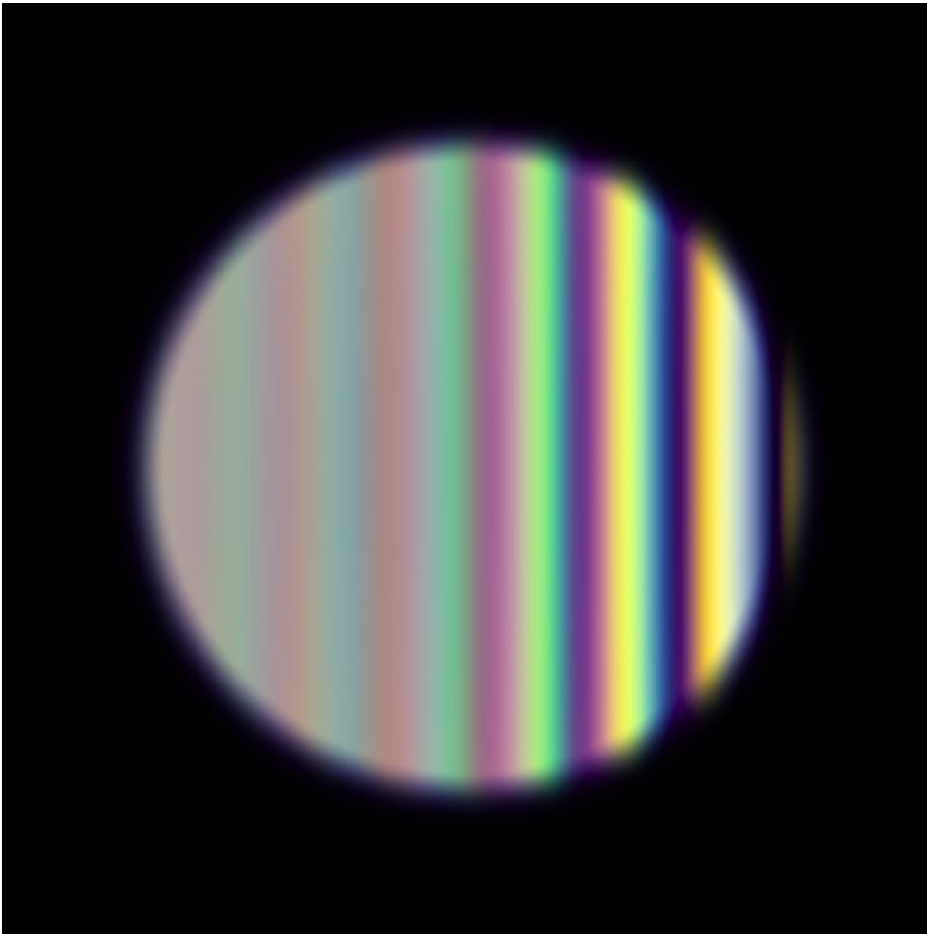


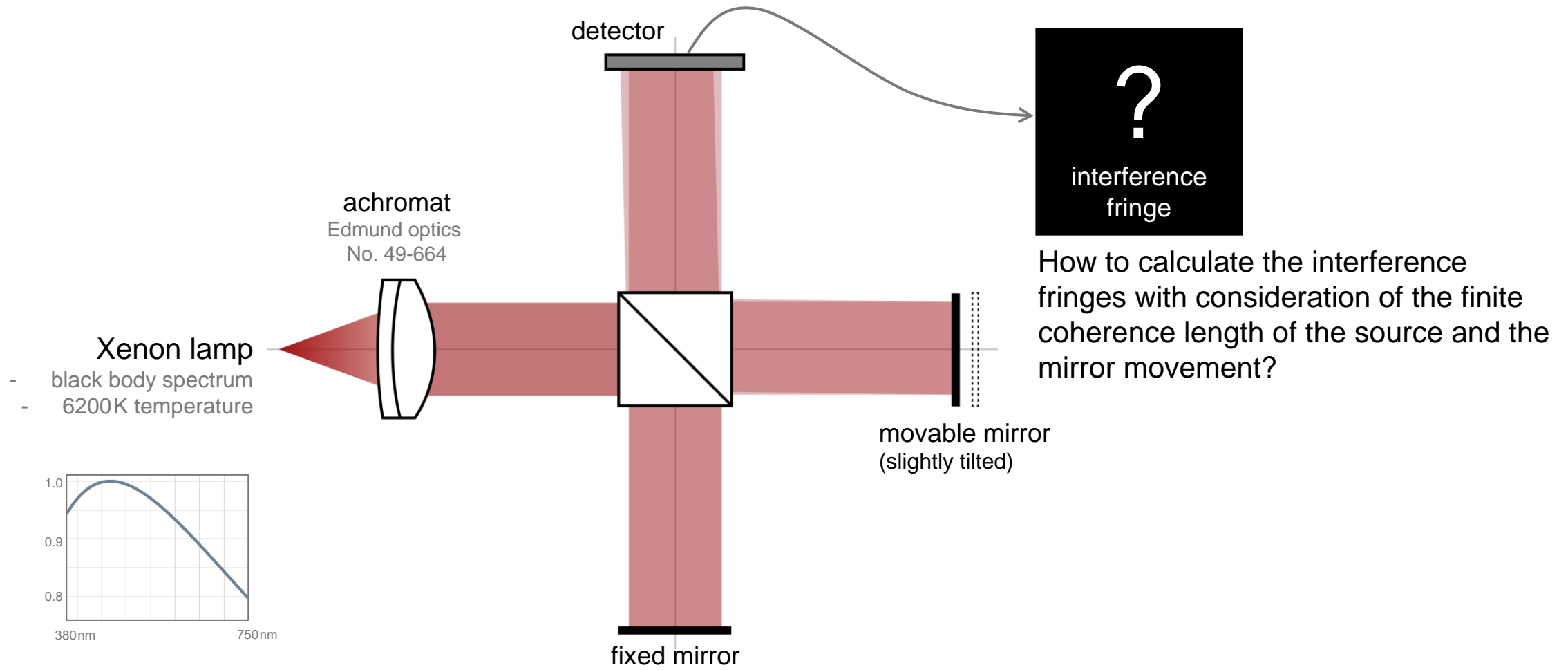
White-Light Michelson Interferometer

Abstract

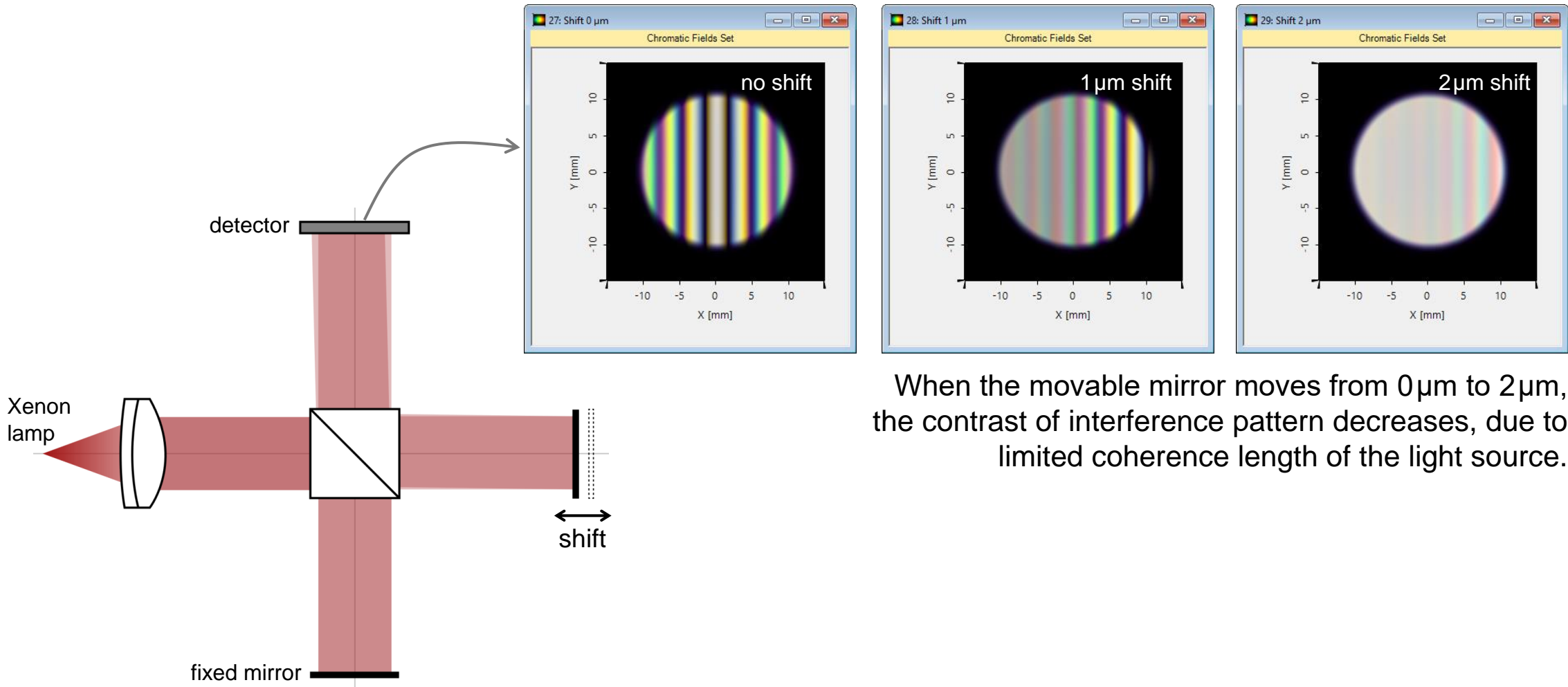


White-light interferometry is a non-contacting technique for precise measurement of e.g. surface profiles and extremely small movements. With a Michelson interferometer setup, and a Xenon lamp source, the white-light interferometry is demonstrated in VirtualLab Fusion. With the spectral property, i.e. limited coherence length, of the source taken into account, it is shown that interference pattern only appears when the path lengths of both arms are almost the same.

Modeling Task



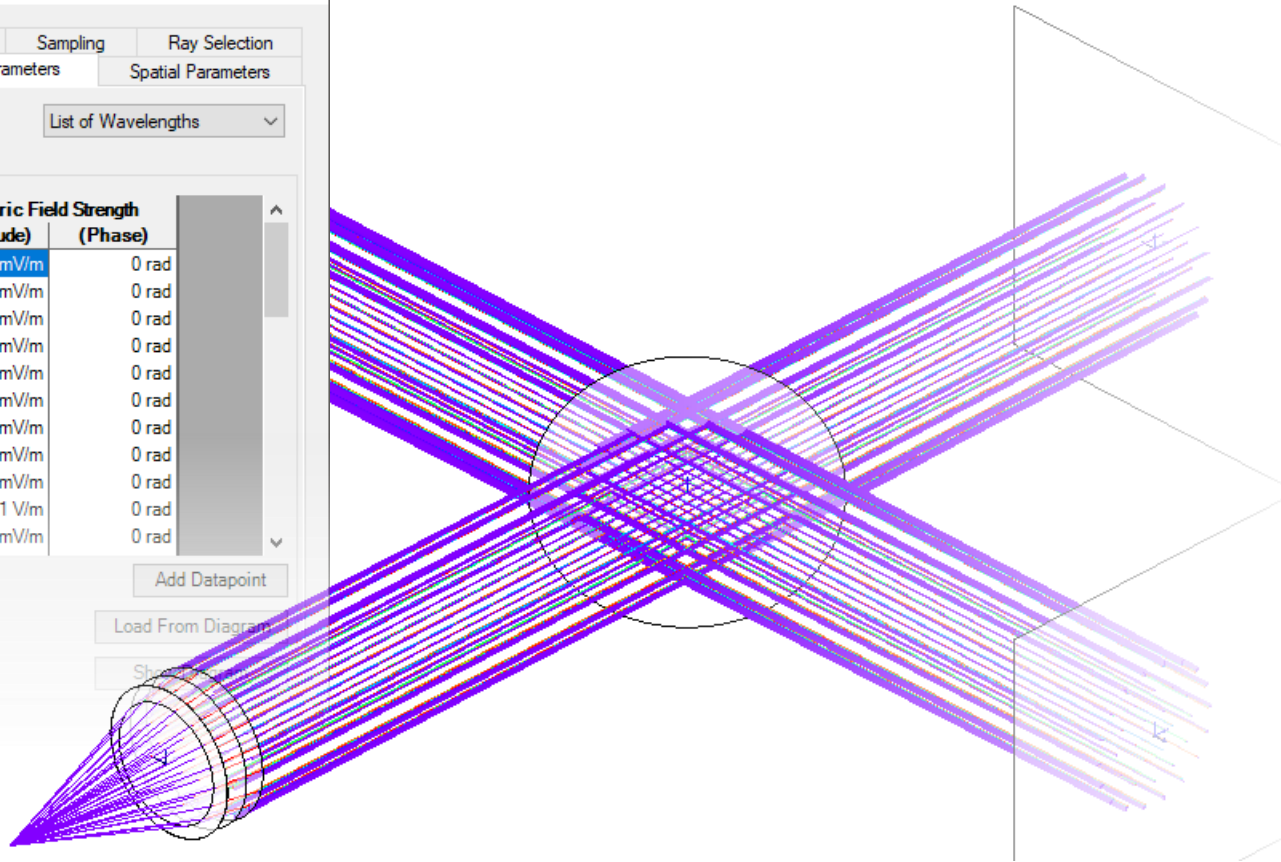
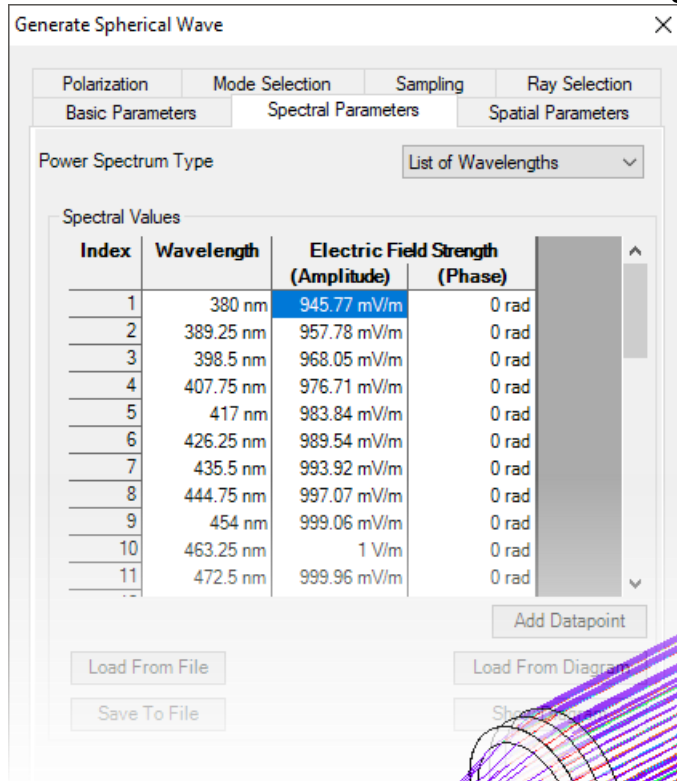
Change in Interference Fringes



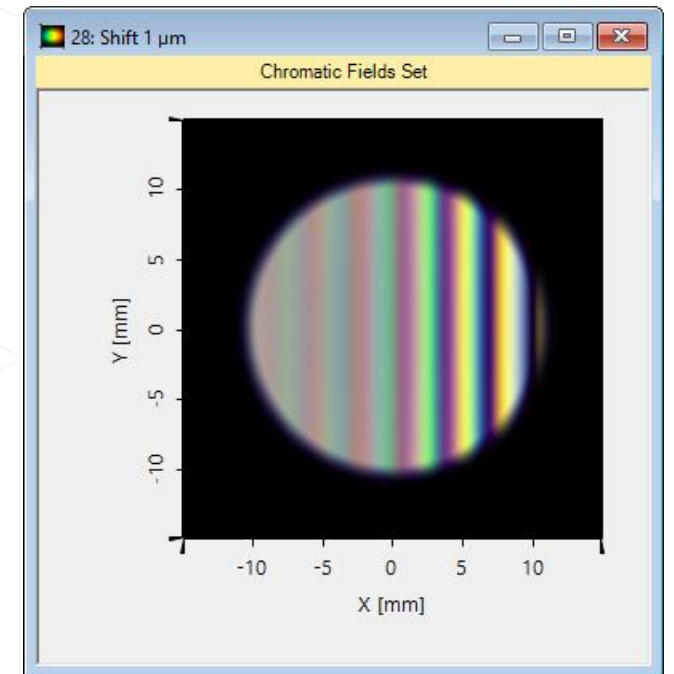
When the movable mirror moves from $0\mu\text{m}$ to $2\mu\text{m}$, the contrast of interference pattern decreases, due to limited coherence length of the light source.

Peek into VirtualLab Fusion

customizable power spectrum
for source modeling

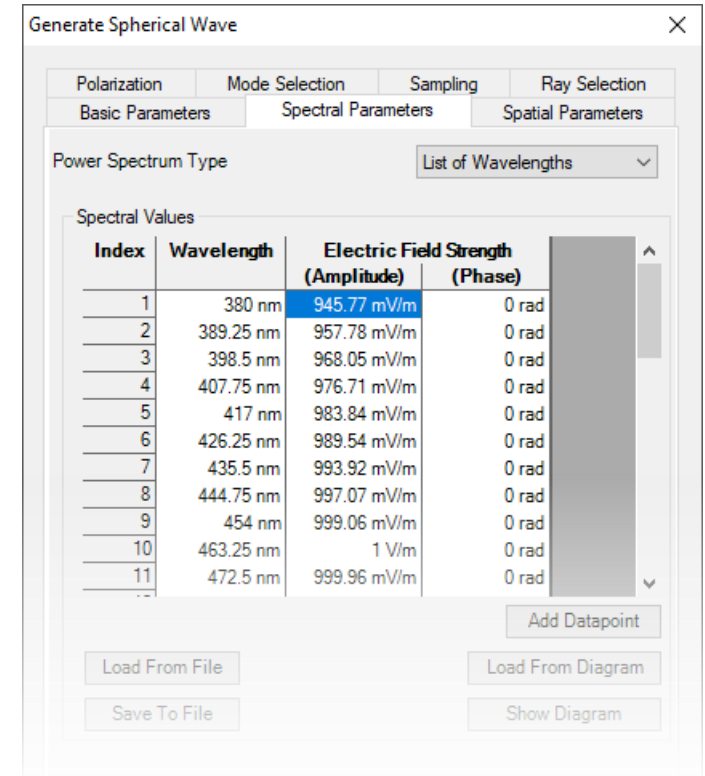


real-color visualization of results

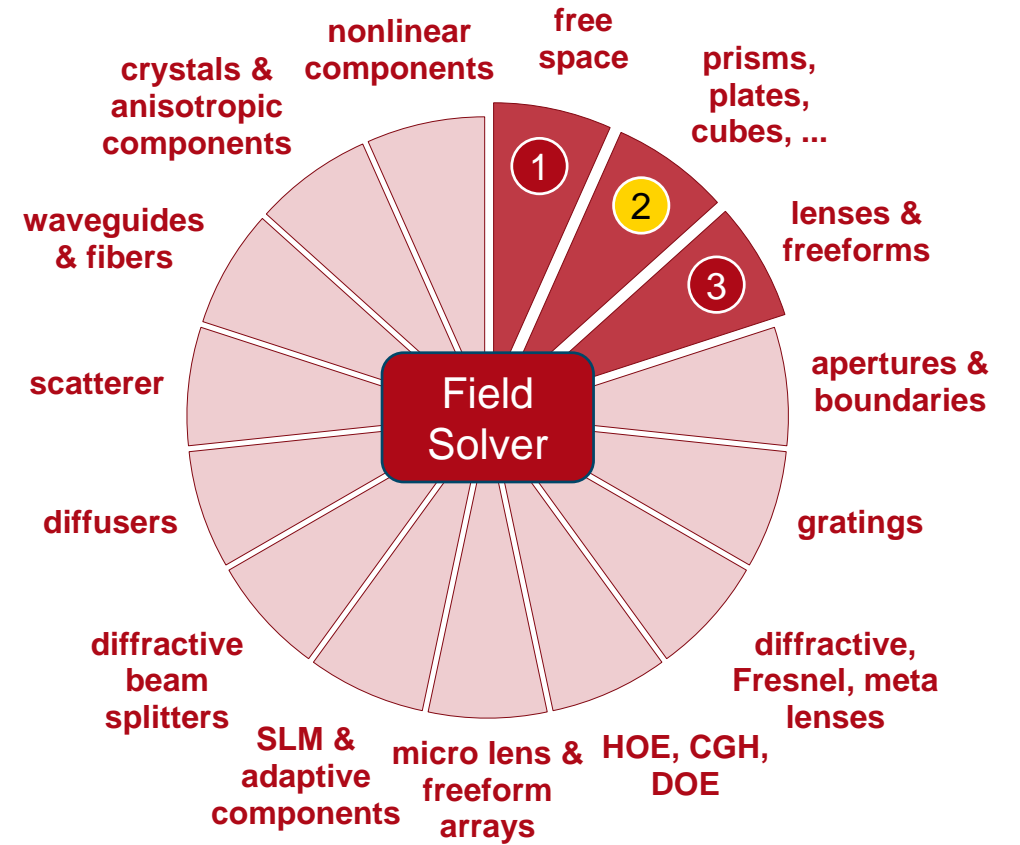
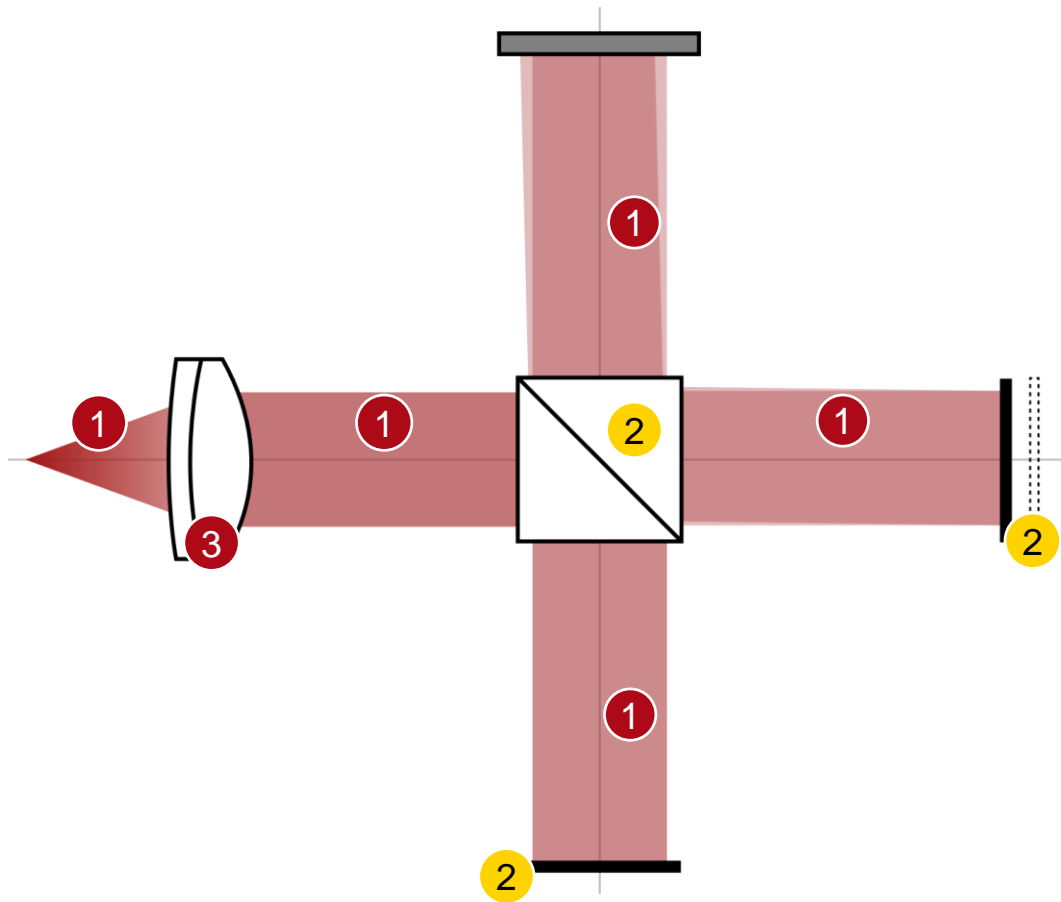


Workflow in VirtualLab Fusion

- Set up input field
 - [Basic Source Models](#) [Tutorial Video]
- Define position and orientation of components
 - [LPD II: Position and Orientation](#) [Tutorial Video]
- Set channels properly for non-sequential tracing
 - [Channel Setting for Non-Sequential Tracing](#) [Use Case]
- Use Parameter Run to check influence/changes
 - [Usage of the Parameter Run Document](#) [Use Case]



VirtualLab Fusion Technologies



idealized component

Document Information

title	White-Light Michelson Interferometer
document code	IFO.0003
version	2.0
toolbox(es)	Starter Toolbox (Non-Sequential Extension)
VL version used for simulations	7.4.0.49
category	Application Use Case
further reading	<ul style="list-style-type: none">- Laser-Based Michelson Interferometer and Interference Fringe Exploration- Mach-Zehnder Interferometer- Fizeau Interferometer for Optical Testing