Modeling of Optical Interferometers

Optical interferometry is typically used for precise measurement of time and displacement. Modern interferometers often consist of light sources with various coherence properties, and different components. VirtualLab Fusion is a unified platform for the modeling of such complex systems based on physical optics and with a user-friendly interface.

WYROWSKI

VirtualLab FUSION

FAST PHYSICAL OPTICS SOFTWARE

Benefits in VirtualLab Fusion

- Non-sequential field tracing and channel settings for convenient interferometric system configuration
- Modeling of sources with limited temporal coherence, analysis of the consequences in the interference fringes, and their applications in measurement systems
- Inclusion of various types of components inside the interferometer, e.g., polarizers
- Direct visualization of interference fringes



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Michelson Interferometer

- Michelson interferometers are often used for temporal coherence measurement.
- It is convenient to set up such systems with the non-sequential field tracing technique.

Mach-Zehnder Interferometer

- Different components and surfaces can be used in both arms in the Mach-Zehnder interferometer.
- Interference fringes from different surface types can be directly visualized.

Fizeau Interferometer

- It is one of the most widely used industrial interferometers for surface testing.
- Non-sequential field tracing allows the investigation of unwanted stray light in such setups conveniently.

Testing Optical Surface Quality

- Interferometers (e.g. Fizeau) are often used for testing optical surface quality.
- Various surface types can be defined in VirtualLab Fusion and they can be used in the interferometer simulation.

Optical Coherence Scanning Interferometer

- With white light with broad spectrum as the source, temporal coherence length is limited.
- Taking advantage of short coherence length, a scanning interferometer can be realized and modeled.

Polarization Interferometry

- Interference information can be embedded in the polarization as well.
- VirtualLab Fusion allows for easy inclusion of polarizing components in interferometric setups.



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