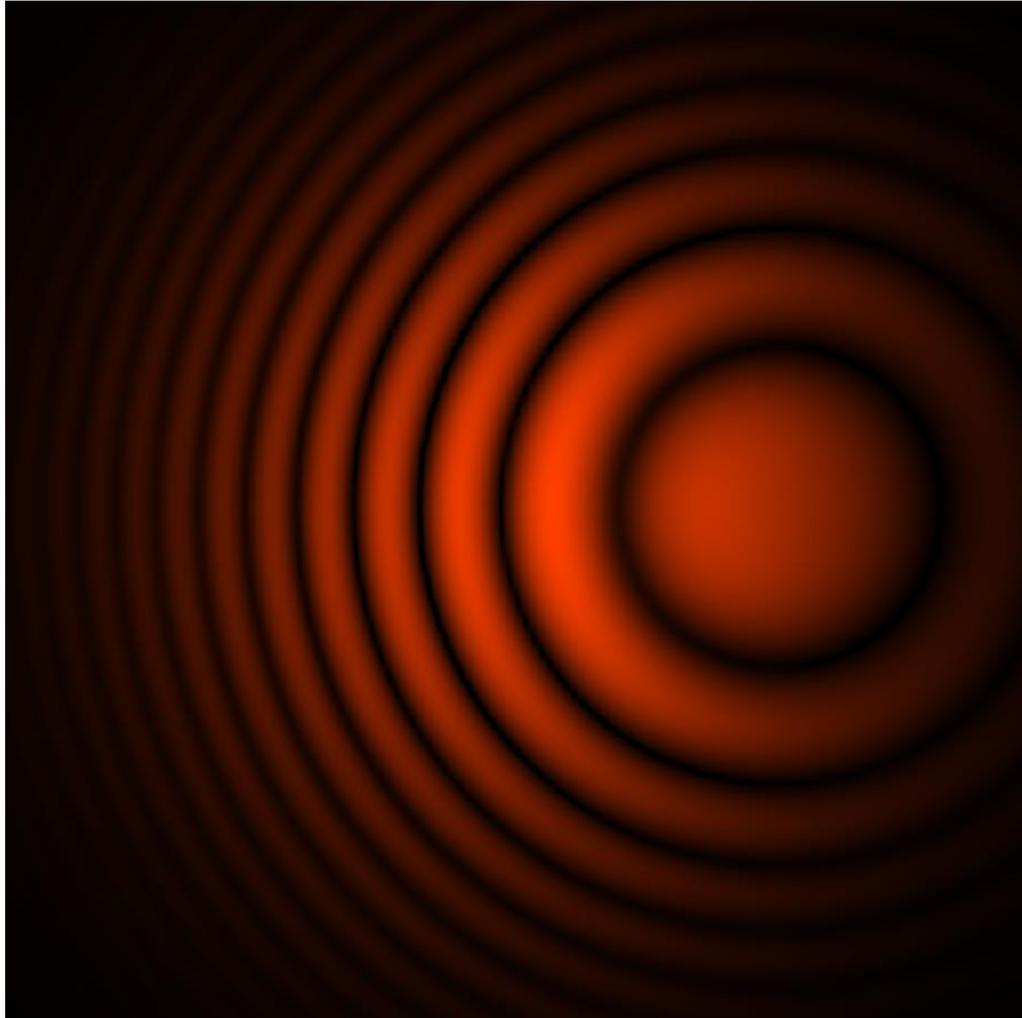


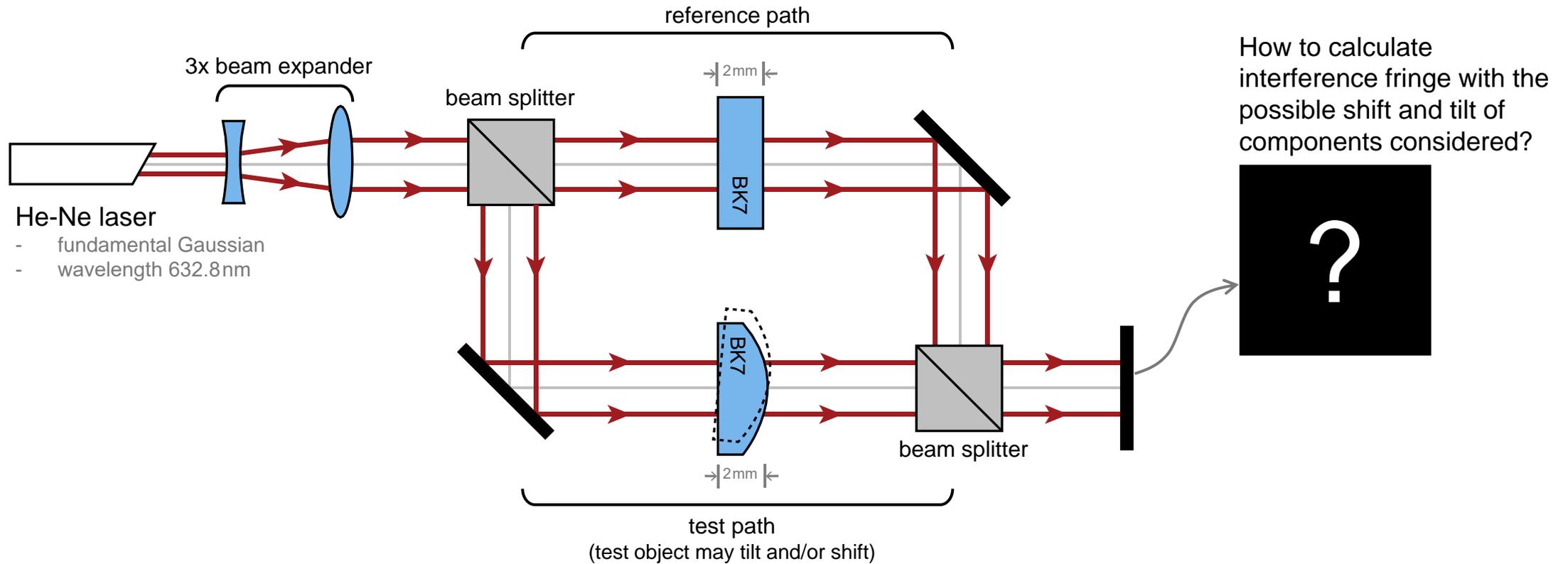
# Mach-Zehnder Interferometer

# Abstract

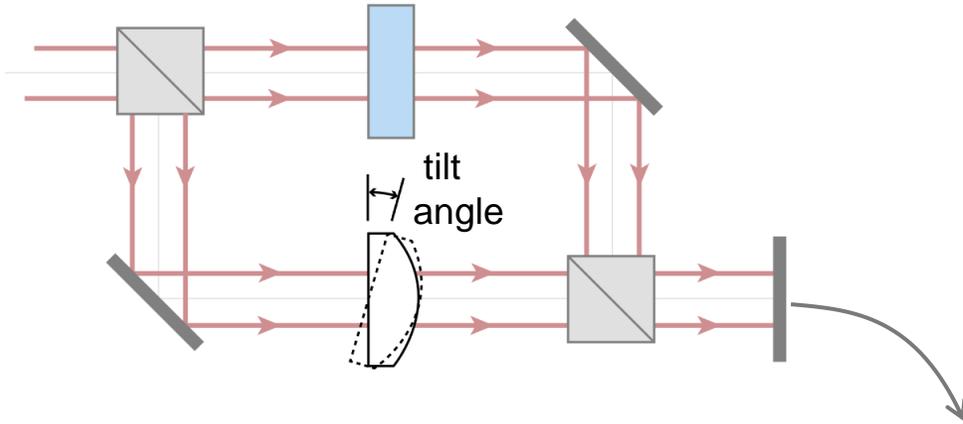


Interferometry is an important technology for optical metrology. It is widely used for the measurements of e.g. surface profile, defects, mechanical and thermal distortion with high precision. As a typical example, a Mach-Zehnder interferometer with coherent laser source is build up in VirtualLab Fusion, with the help of non-sequential field tracing. It is demonstrated that how the tilt and shift of an optical elements may affect the interference fringe pattern.

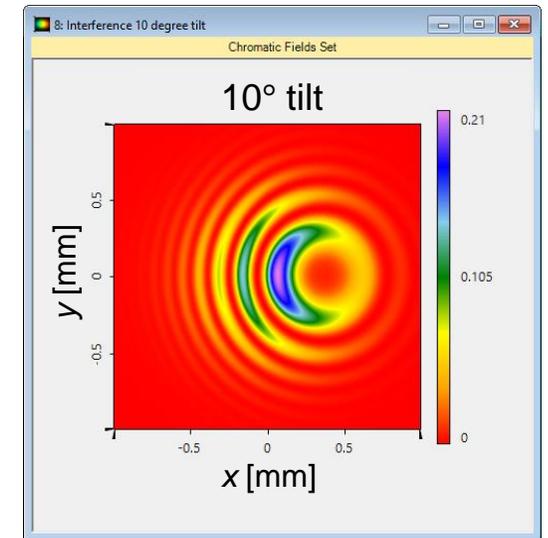
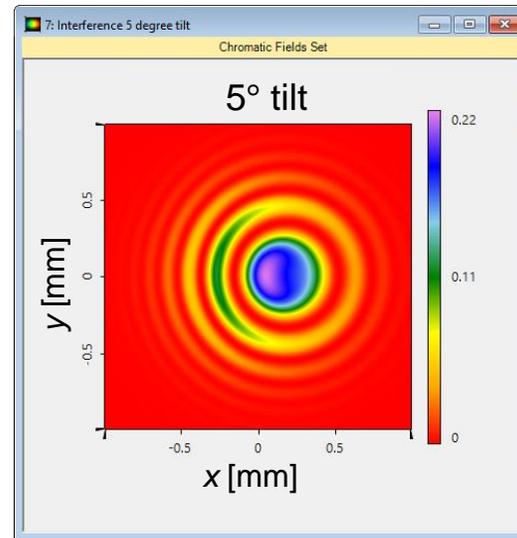
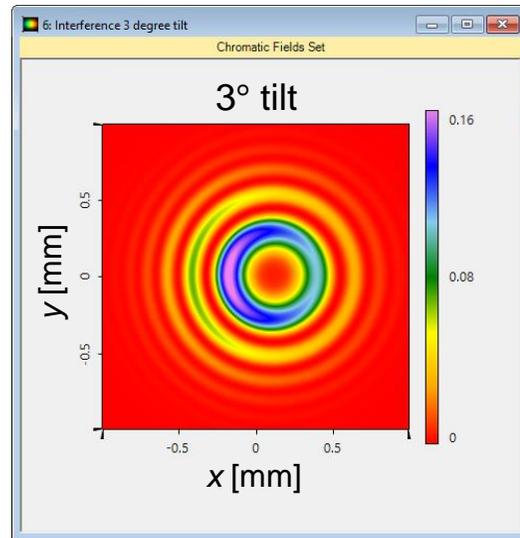
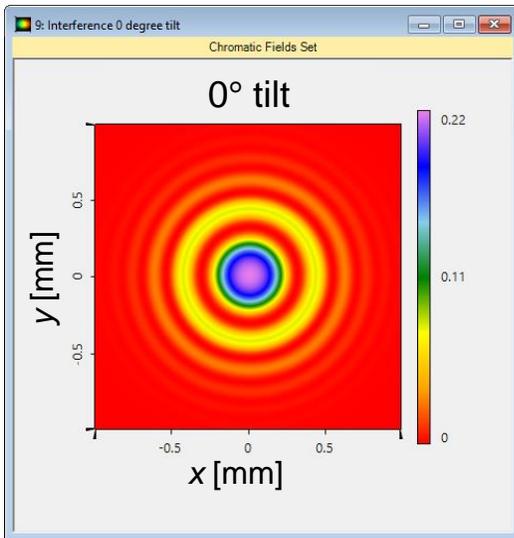
# Modeling Task



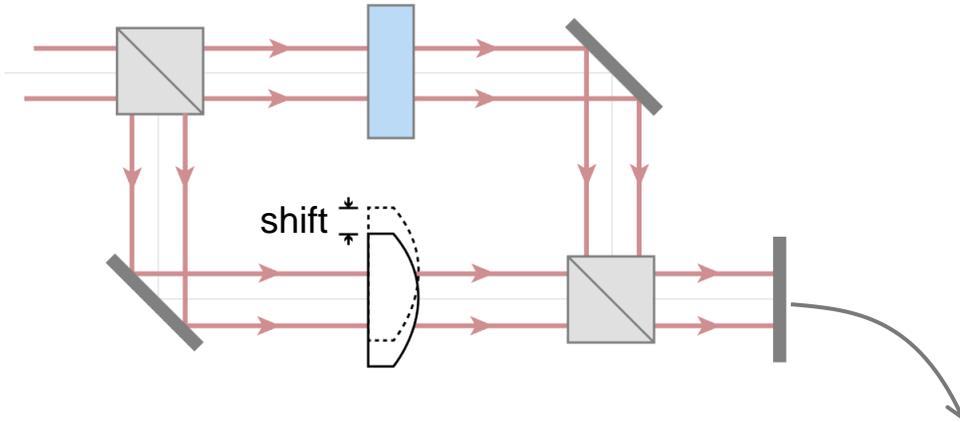
# Interference Fringe Due to Component Tilt



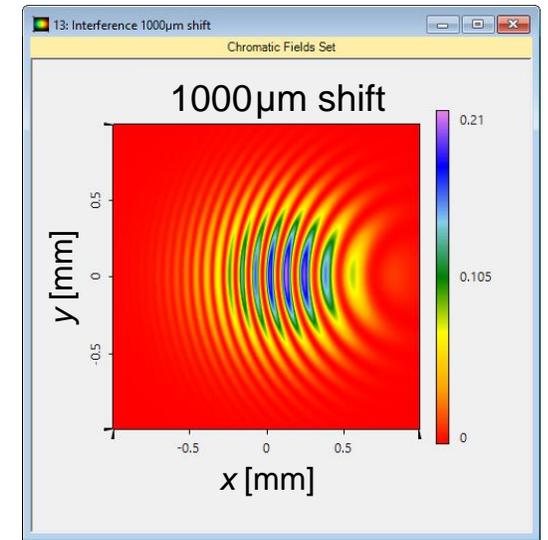
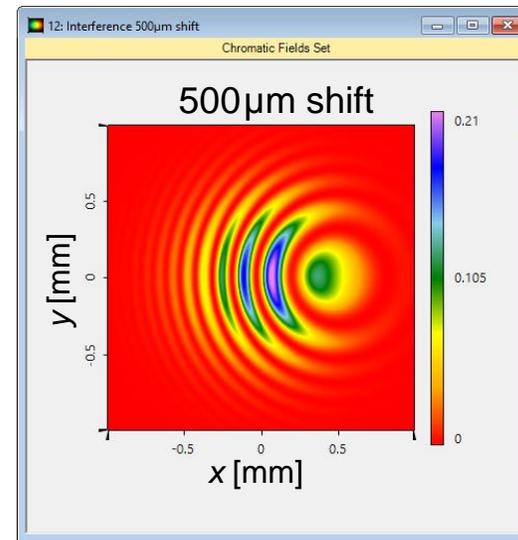
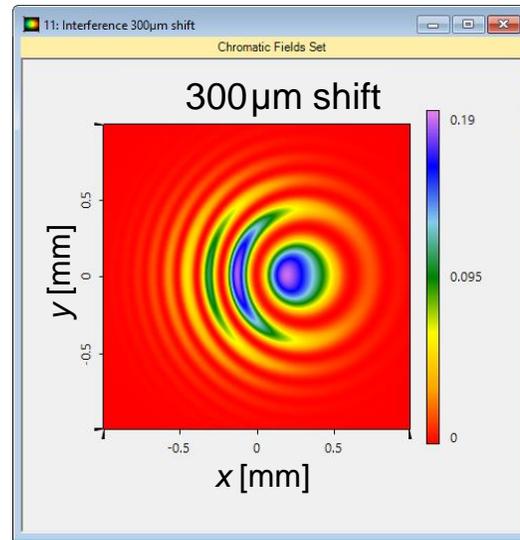
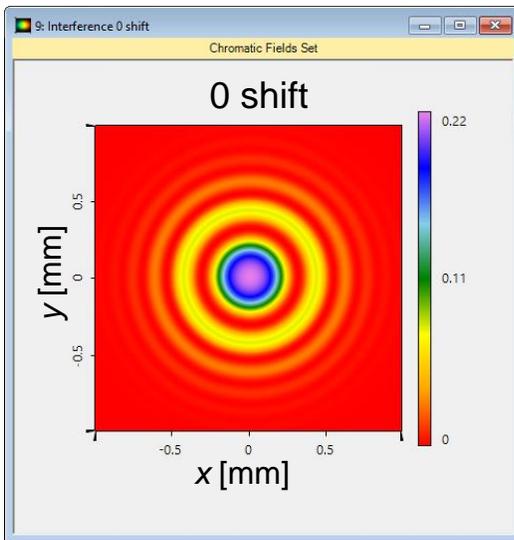
Calculation of interference pattern including element tilt takes less than 2 seconds!



# Interference Fringe Due to Component Shift



Calculation of interference pattern including element shift takes less than 2 seconds!



# Document Information

|                                 |  |
|---------------------------------|--|
| title                           | Mach-Zehnder Interferometer  |
| document code                   | IFO.0005   |
| version                         | 1.1  |
| 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"><li>- <a href="#">Laser-Based Michelson Interferometer and Interference Fringe Exploration</a></li><li>- <a href="#">Fizeau Interferometer for Optical Testing</a></li></ul> |