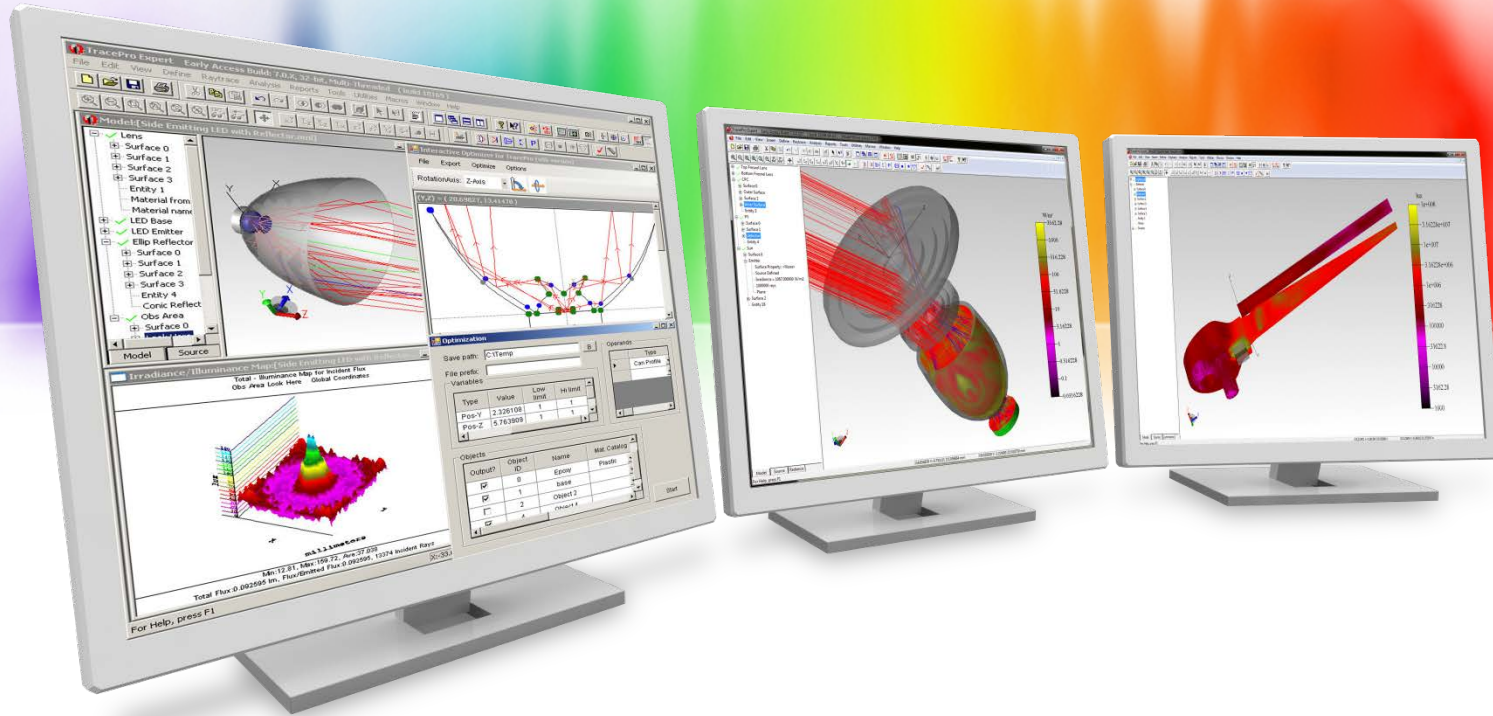


OSLO

RayViz

FOR SOLIDWORKS®

TracePro



Complete Optical Design using OSLO, RayViz, and TracePro

Lambda Research Corporation Webinar

May 20, 2020

Presenter

- **Presenter**

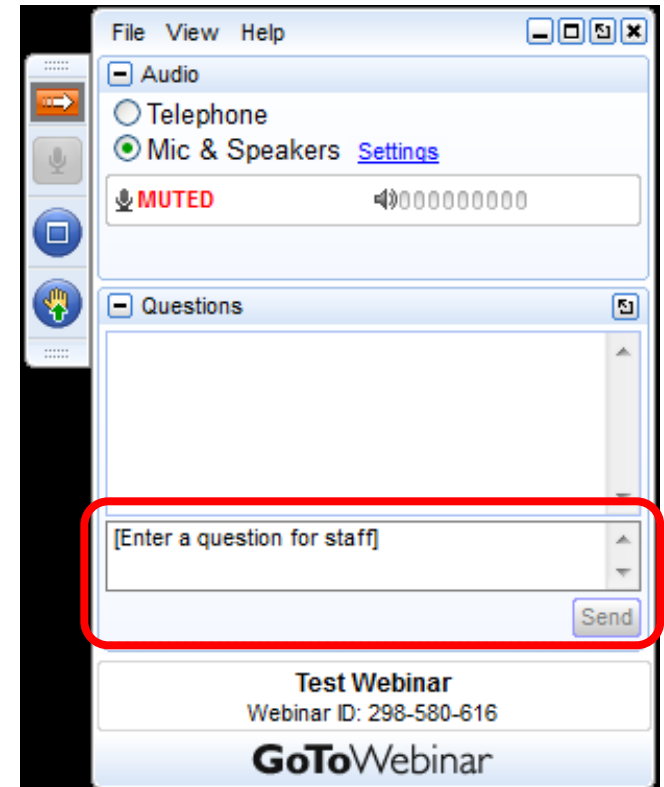
Dave Jacobsen

Sr. Application Engineer

Lambda Research Corporation

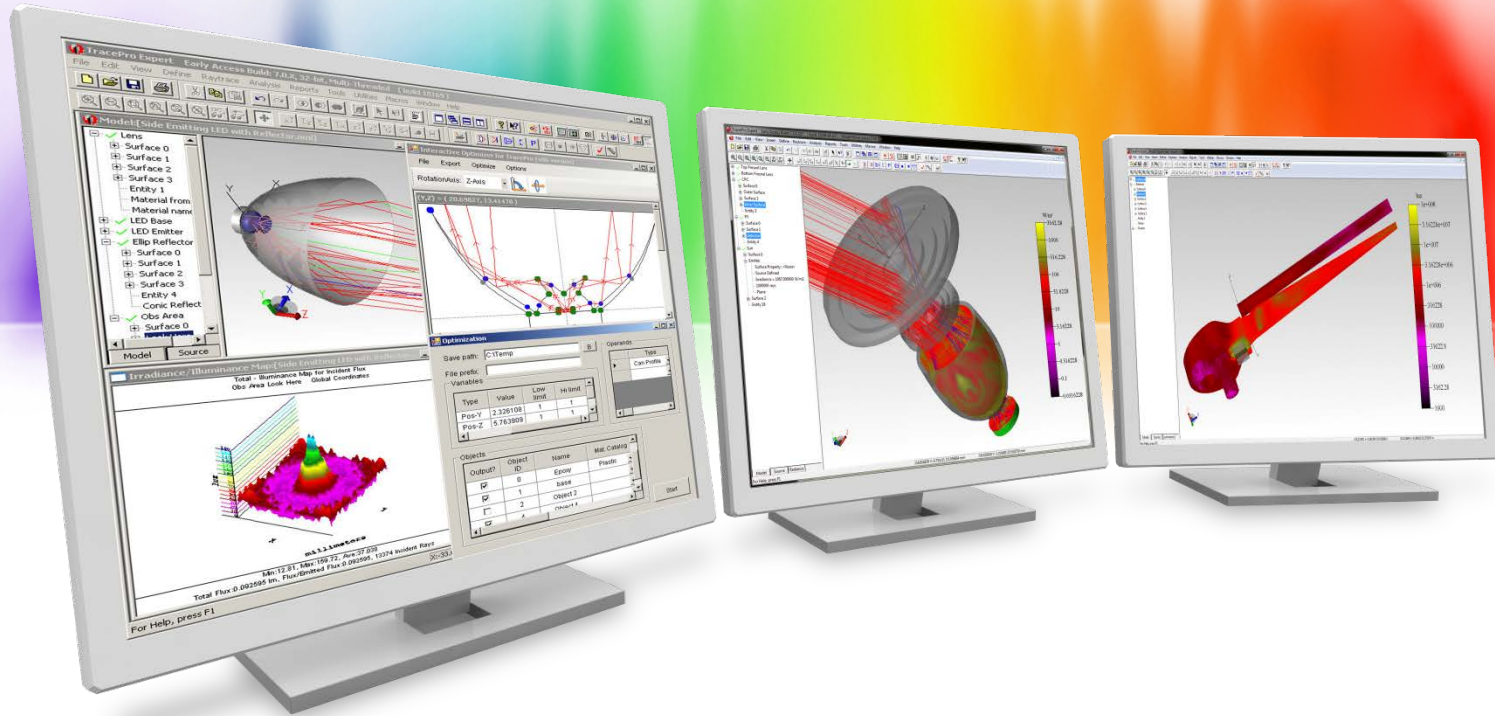
Format

- A 25-30 minute presentation followed by a question and answer session
- Please submit your questions anytime using Question box in the GoToWebinar control panel



Additional Resources

- Webinars and Tutorial Videos
 - <https://www.lambdares.com/su/tracepro-videos/>
 - <https://www.lambdares.com/su/oslo-videos/>
- Tutorials
 - <https://www.lambdares.com/su/tracepro-tutorials/>
 - <https://www.lambdares.com/su/oslo-tutorials/>
- Information on upcoming training classes
 - <https://www.lambdares.com/training/>



Introduction

Topics

- Introduction
- Designing and optimizing a lens in OSLO
- Exporting the lens from OSLO as a CAD file
- Using the lens model in RayViz for mechanical design and initial optical layout
- Combining the OSLO and RayViz models in TracePro
- Analyzing the complete design in TracePro
- Question and Answer session

Introduction

- Many times an optical design problem will require more than one software package. For example:
 - Optical design
 - Opto-mechanical design
 - Optical analysis
- This methodology allows each program to do what it does best

The design process

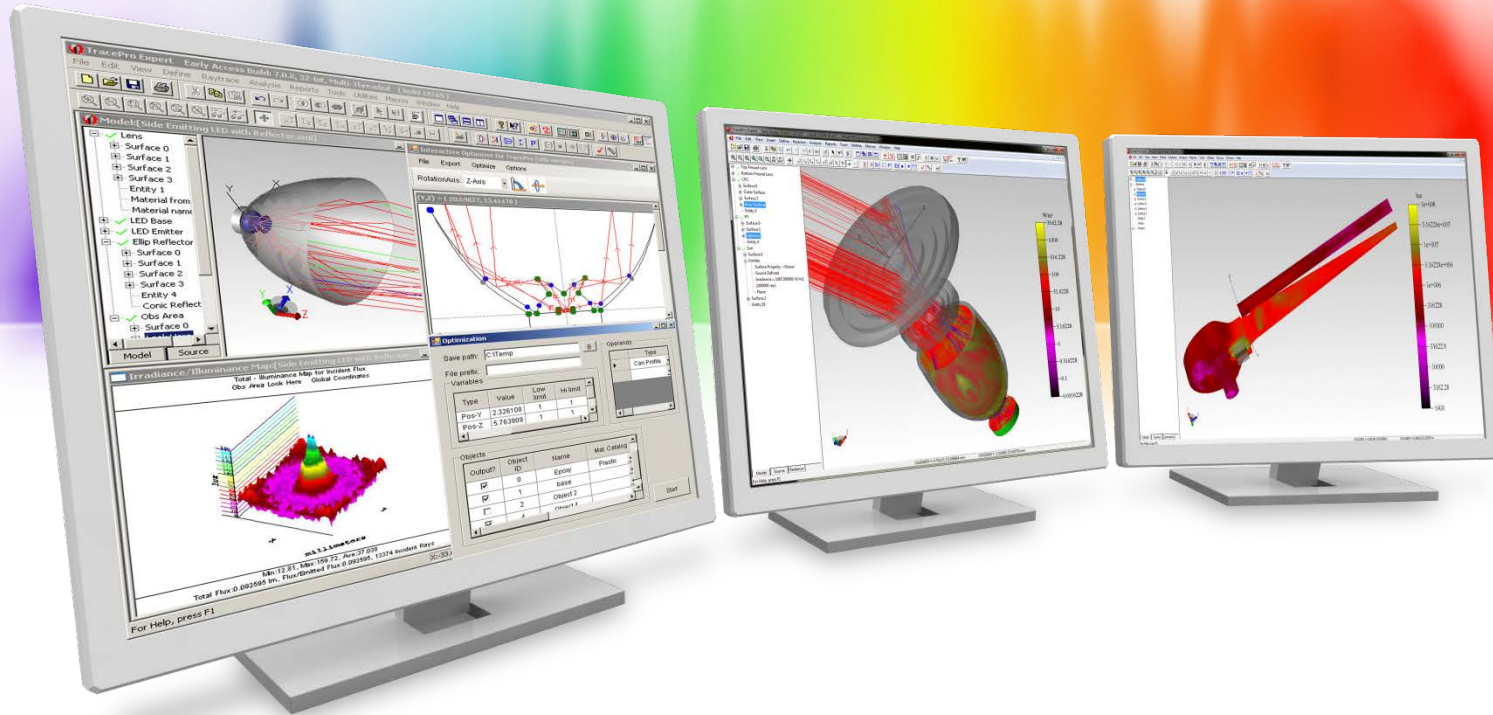
OSLO



 **RayViz**
FOR SOLIDWORKS®

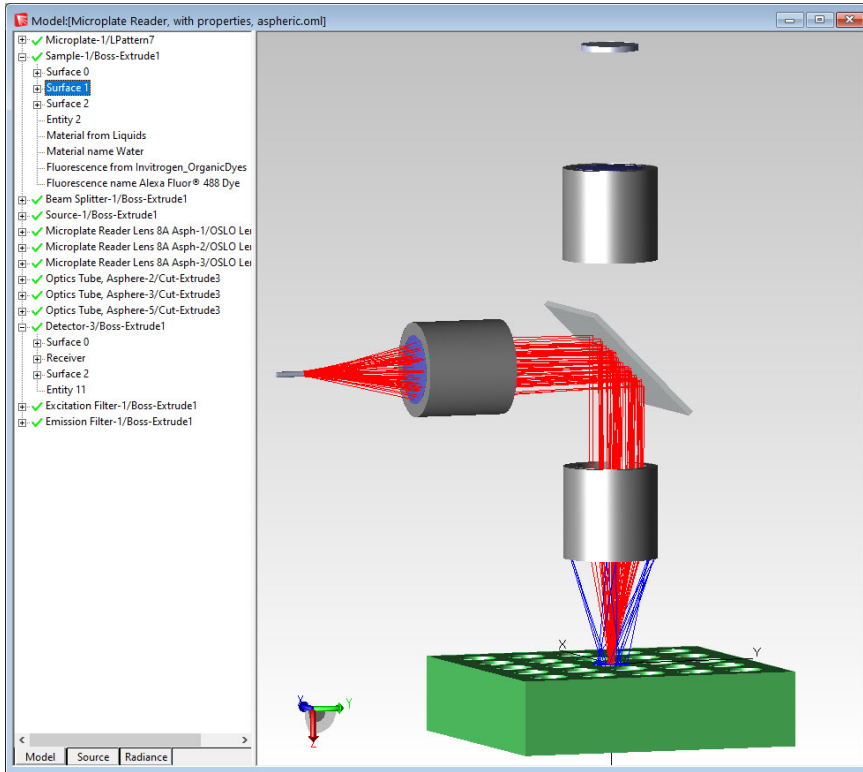


 **TracePro**

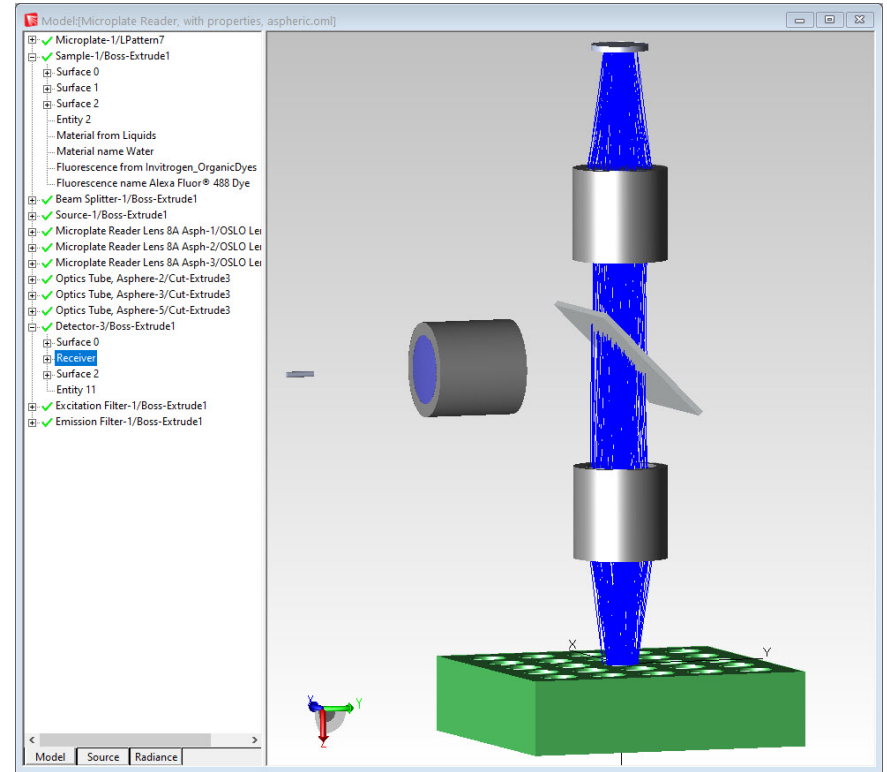


Fluorescence microplate reader example

Fluorescence microplate reader example

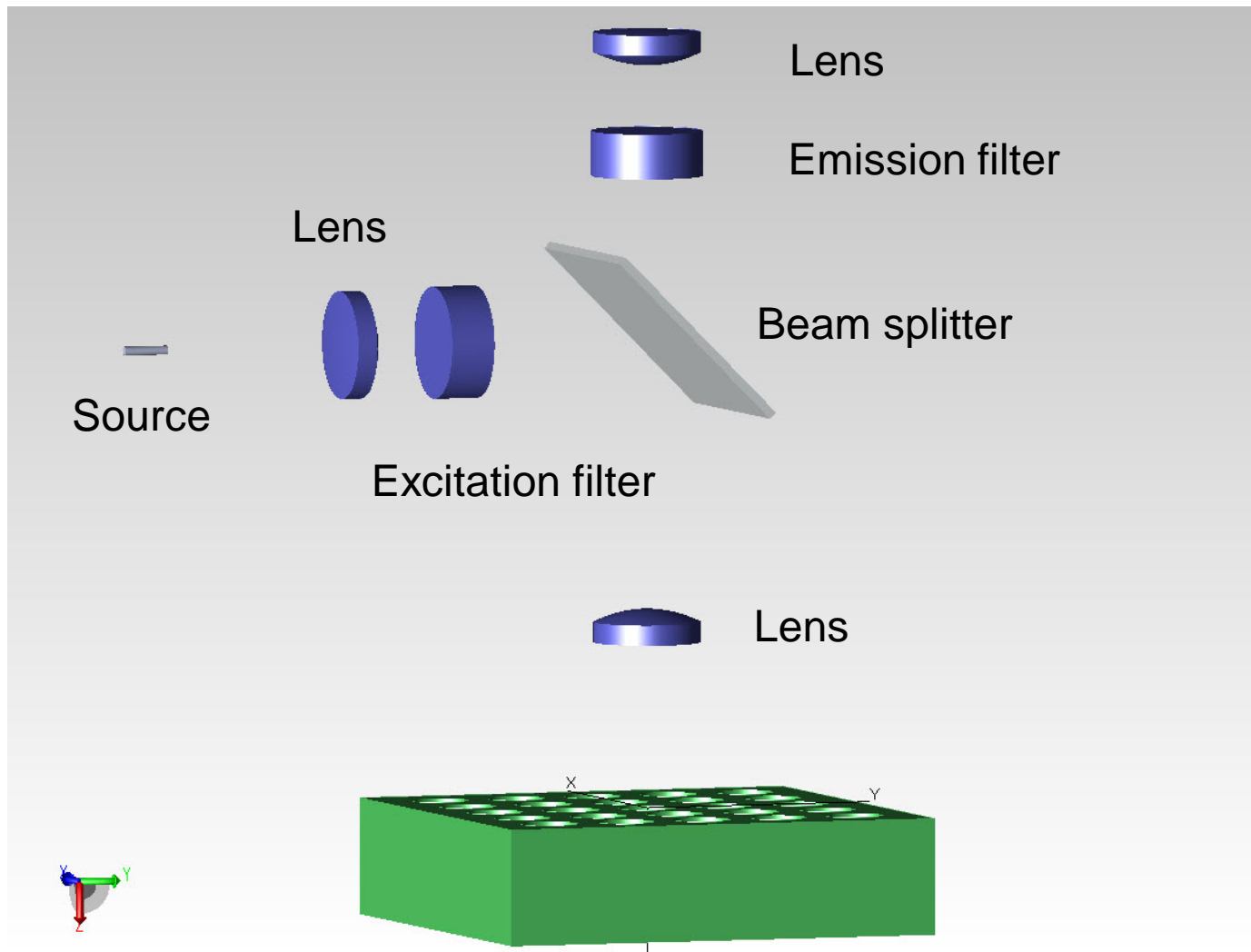


Excitation beam



Emission beam

Fluorescence microplate reader example



Lens design and optimization

OSLO

SLO Premium
File Lens Evaluate Optimize Tolerance Source Tools Window Help

Surface Data

Command: |

Gen	Setup	Wavelength	Field Points	Variables	Draw Off	Group	Notes
Lens: Microreader 8A Zoom 1 of 1 Ef1 22.829185							
Ent beam radius 4.000000 Object height 0.707107 Primary wavln 0.515000							
SRF	RADIUS	THICKNESS	APERTURE RADIUS	GLASS	AIR	SPECIAL	
OBJ	0.000000	20.518929	0.707107			F	
AST	60.755320	4.000000	6.000000	A	SILICA	C	
2	-12.481981	1.2337e+17	6.000000		AIR	A	
IMS	0.000000	0.000000	3.8213e+15	S			

TW 1*

Len Spe Rin Ape Wav Pxc Abr Mrg Chf Tra Sop Ref Fan Spd Aif Var Ope lte

OPERANDS

OP	MODE	WGT	NAME	VALUE	NCNTRB	DEFINITION
O 1	M	10.000000		1.4302e-08	0.00	PU
O 21	M	0.500000	YArms1	0.000193	17.46	RMS
O 62	M	1.000000	XArms2	0.000185	32.13	RMS
O 103	M	1.000000	YArms2	0.000185	32.15	RMS
O 144	M	0.250000	XArms3	0.000185	8.00	RMS
O 185	M	0.250000	YArms3	0.000209	10.26	RMS
MIN RMS ERROR: 9.0507e-05						

UW 1 - Ray Intercept Curves Analysis*

Obj Height 0.707
0.001

Obj Height 0.5
0.001

Obj Height 0.1
0.001

AXIS

ASTIGMATISM
 $S \times T + (D)$

LONGITUDINAL SPHERICAL ABER. (D)

CHROMATIC FOCAL SHIFT (D)

DISTORTION (%)

LATERAL COLOR

3.06

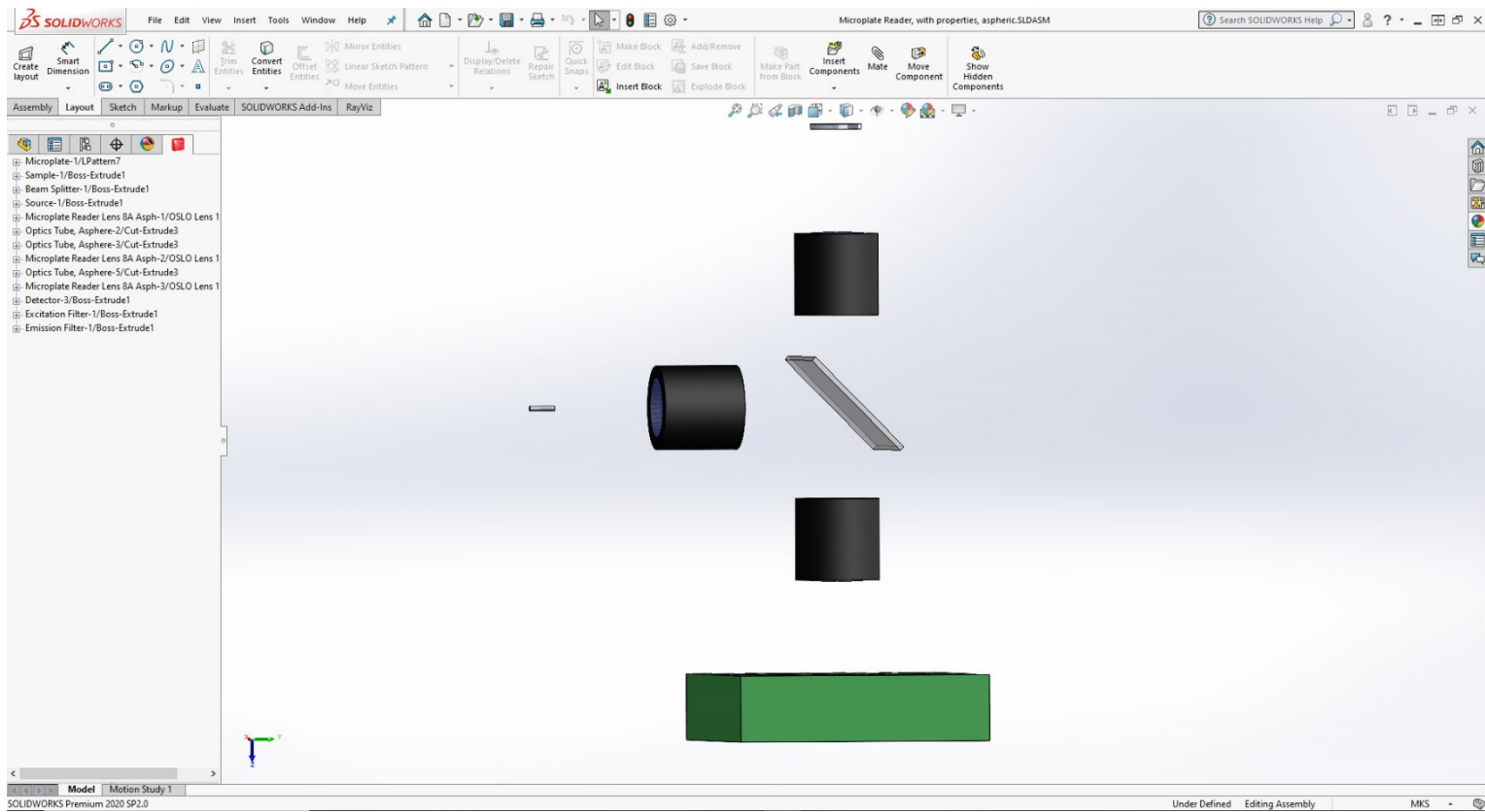
UNITS:

FIELD: 0.707
ENTRANCE BEAM RADIUS: 4
WAVELGTH: +:0.515 ±:0.490 ±:0.540 μm

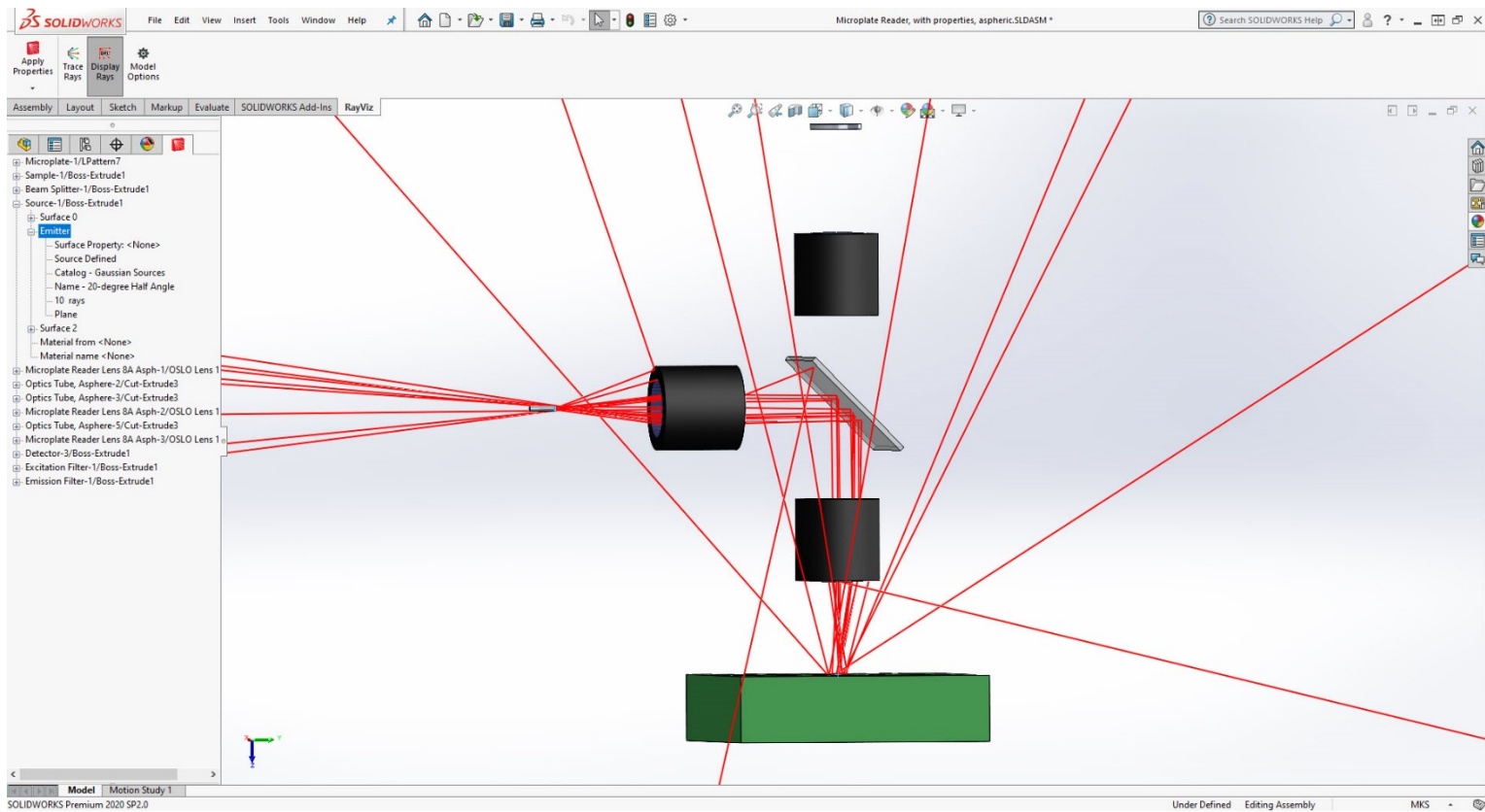
Microreader 8A
RAY TRACE ANALYSIS

Lambda Res
15 May 20
02:53 PM

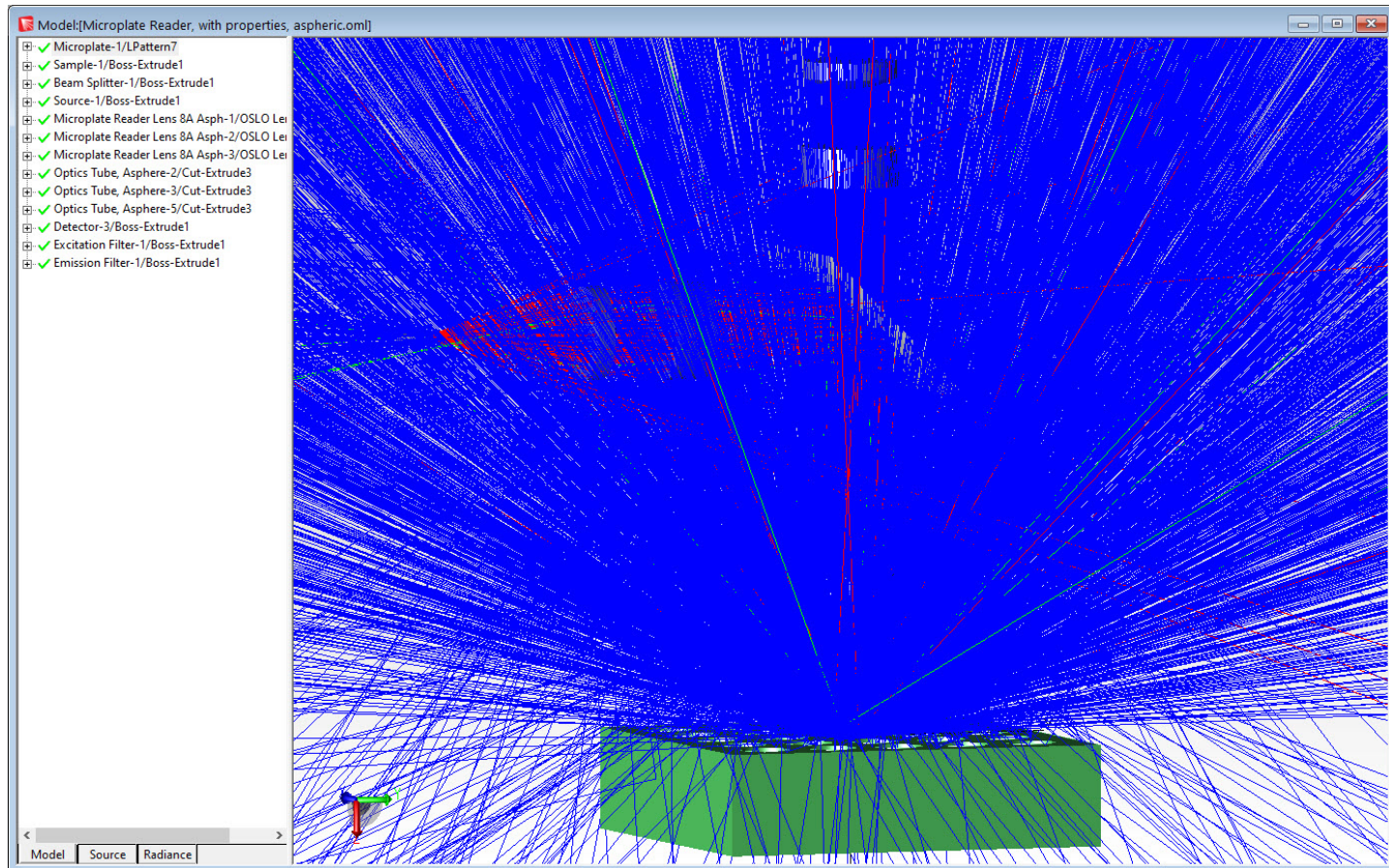
Opto-mechanical design



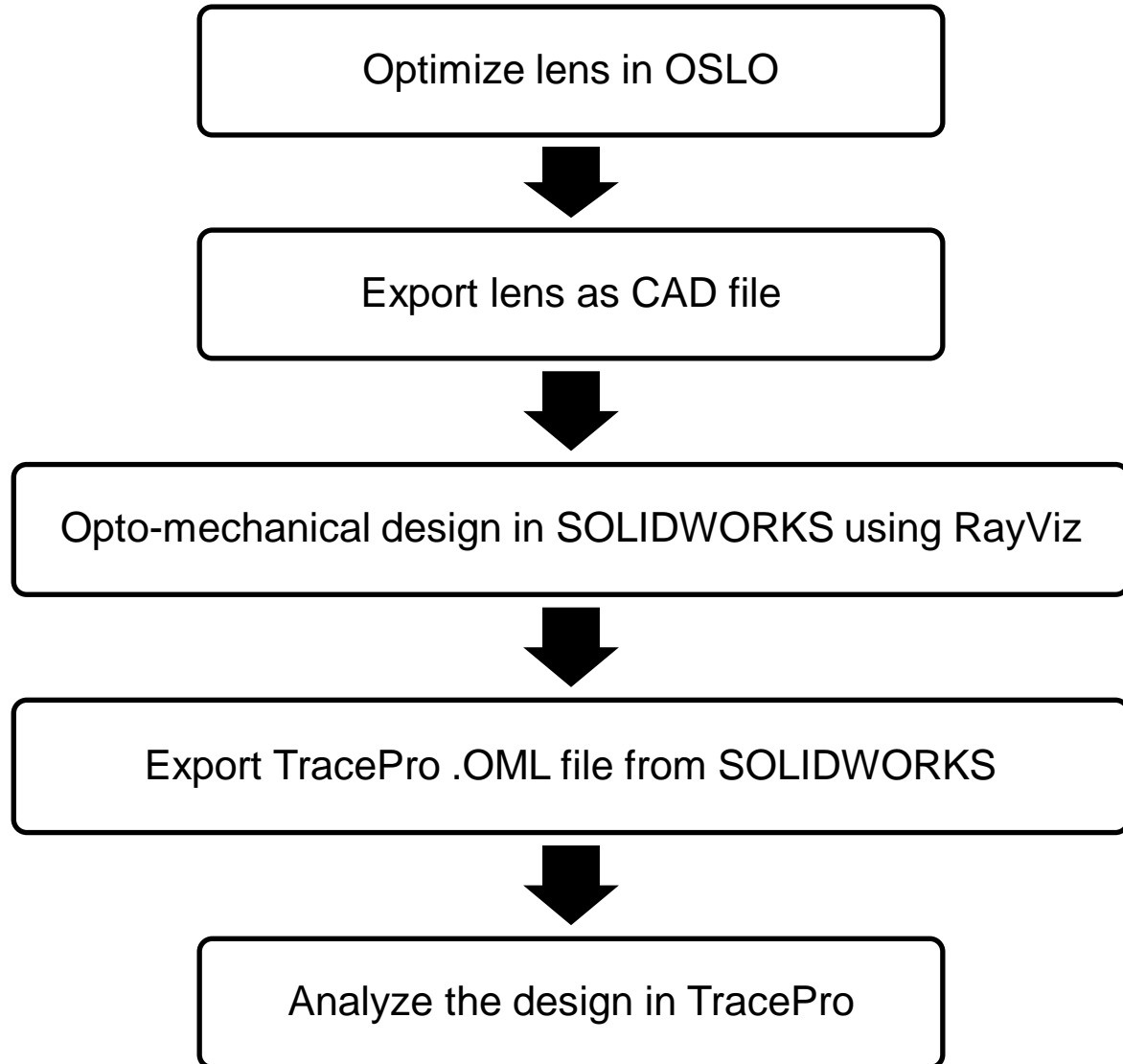
Opto-mechanical design

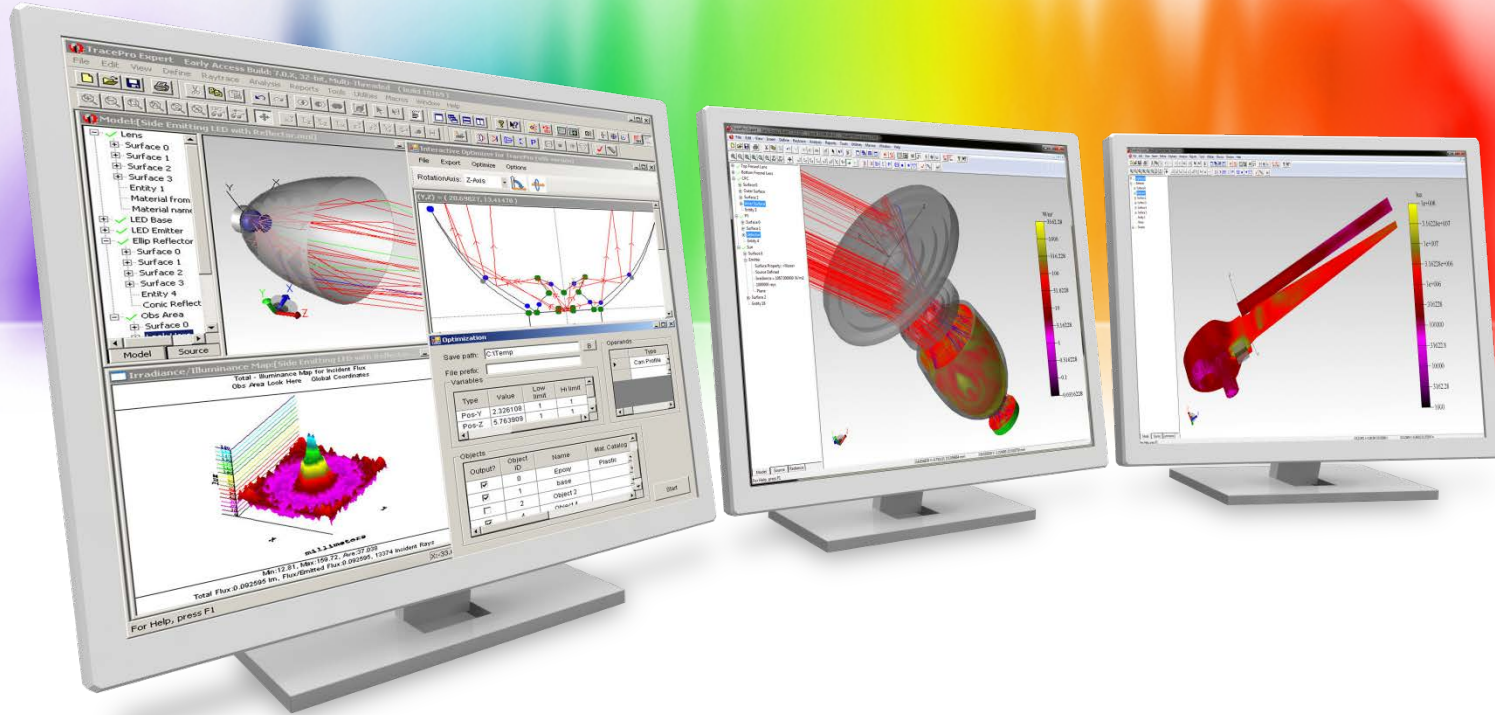


Optical analysis

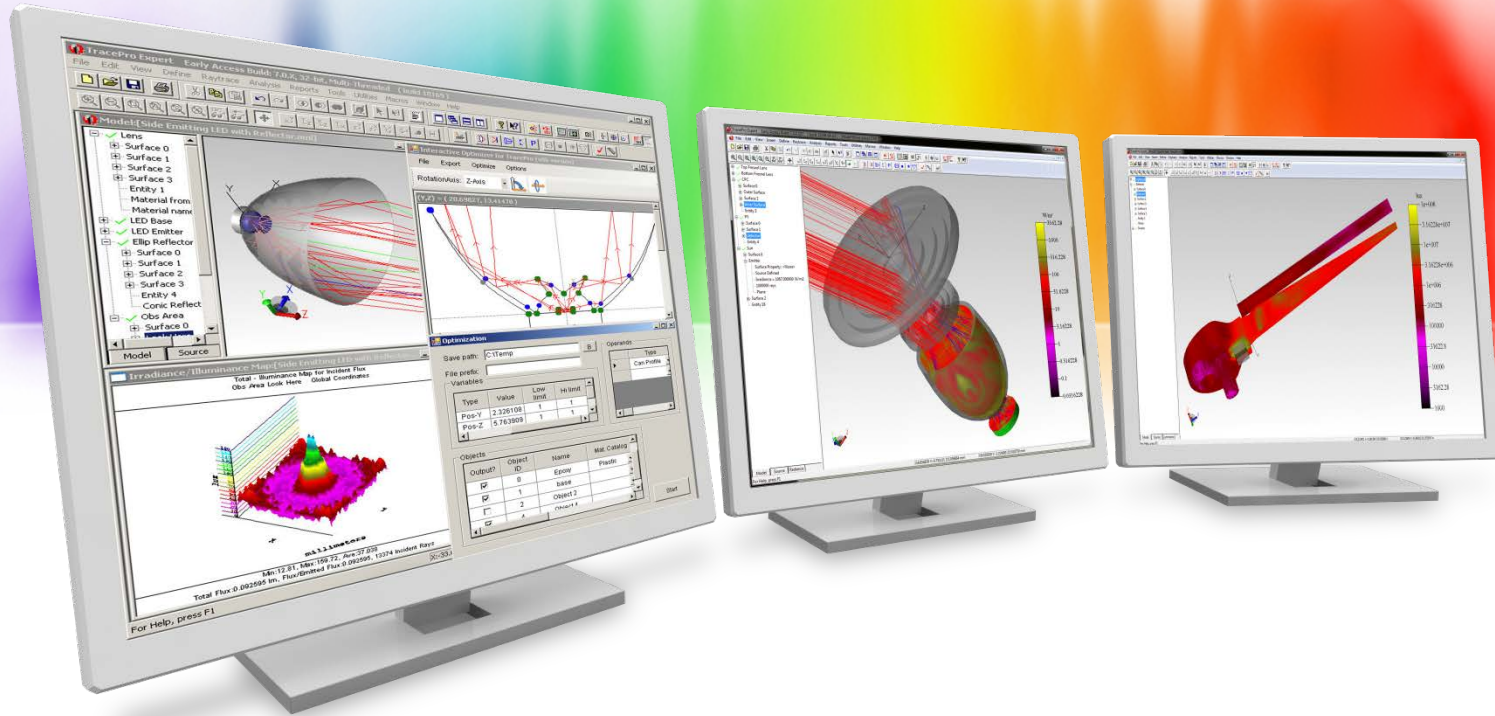


Workflow





Live Demo



Summary and Questions

Summary and Questions

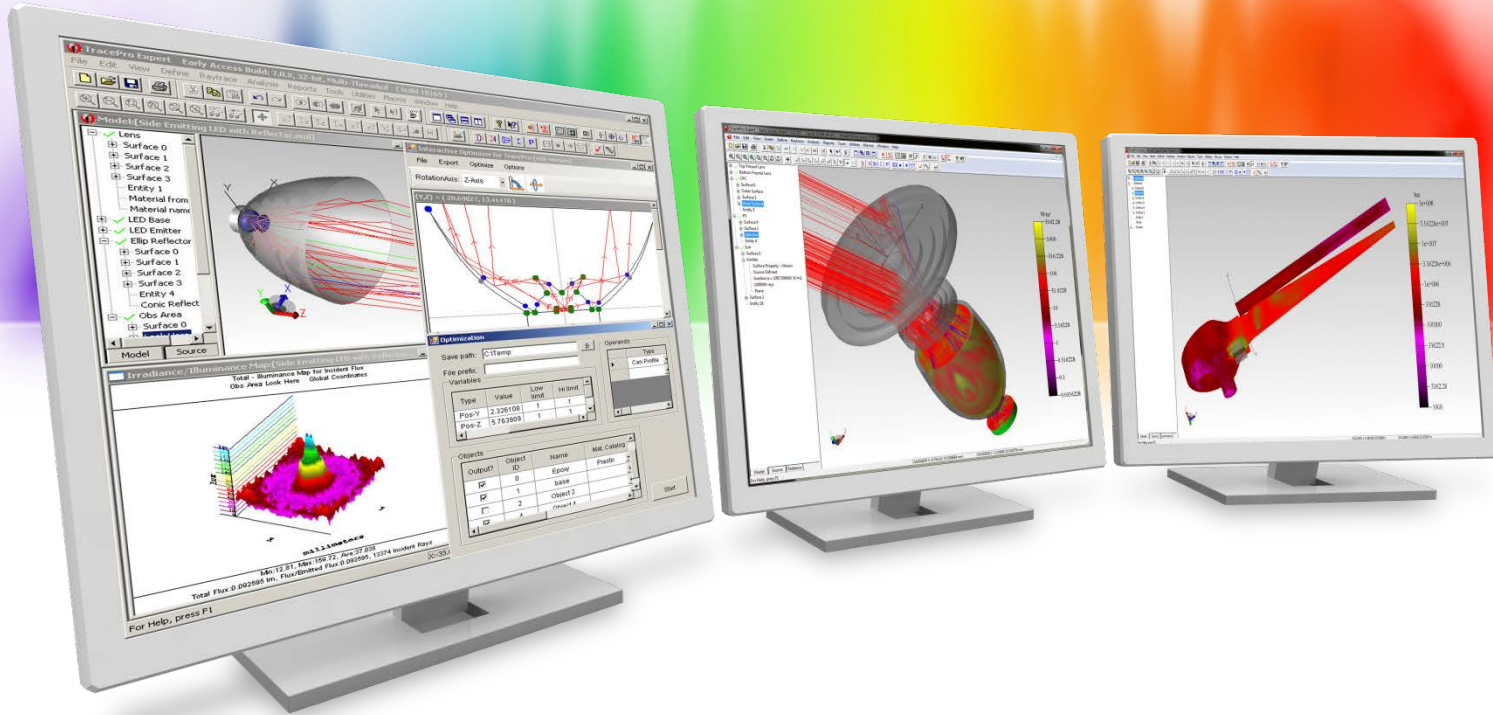
- ✓ Some optical design problems may require more than one software tool
- ✓ OSLO, RayViz, and TracePro allow you to use the best tool for the job in each part of the design process
- ✓ Files can easily be exported from OSLO to RayViz and TracePro
- ✓ Files can easily be shared between RayViz and TracePro

For more information or for a free 14-day trial for qualified users,
please contact us at:

www.lambdares.com

Phone: +1 978-486-0766

E-mail: sales@lambdares.com



Thank You!