

# PHOTONICS spectra®

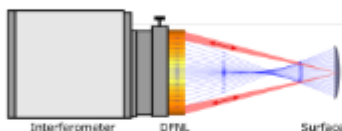
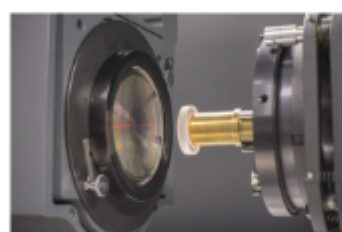
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### EASY TO USE COMPUTER GENERATED HOLOGRAMS FOR COMPLEX SURFACE METROLOGY

DFNL TYPE CGH WITH INTEGRATED FIZEAU REFERENCE PLANE



There are many metrology methods on the market for testing aspheres. The method with one of the highest known accuracies is based on a Fizeau interferometer, in combination with a CGH. We describe a so called DFNL type CGH, having the CGH diffractive structures integrated into the Fizeau reference surface, which provides a solution for measuring complex shapes that is comparable to the traditional methods used for testing spheres. Compared to a standard CGH, the DFNL simplifies the hardware and alignment steps required to measure a complex optical surface.

#### DFNL-type CGHs

Diffractive Fizeau Null lenses (DFNL) are computer generated holograms that can be used to test surface shapes with a Fizeau interferometer without having to use an additional reference optic. A DFNL consists of a

diffractive structure with binary gratings, that creates a unique wavefront such that each ray hits the test surface at a right angle. The reflected wave is then converted to a plane wave in the second pass through the CGH. The reference wave is created by the same surface using the zero-order in reflection. In this setup only the

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