

Wave Optics



Here is a list of parameters, terms, and constants used in wave optics along with their SI units:

1. **Speed of Light (c)** - Unit: m/s (meters per second)
2. **Frequency (f)** - Unit: Hz (Hertz or s^{-1})
3. **Wavelength (λ)** - Unit: m (meters)
4. **Amplitude (A)** - Unit: m (meters)
5. **Intensity (I)** - Unit: W/m^2 (watts per square meter)
6. **Planck's Constant (h)** - Unit: J·s (joule seconds)
7. **Refractive Index (n)** - Dimensionless (no units)
8. **Angular Frequency (ω)** - Unit: rad/s (radians per second)
9. **Angular Wave Number (k)** - Unit: rad/m (radians per meter)
10. **Permittivity of Free Space (ϵ_0)** - Unit: F/m (farads per meter)
11. **Permeability of Free Space (μ_0)** - Unit: H/m (henries per meter)
12. **Path Difference (Δx)** - Unit: m (meters)
13. **Phase Difference (δ)** - Unit: rad (radians)
14. **Critical Angle (θ_c)** - Unit: rad (radians)
15. **Brewster's Angle (θ_B)** - Unit: rad (radians)
16. **Electric Field (E)** - Unit: V/m (volts per meter)
17. **Magnetic Field (B)** - Unit: T (tesla)
18. **Photon Energy ($E = hf$)** - Unit: J (joules)
19. **Slit Separation (d)** - Unit: m (meters)
20. **Fringe Width (β)** - Unit: m (meters)
21. **Distance between Slits and Screen (D)** - Unit: m (meters)
22. **Intensity Ratio (I/I_0)** - Dimensionless (no units)
23. **Malus' Law Intensity $I = I_0 \cos^2 \theta$** - I : W/m^2 , θ : rad
24. **Fresnel Distance (z_F)** - Unit: m (meters)
25. **Diffraction Angle (θ_d)** - Unit: rad (radians)
26. **Optical Path Length** - Unit: m (meters)
27. **Polarisation (Polaroid Axis)** - Dimensionless (directional)
28. **Energy of Photon ($E = hv$)** - Unit: J (joules)
29. **Maxwell's Equation Speed ($v = 1/\sqrt{\mu\epsilon}$)** - Unit: m/s (meters per second)
30. **Resolution (λ/D)** - Unit: rad (radians, where D is aperture diameter)