Holography

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Holography - How does it work?

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Interference

Coherence

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Hologram of an object point

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Types of Holography

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Reconstruction of a Hologram

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Holographic Interferometry

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Apparatus

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Michelson Interferometer

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Blabla

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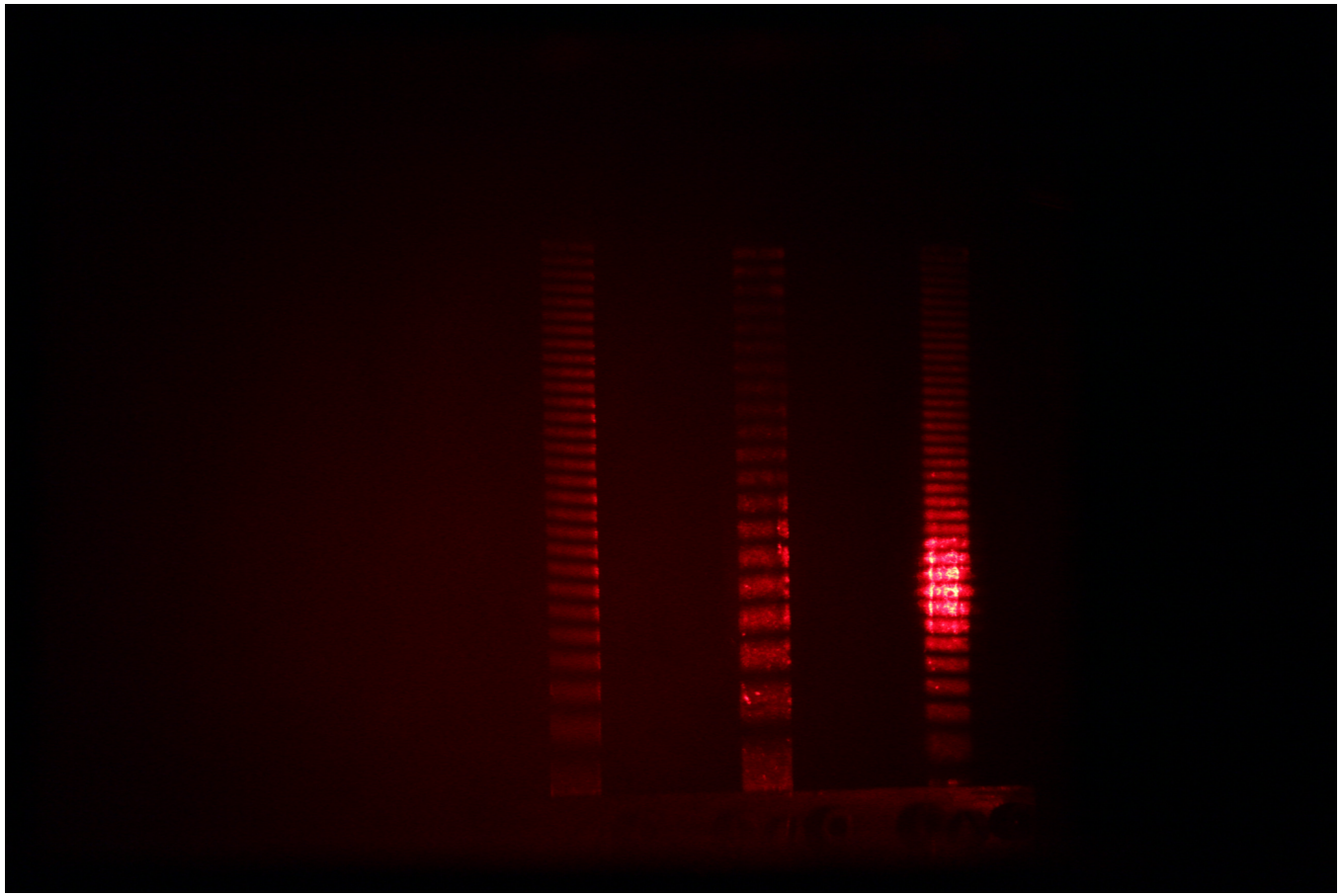
Double Exposure Hologram



Interference pattern on the beams

Calculation of the Elastic Modulus

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Blablabla

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Real Time Hologram

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Blablabla

Oscillations of an Aluminium Plate

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Blablabla

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Fourier Optics - Huygen's Principle and Fraunhofer Diffraction

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Blablabla

Convolution Theorem

$$(f * g)(t) = \int_{-\infty}^{\infty} f(\tau) \cdot g(t - \tau) d\tau \tag{1}$$

$$\mathscr{F}(f * g) = const. \mathscr{F}(f) \cdot \mathscr{F}(g) \tag{2}$$

Convolution Theorem

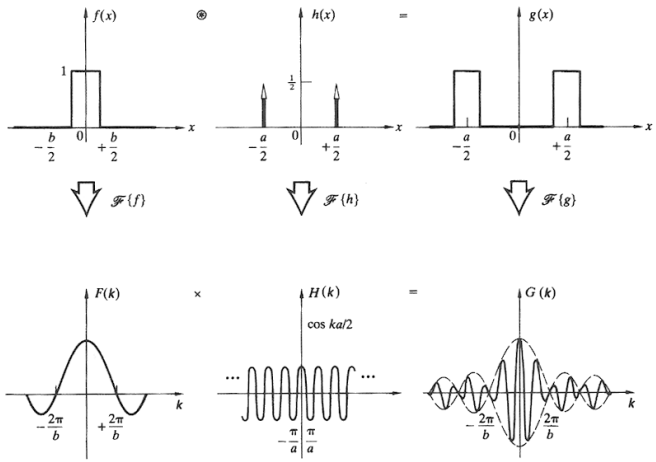
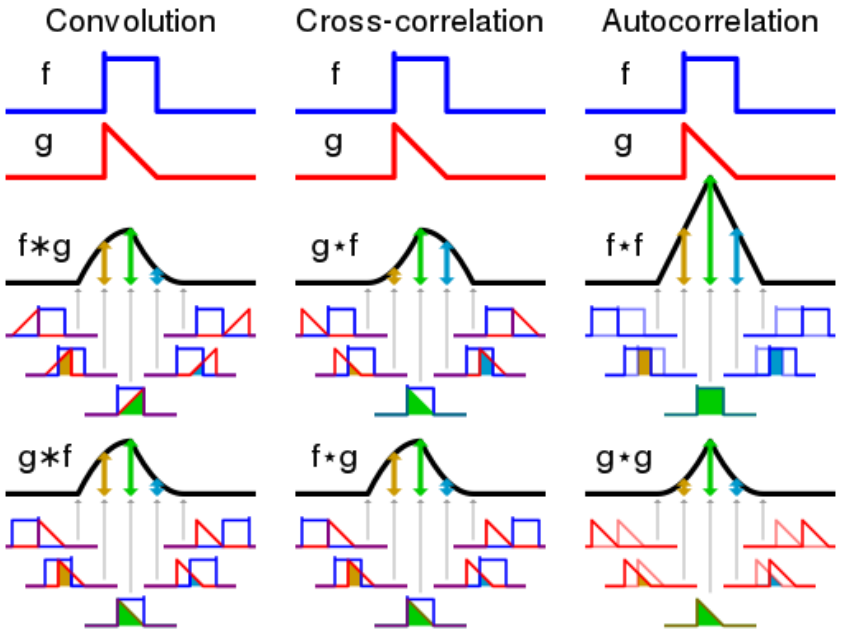


Illustration of the Convolution theorem with the example of the double slit

Cross- and Autocorrelation

$$(f * g)(t) = \int_{-\infty}^{\infty} f(\tau) \cdot g(t + \tau) d\tau \tag{3}$$

Cross- and Autocorrelation



Visual comparison of convolution, cross-correlation and autocorrelation [1]

[1] By Cmglee - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=20206883

Fourier Interferometry

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Blablabla

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Summary of our Results

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