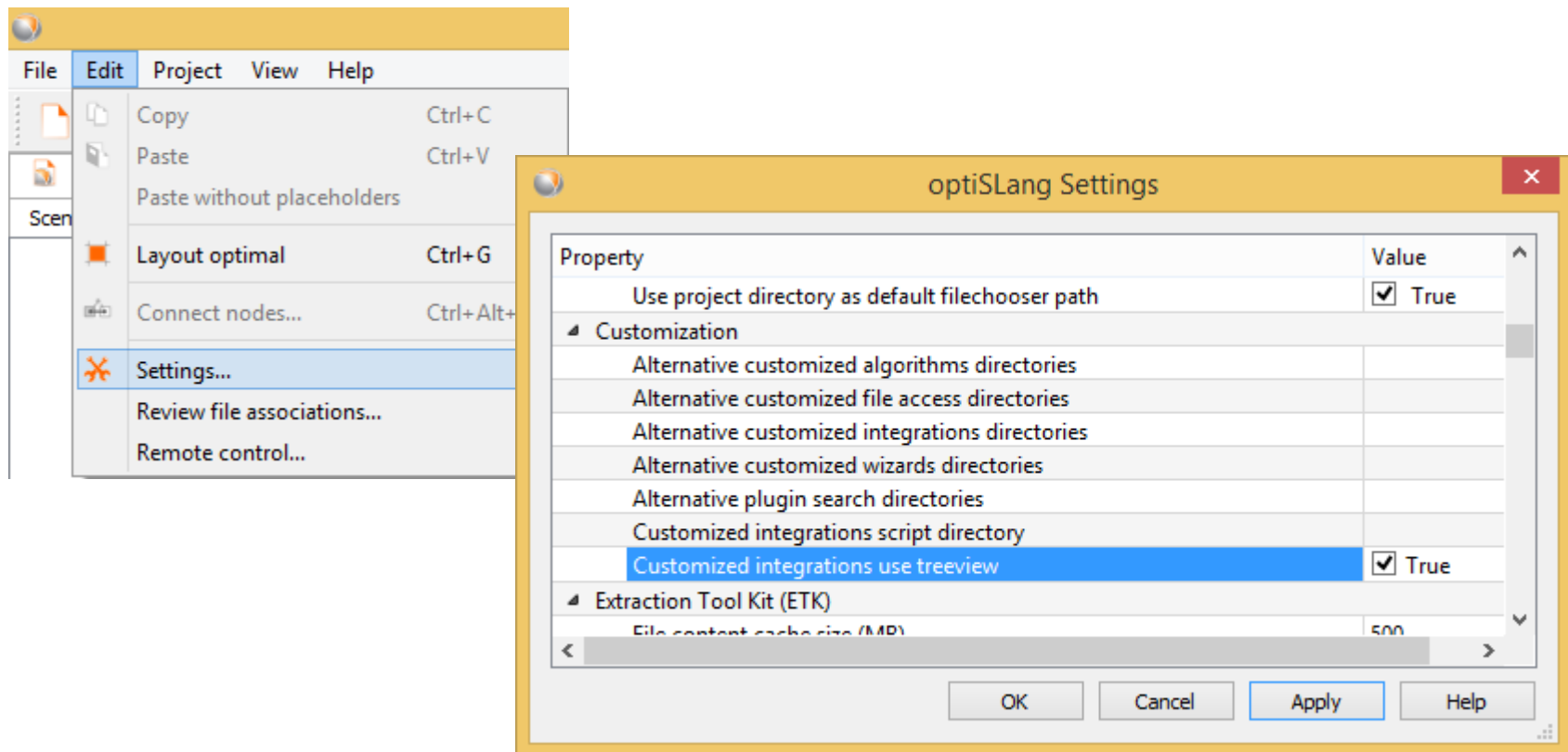
Settings for more convenience

1. Open optiSLang



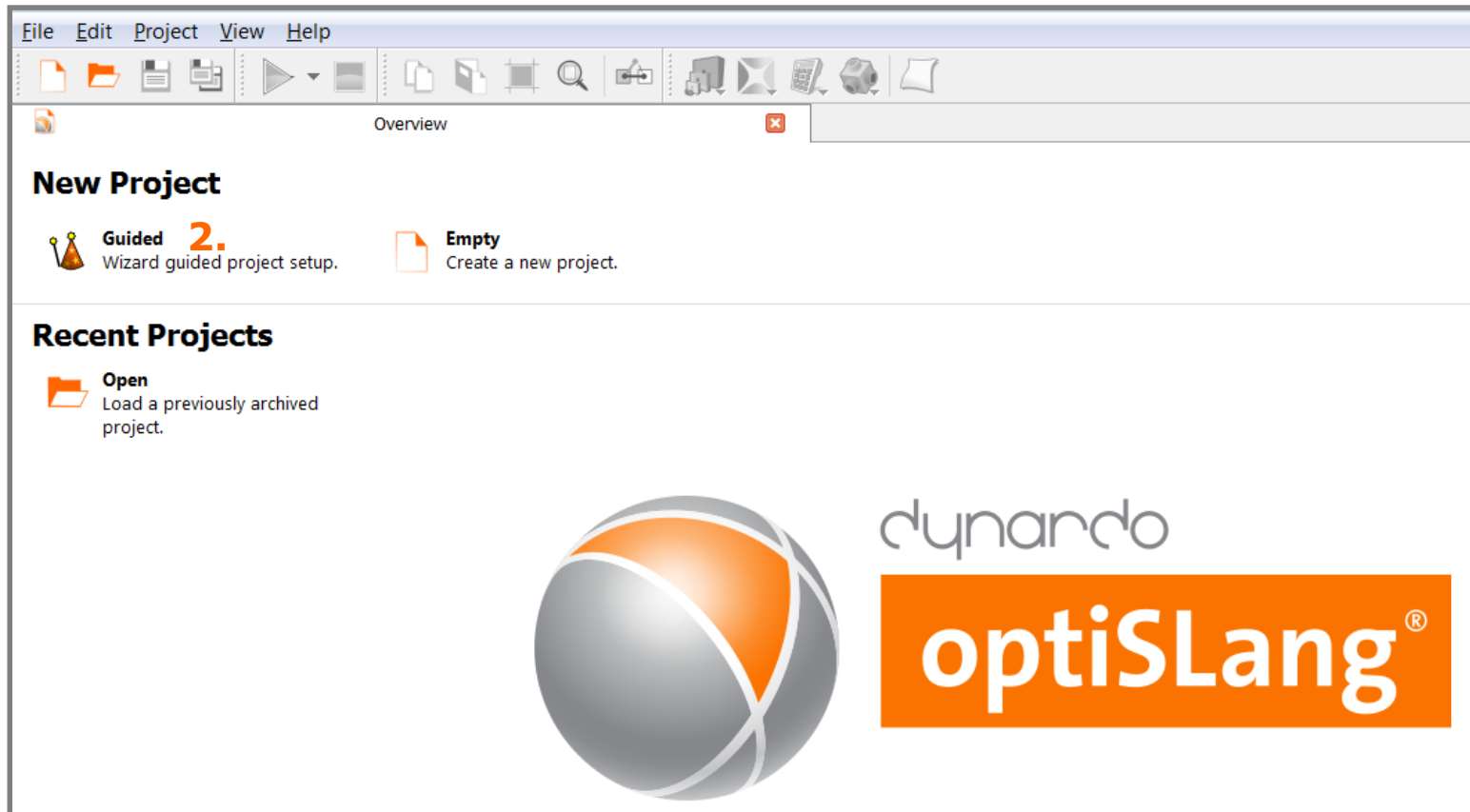
Settings for more convenience

1. In Settings: choose treeview for more convenience during input parametrization
2. Close optiSLang



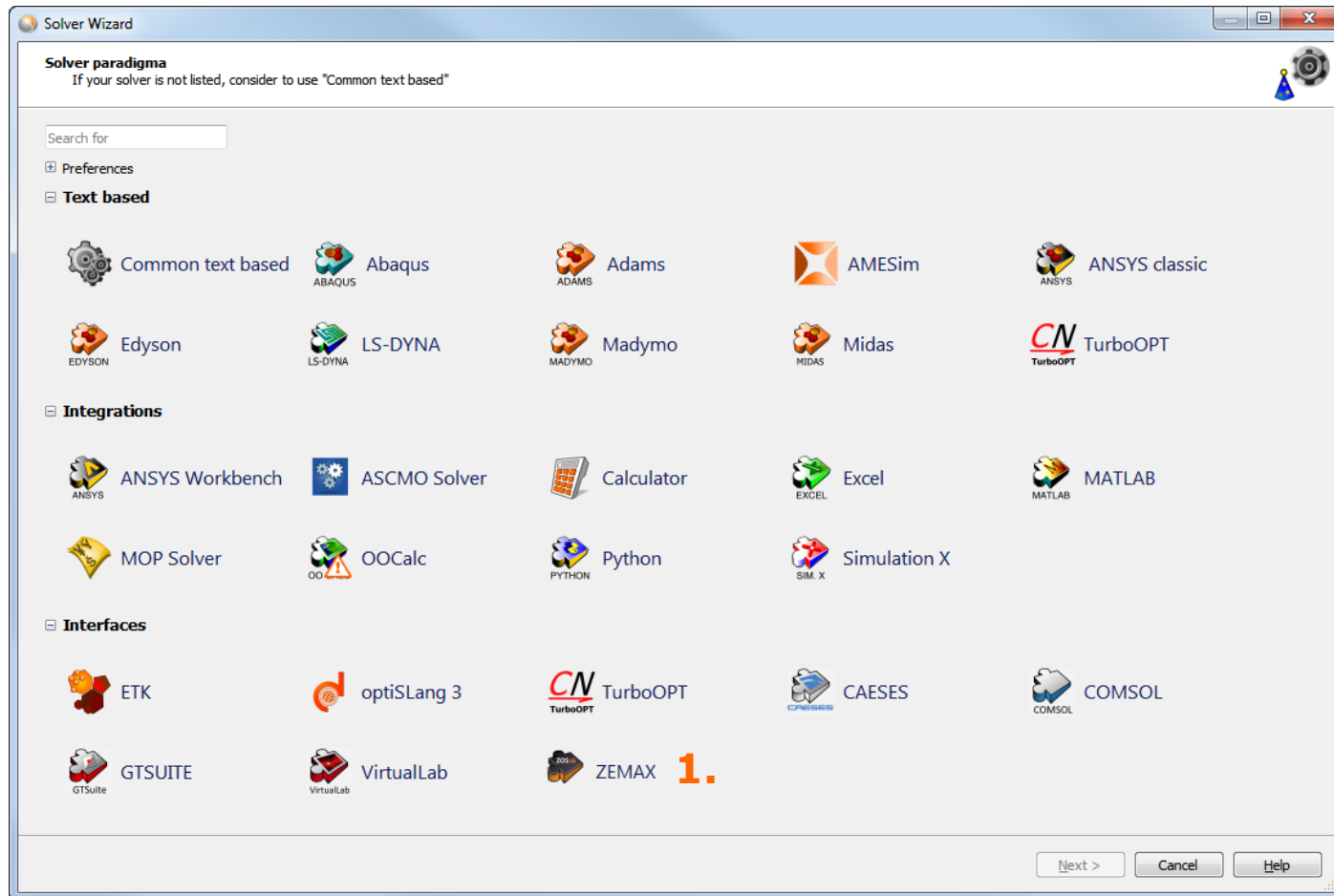
New Project

1. Open optiSLang
2. Create New project with help of Guided project setup



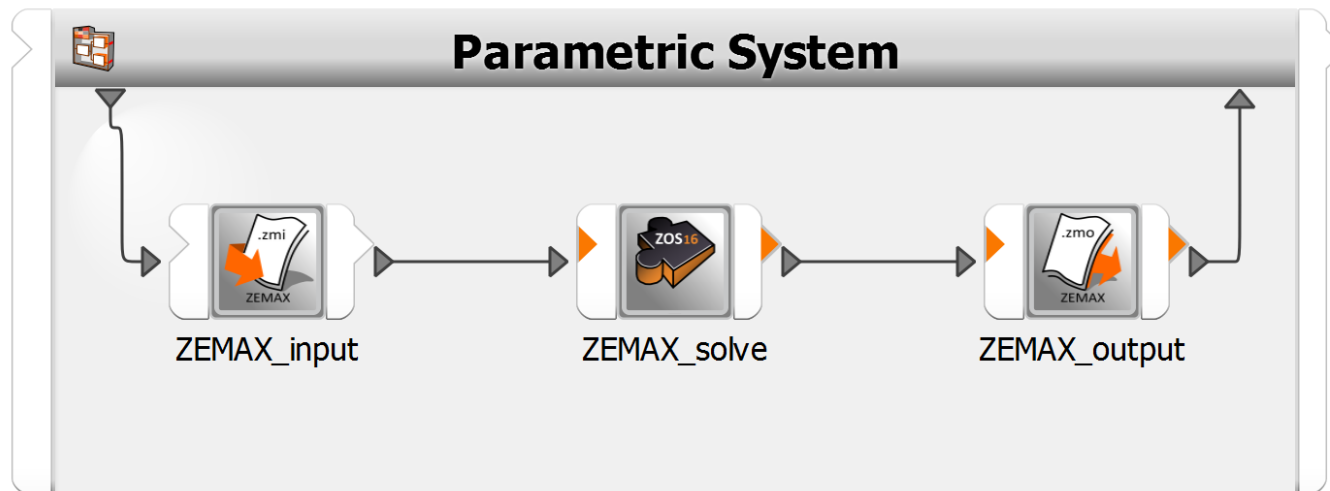
Process Integration

1. Select "Zemax" as solver



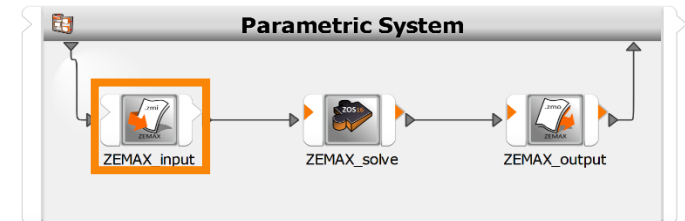
Process Integration and Solver Chain

- Choose the Zemax file
- The solver chain is automatically created



Process Integration and Solver Chain

1. Double click on input node
2. Mark all predefined input parameters, drag them to the parameter block and let them drop

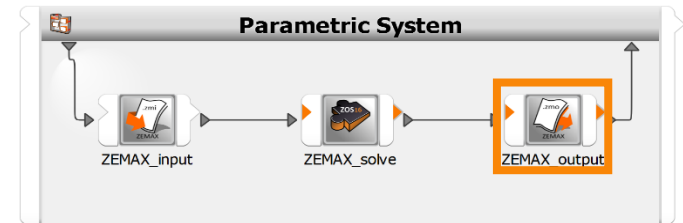


The screenshot shows the 'ZEMAX_input' node configuration. On the left, the 'Parameter' list is highlighted in red, showing parameters like Surface_1.Radius, Surface_1.Thickness, Surface_2.Radius, Surface_2.Thickness, Surface_3.Radius, and Surface_3.Thickness. On the right, the 'Predefined parameter' table is highlighted in blue, showing a list of values, names, and surfaces. An orange arrow points from the 'Surface_3.Thickness' parameter in the table to the 'Parameter' list.

Value	Name	Surface
-0.0022948389	Surface_2.Radius	2
-0.045018121	Surface_3.Radius	3
0.0125496334	Surface_5.Radius	5
0.0454264791	Surface_1.Radius	1
0.0492806889	Surface_4.Radius	4
0.999974567	Surface_3.Thickness	3
2.95207564	Surface_5.Thickness	5
3.25895583	Surface_1.Thickness	1
4.75040893	Surface_4.Thickness	4
42.2077801	Surface_6.Thickness	6
6.0075511	Surface_2.Thickness	2

Process Integration and Solver Chain

1. Double click on output node
2. Mark all merits you want to consider, drag them to the responses block and let them drop



The screenshot shows the 'ZEMAX_output' node interface. It features a 'Variables' tab and a 'Responses' panel. The 'Outputs' section contains a table with the following data:

	Name	Value
1	ABSO_27	0.0244568
2	AXCL_2	0.0662386
3	BFSD_46	33.6971
4	BFSD_48	-267.154
5	BFSD_50	-422.749
6	BFSD_52	21.5472
7	BFSD_54	26.7542
8	BFSD_56	-94.9743

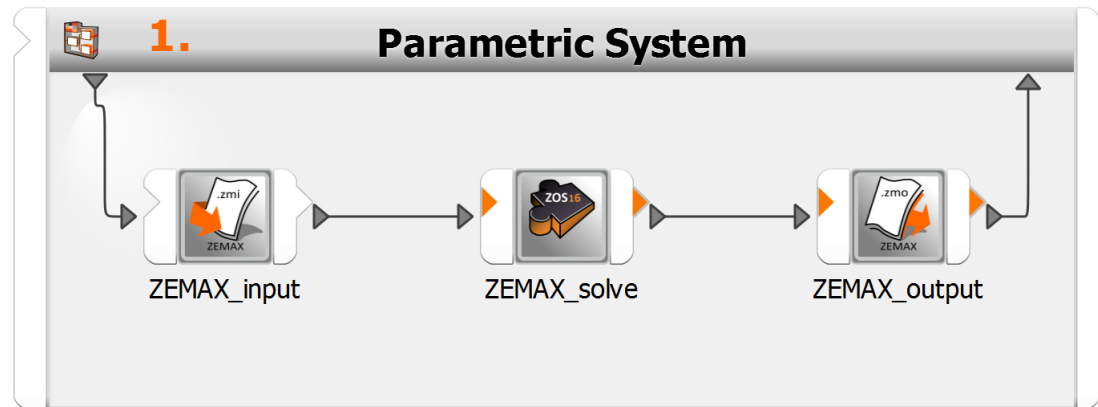
The 'Responses' panel on the right lists the following responses:

- AXCL_2 0.0662386
- CENX_4 2.24393
- CENY_22 -0.439928
- EFFL_3 52.6515
- RSCE_5 0.880106

An orange arrow points from the 'AXCL_2' row in the 'Outputs' table to the 'AXCL_2' response in the 'Responses' panel, illustrating the process of marking a merit for consideration.

Parameter Properties

1. Double click on the head of the solver chain
2. Adjust lower and upper bounds for all parameters



Parameter	Criteria	Other	Result designs						
	Name	Parameter type	Reference value	Constant	Value type	Resolution	Range		Range plot
1	Surface_1.Radius	Optimization	0.0454265	<input type="checkbox"/>	REAL	Continuo...	0.0408838	0.0499691	
2	Surface_1.Thickness	Optimization	3.25896	<input type="checkbox"/>	REAL	Continuo...	2.93306	3.58485	
3	Surface_2.Radius	Optimization	-0.00229484	<input type="checkbox"/>	REAL	Continuo...	-0.00252432	-0.00206536	

Following steps

- Now the workflow is ready to be used
- Next possible steps are
 - Sensitivity analysis
 - Optimization
 - Robustness analysis
- Next steps for a sensitivity analysis are described in the tutorial 01_coupled_function_sensitivity.pdf that can be found in C:\Users\Public\Documents\Dynardo\ANSYS optiSLang\6.0.0\tutorials\02_analytical_function starting from page 17

If you have any questions belonging this example do not hesitate to contact

support@dynardo.de

phone +49 (0) 3643 9008-32