

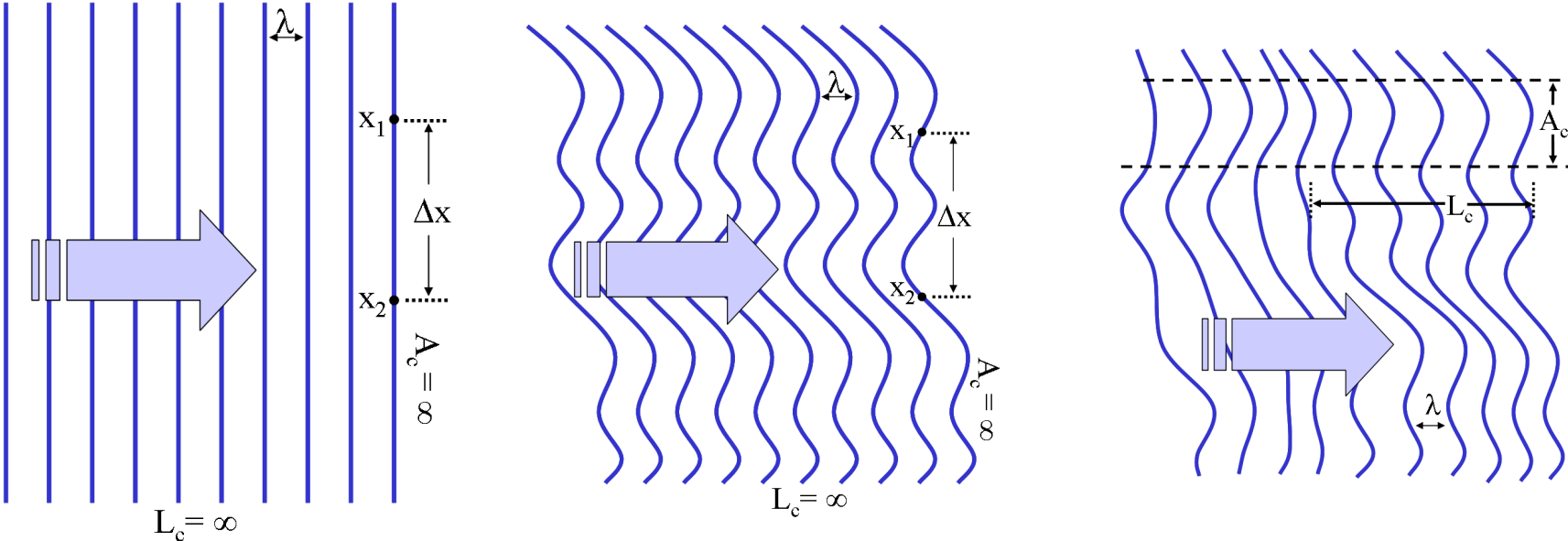
# Experimental Physics 3 - Em-Waves, Optics, Quantum mechanics

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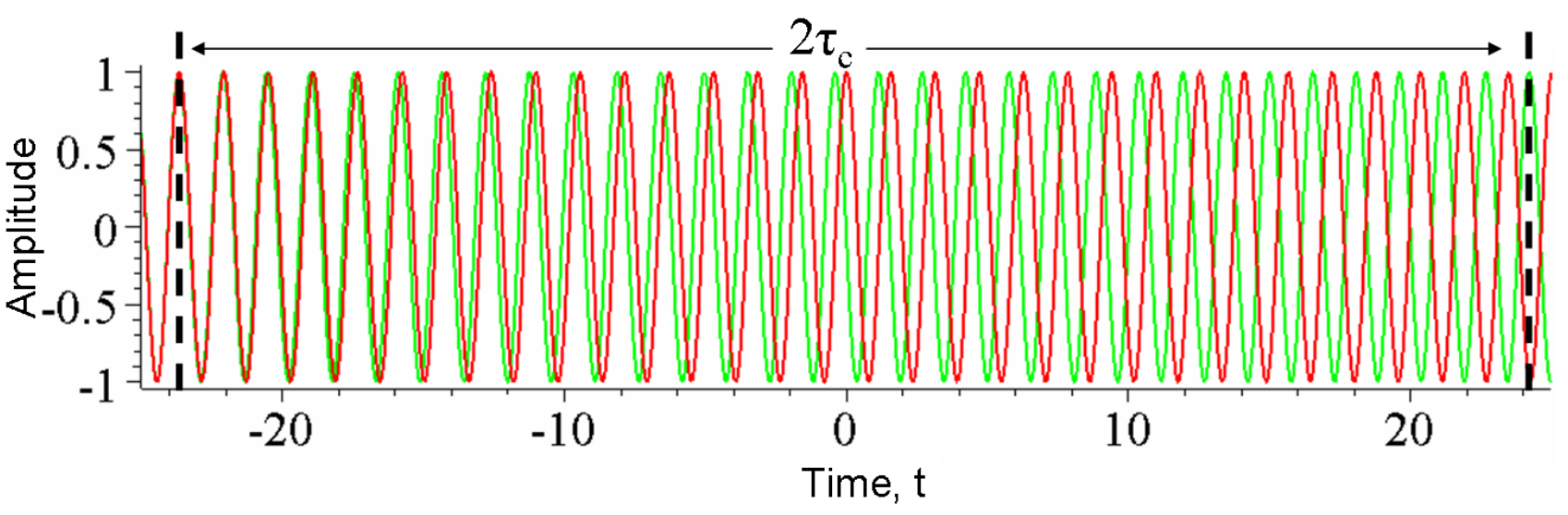
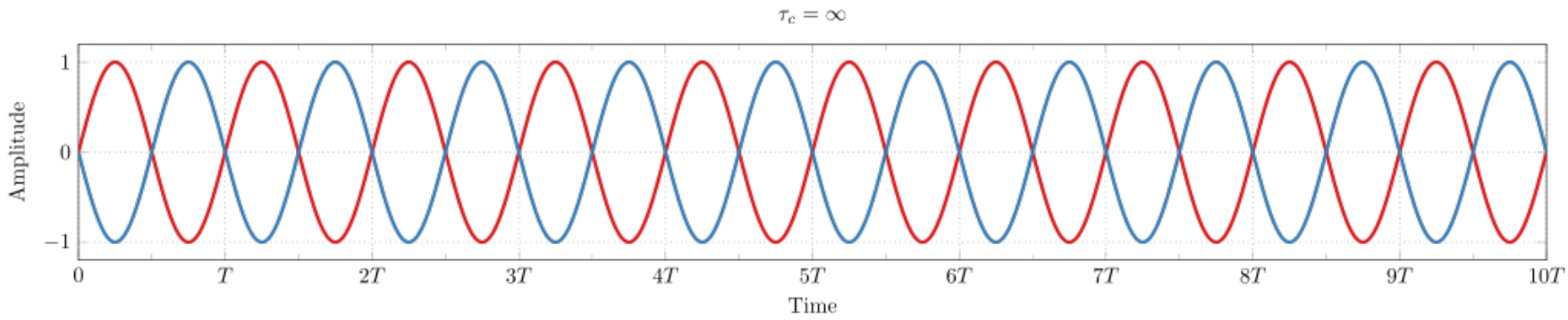
## Lecture 8

Interference

# Coherence - Spatial Coherence

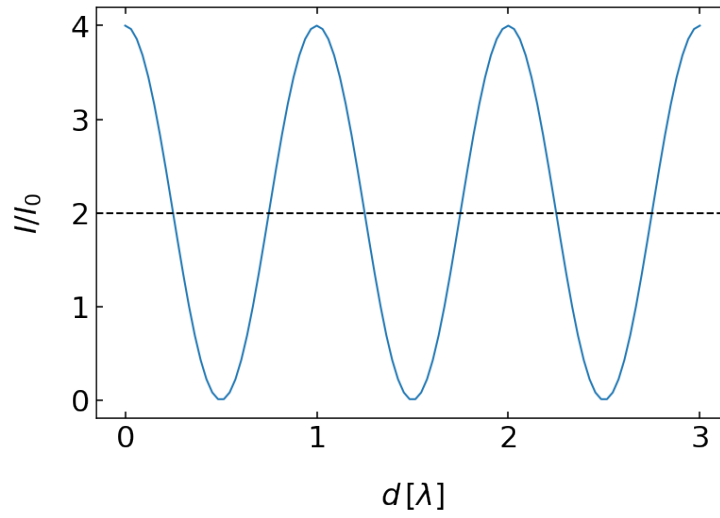
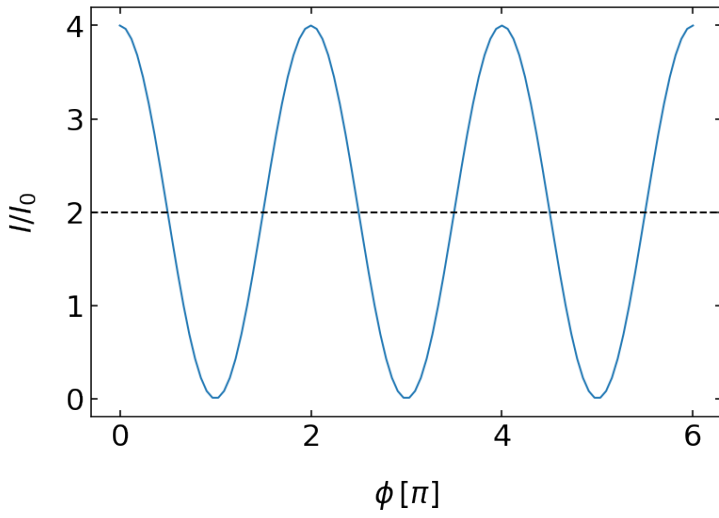


# Coherence - Temporal Coherence

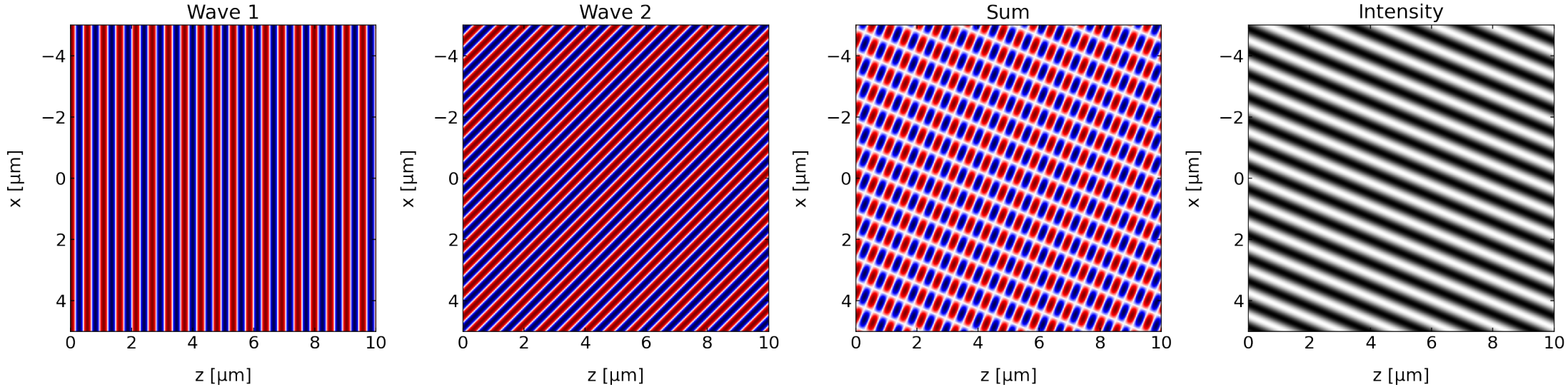


# Interference

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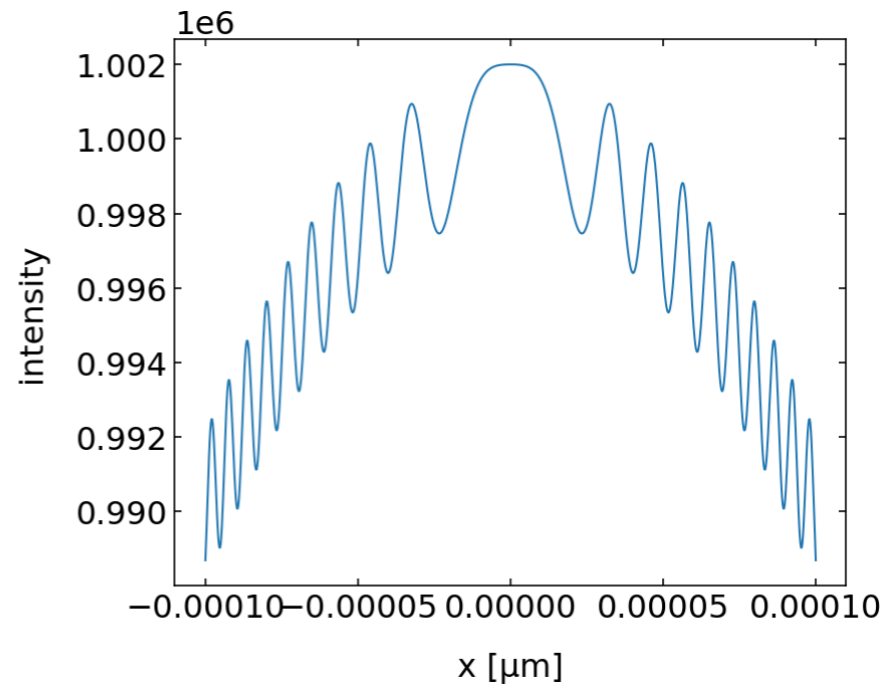
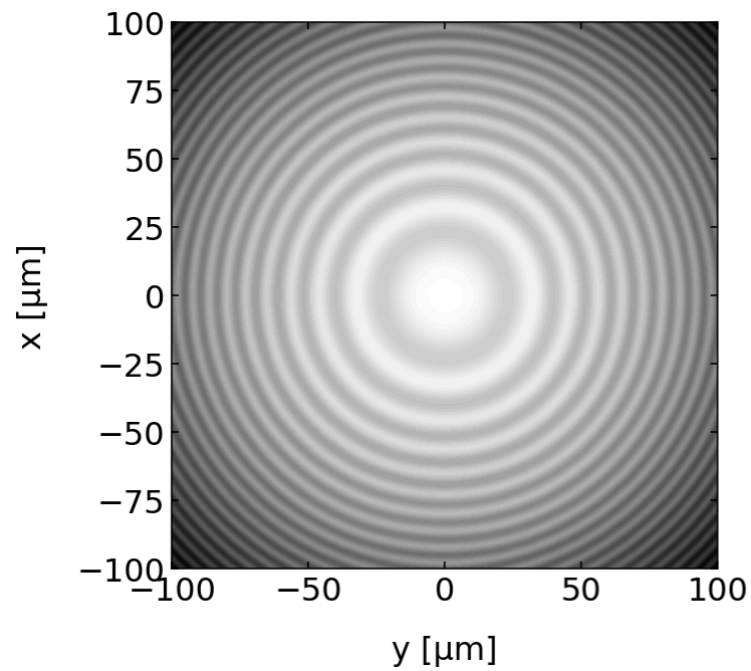


# Interference in Space

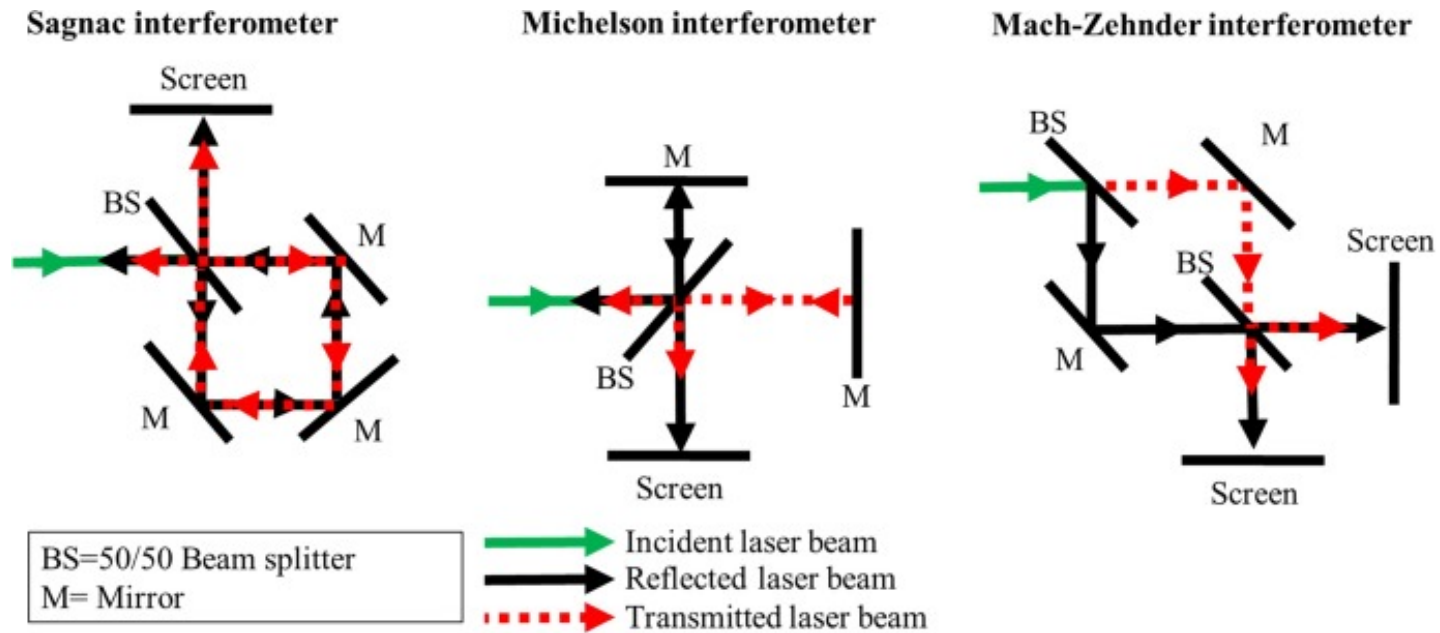


# Interference Between Spherical and Plane Wave

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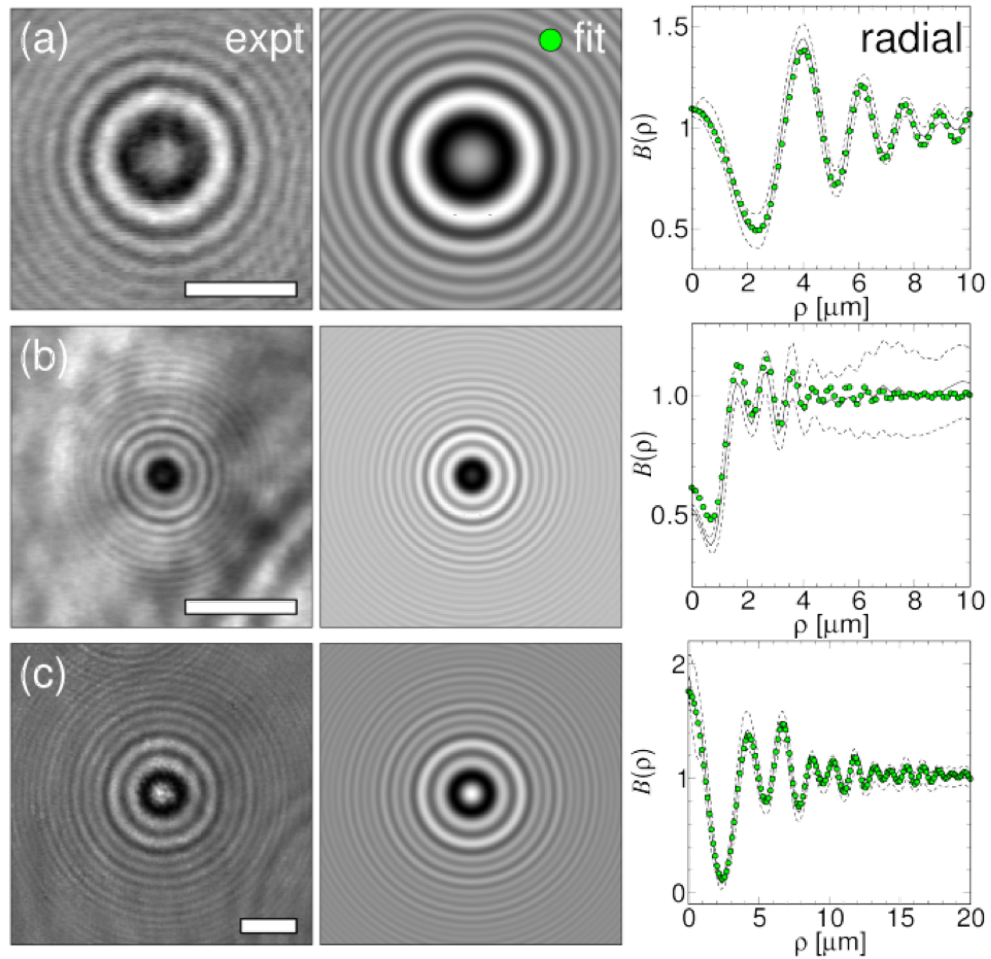
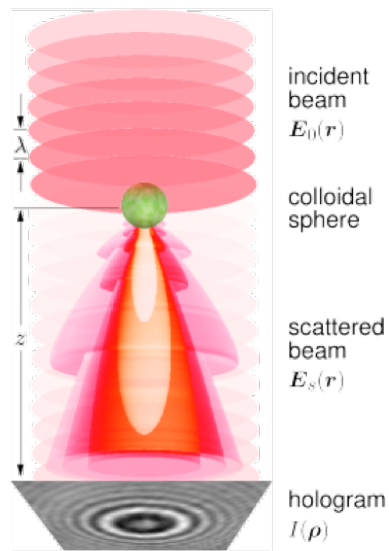


# Interferometers

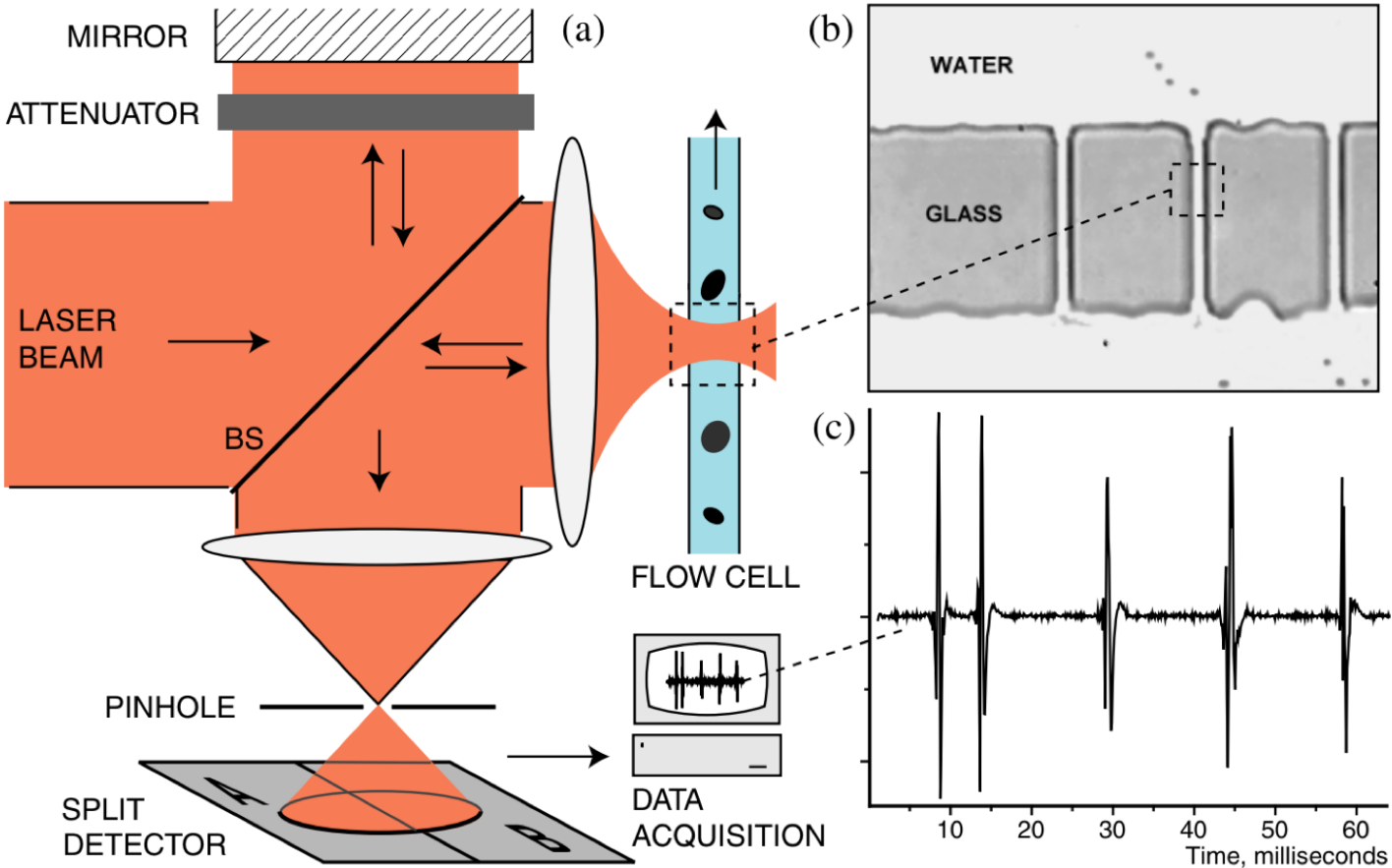




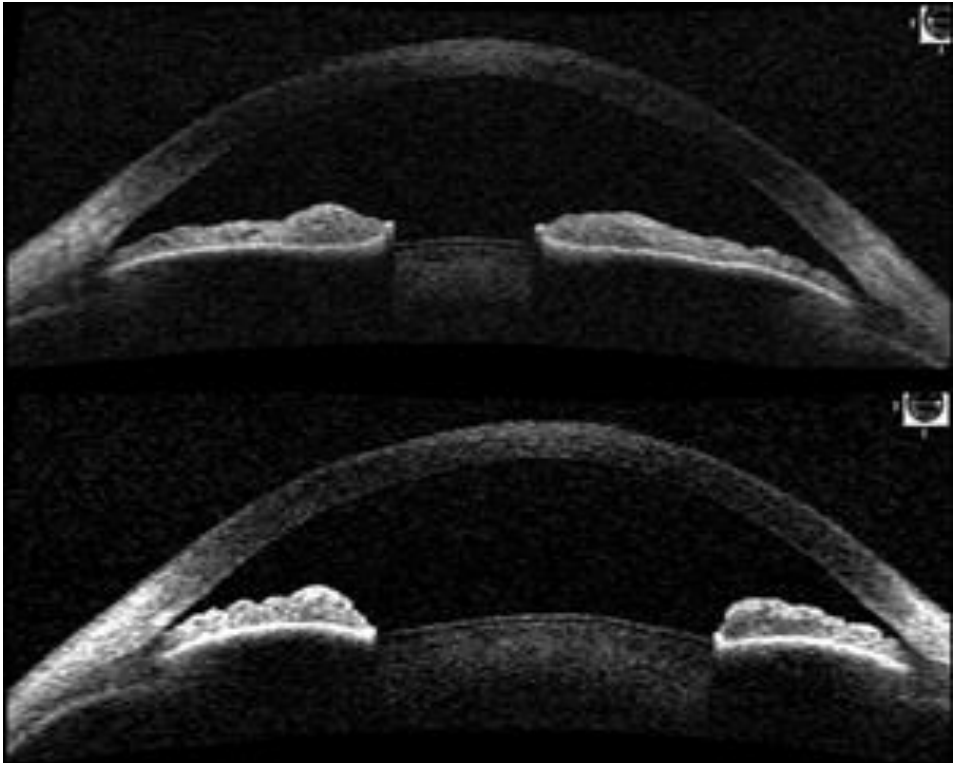
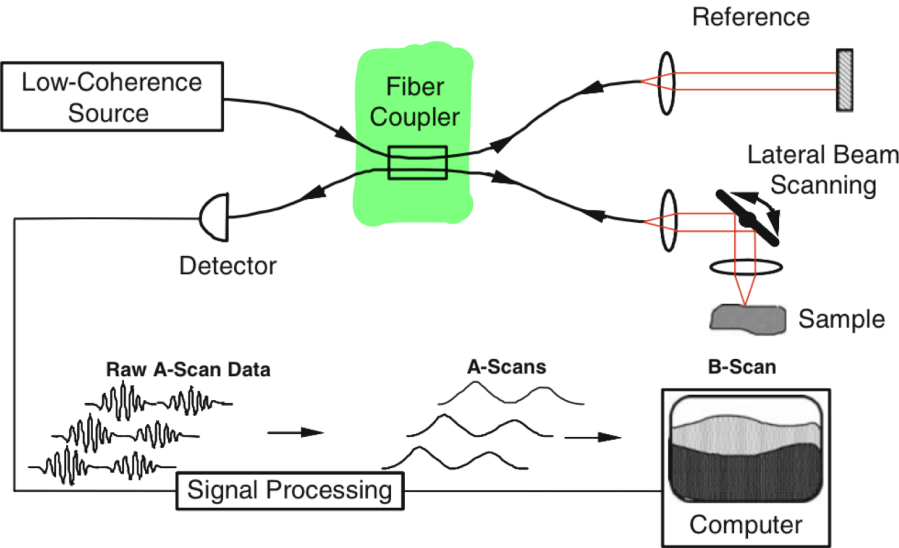
# Holographic microscopy



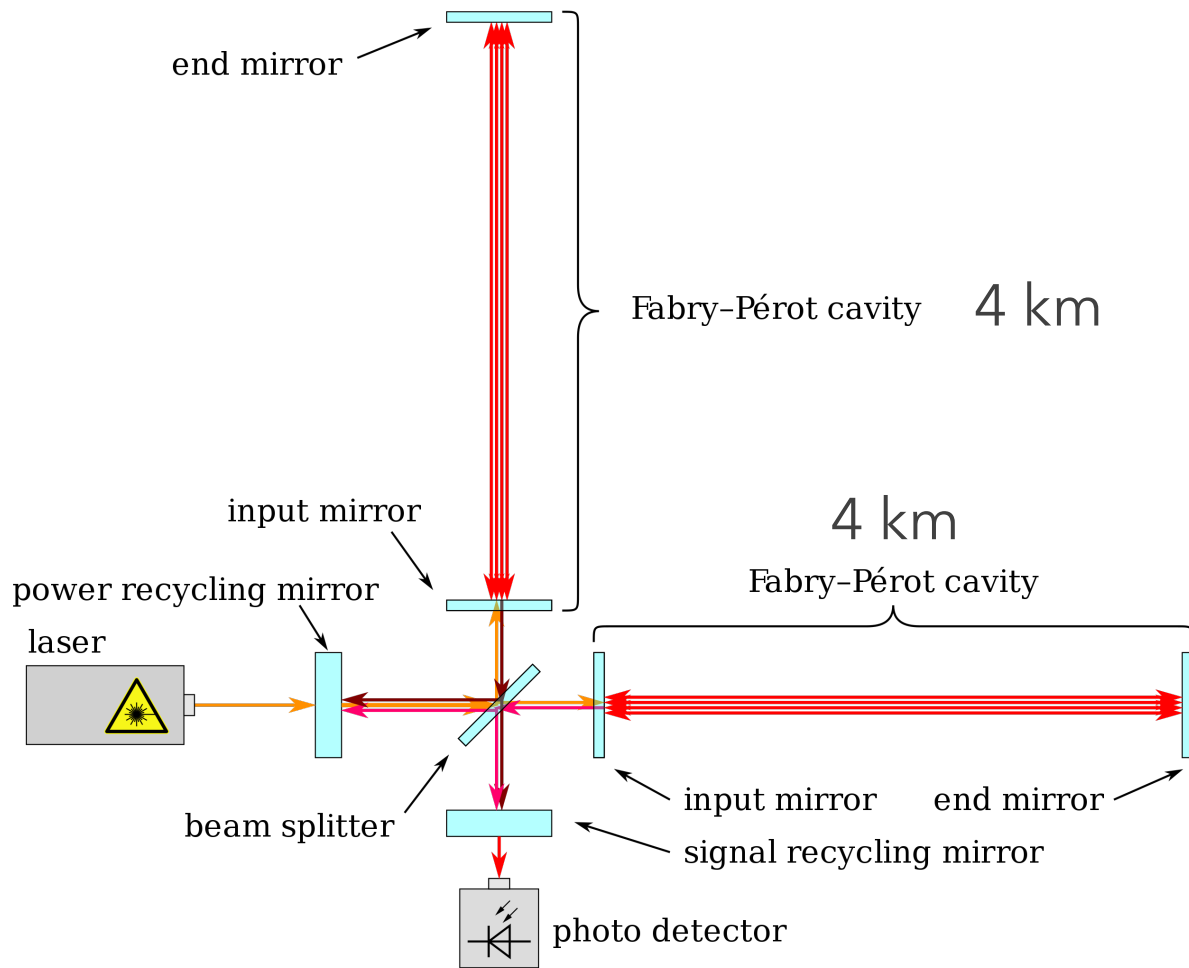
# Interferometric particle detection



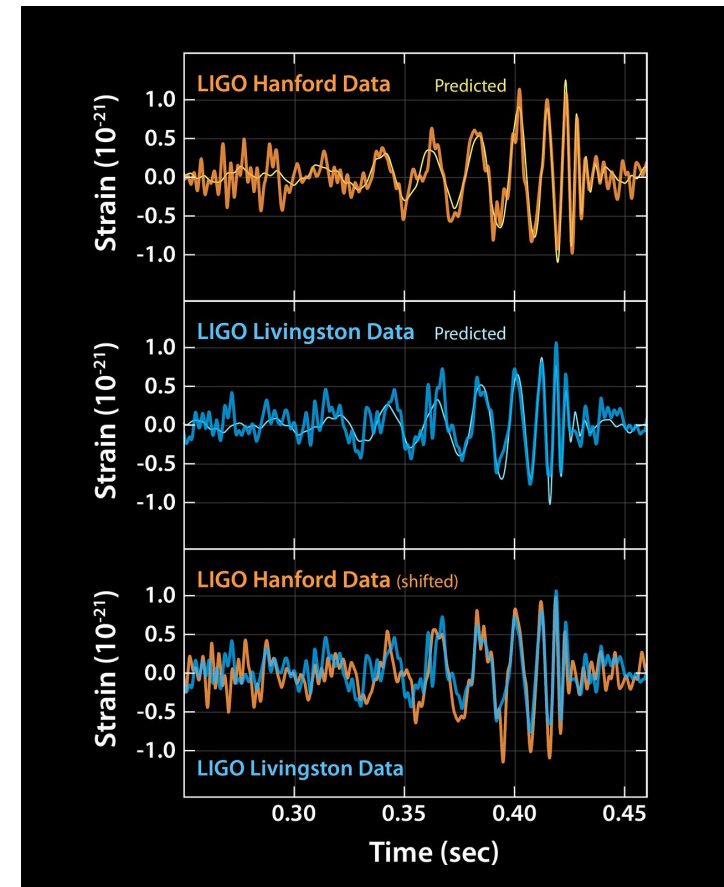
# Optical Coherence Tomography



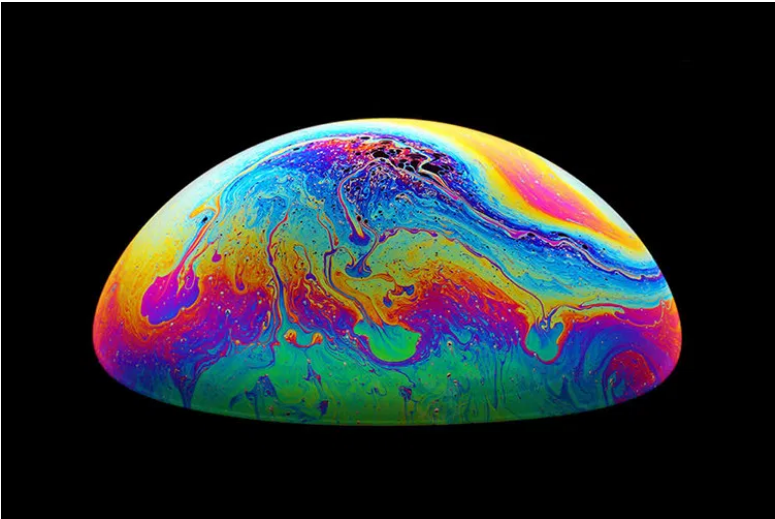
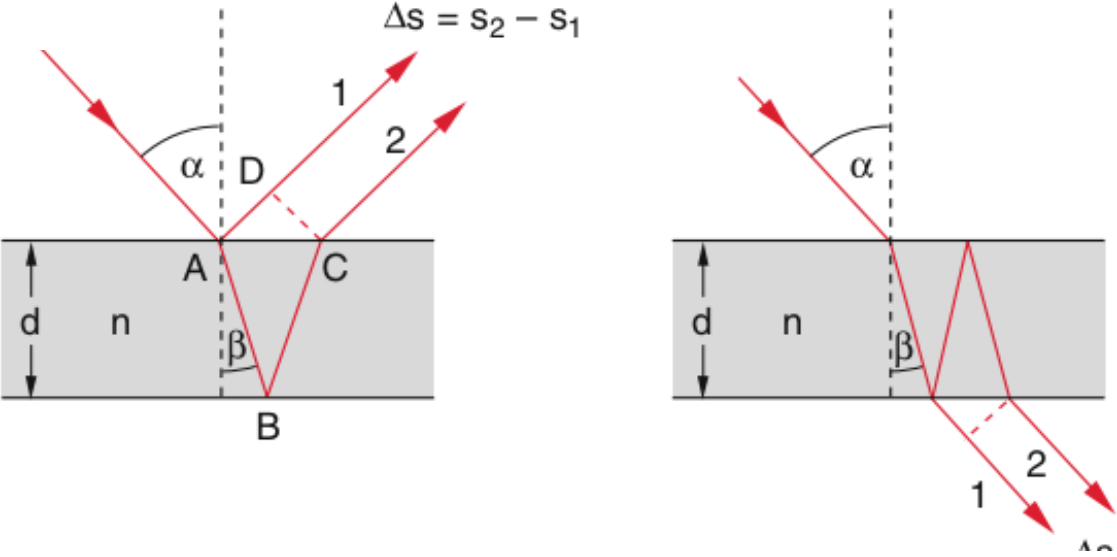
# LIGO - Laser Interferometer Gravitational-Wave Observatory



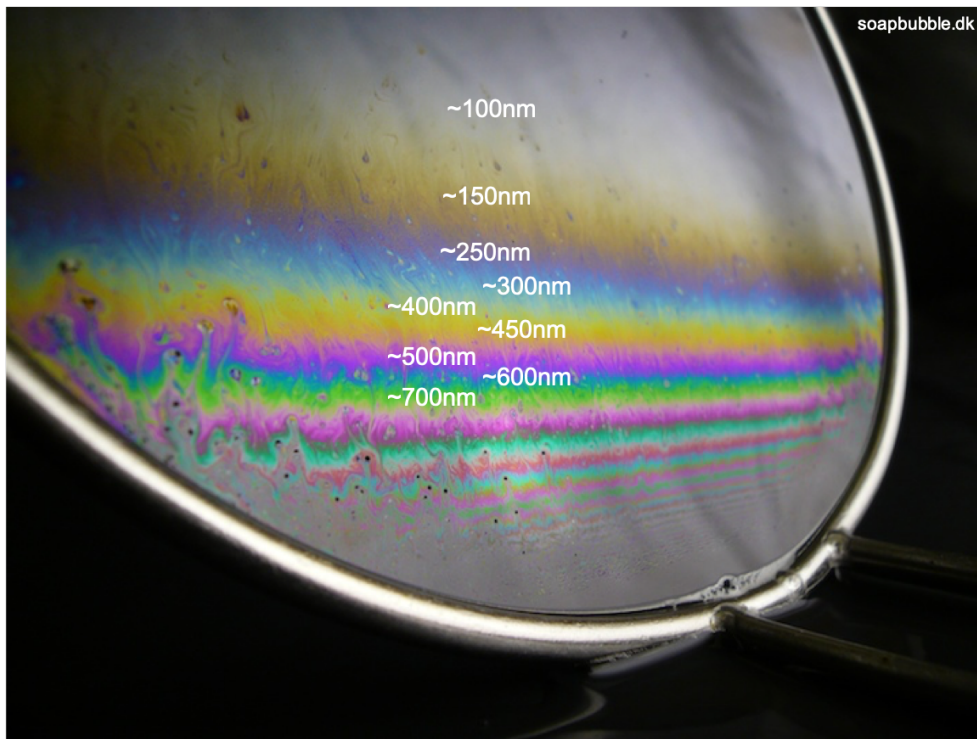
$10^{-22}$  relative length change



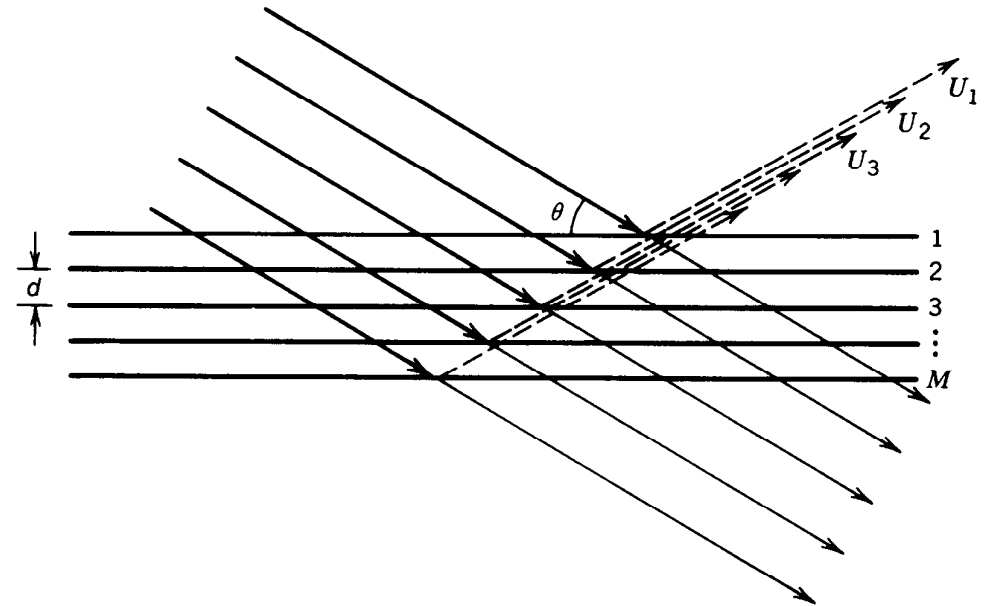
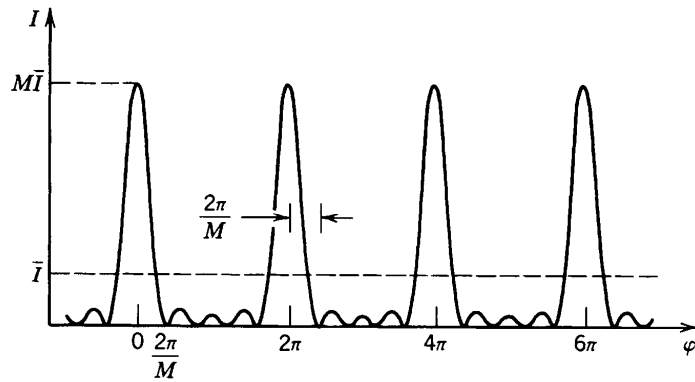
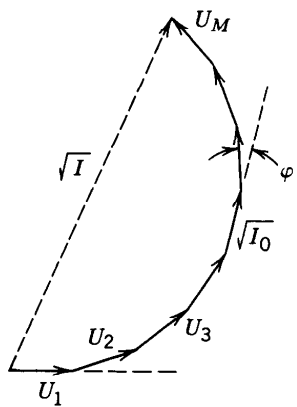
# Thin Film Interference



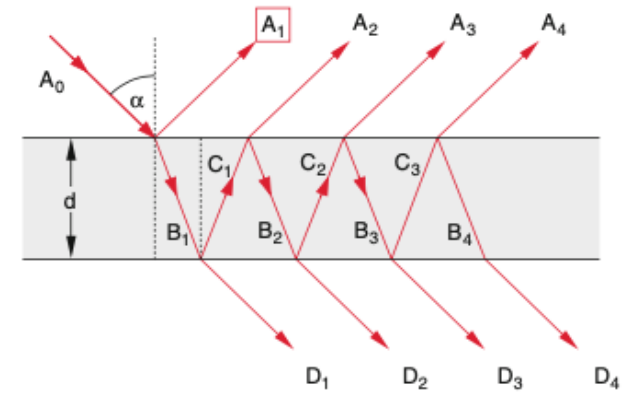
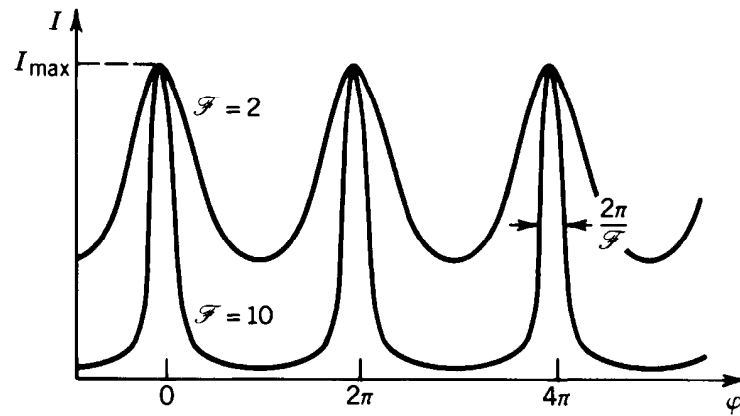
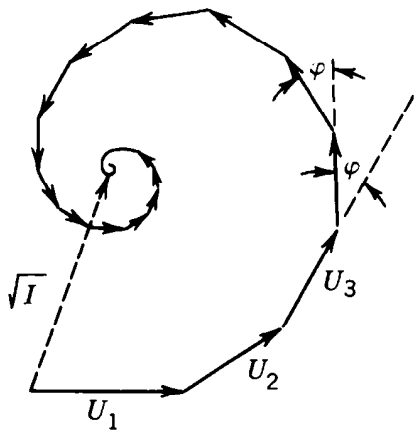
# Newton Black Film - Soap Bubble Challenge



# Multiple Wave Interference - Constant Intensity

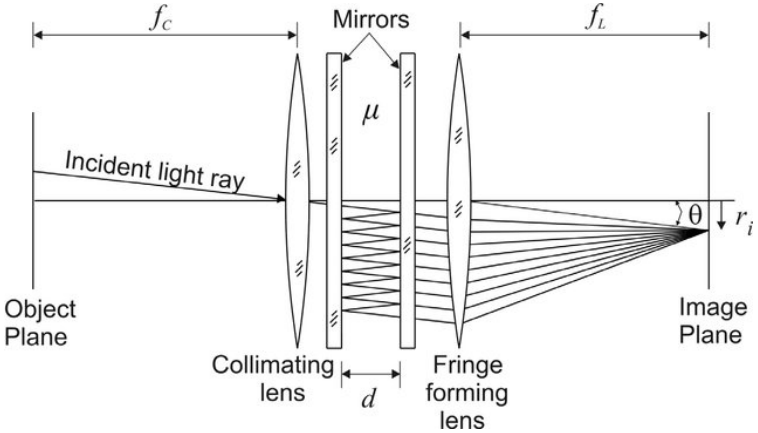
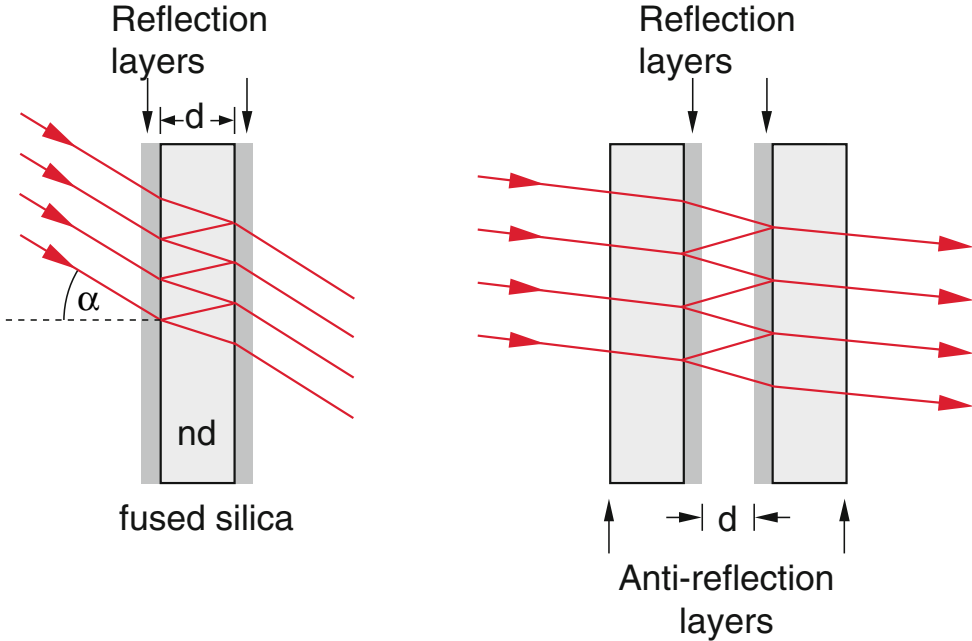


# Multiple Wave Interference - Decaying Intensity

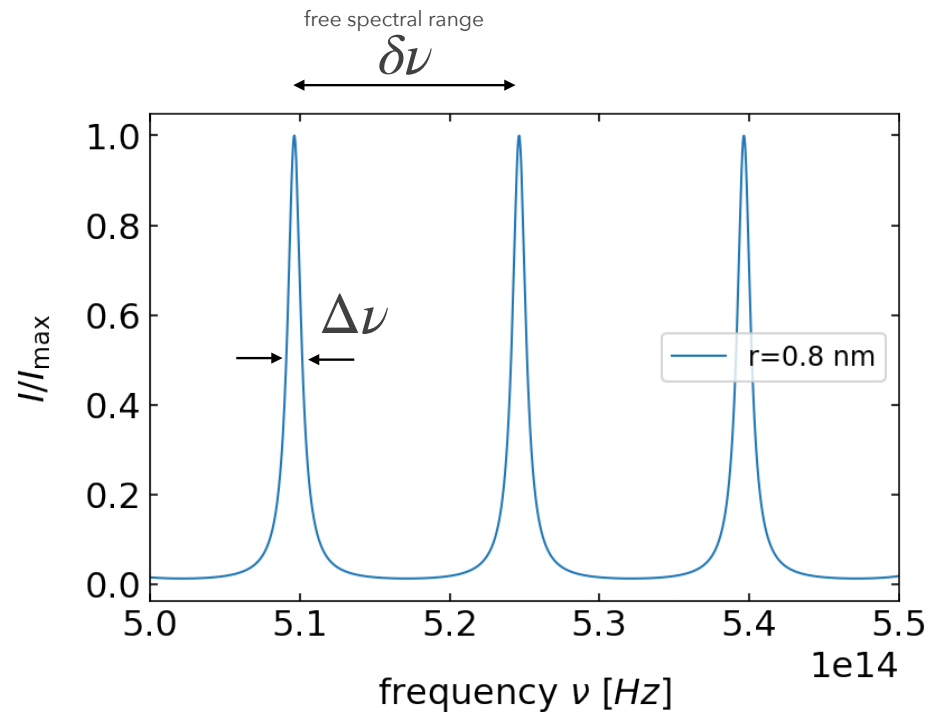
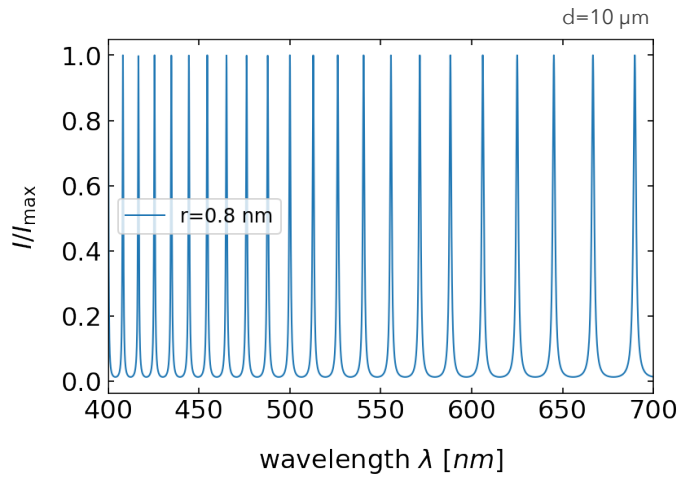
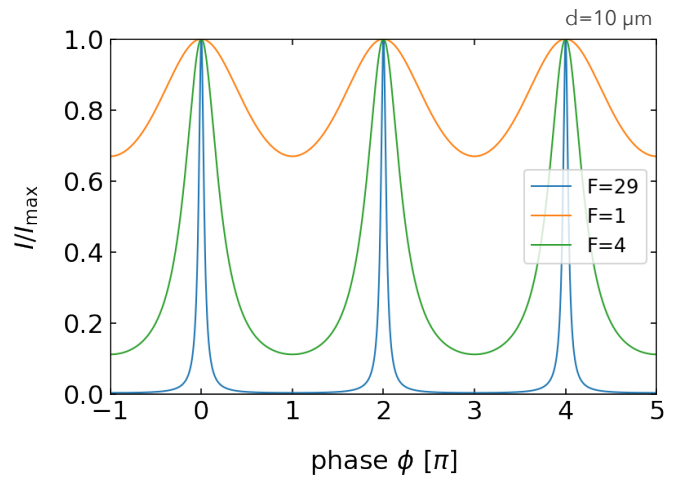




# Fabry Perot Interferometer

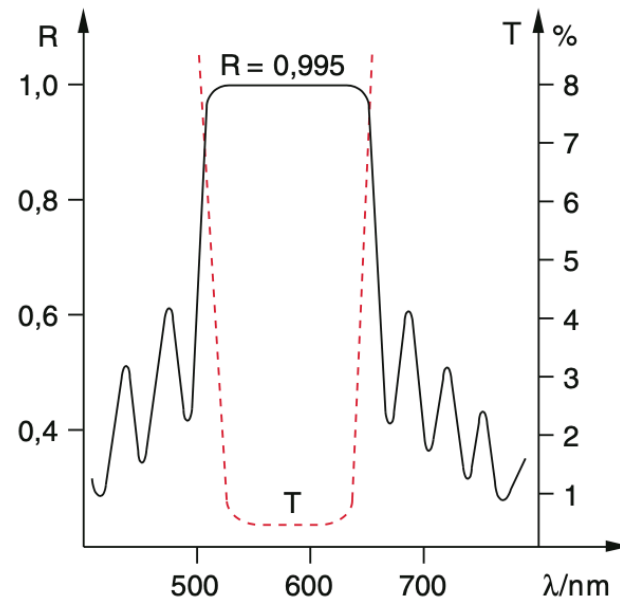
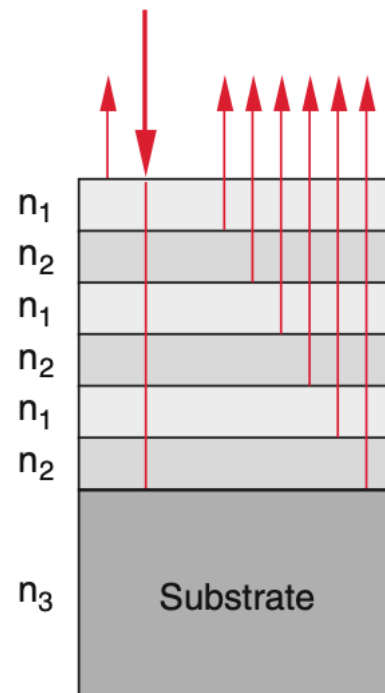


# Fabry Perot Interferometer



$$\mathcal{F} = \frac{\delta\nu}{\Delta\nu}$$

# Applications - Dielectric Mirrors



# Anti-reflection Coating

