

Leonardo Da Vinci



1452-1519

Codex Atlanticus - *Thus every body placed in the luminous air spreads out in circles and fills the surrounding space with infinite likeness of itself and appears all in all and all in every part.*



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Christian Huygens



1677

Treatise on Light – Wave theory



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Robert Boyle



1675

Wave description of Newton's Rings. (Also Robert Hooke's 1664 publication *Micrographia*.)



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Thomas Young



Thomas Young (1773-1829)

1801

Demonstrated Interference from two slits.



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Augustin Jean Fresnel



1818

Mathematical memoir on diffraction. Breaks down barriers to accept principle of interference.



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Armande-Hippolyte-Louis Fizeau



1851

Demonstrated interferometer that “proved” ether theory.



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James Clerk Maxwell



1860

Published equations describing EM effects.



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Albert A. Michelson



1882

Famous interferometer disproved ether theory.



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Interference and Interferometry

Source Space

- Laser
- Thermal source
- Natural light
- Light bulb
- Gas discharge



Observation Space

- Multiple beams from source (For example, multiple source images)
- Sampled source wavefront
- Observation



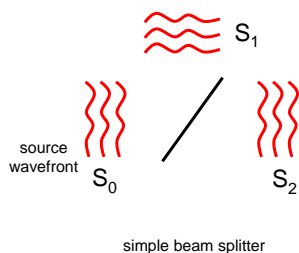
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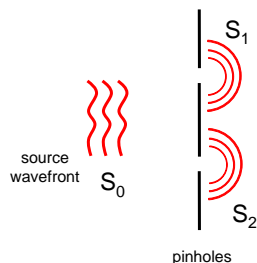
Production of Multiple Beams

A) Division of Amplitude



Multiple Source Images

B) Division of Wavefront



Sampled Wavefronts

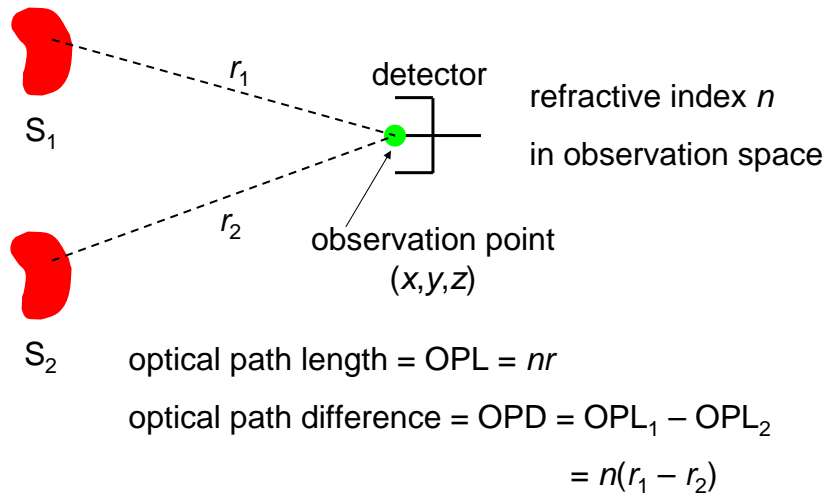


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Optical Path Difference in Observation Space

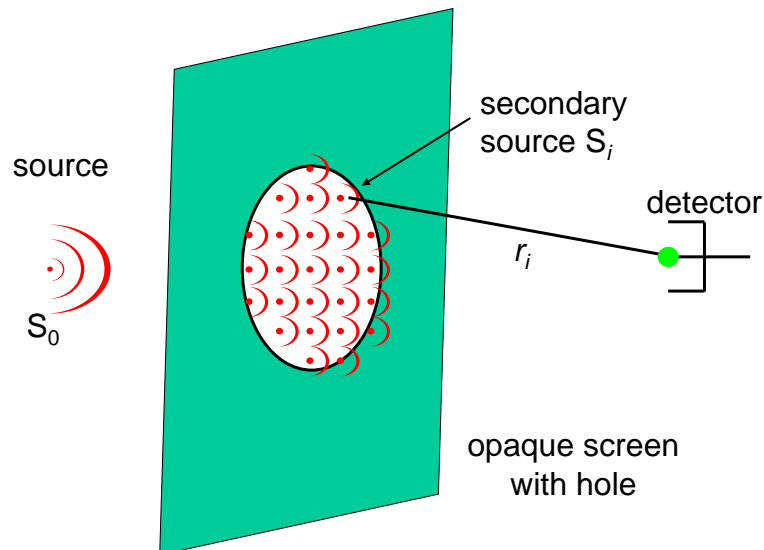


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Huygens Theory of Diffraction



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