Main page
Contents
Featured content
Current events
Random article
Donate to Wikipedia
Wikimedia Shop

Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact Wikipedia

Toolbox

Print/export

Languages
Català
Česky
Español
Français
Bahasa Indonesia
Қазақша
Македонски
日本語
Norsk nynorsk
Polski
Русский
Slovenčina
Українська
中

Edit links

Optical power

From Wikipedia, the free encyclopedia

For the power of light, see Radiant flux and Luminous flux.

For magnifying power, see Magnification.

Optical power (also referred to as dioptric power, refractive power, focusing power, or convergence power) is the degree to which a lens, mirror, or other optical system converges or diverges light. It is equal to the reciprocal of the focal length of the device: $P = 1/f$.[1] High optical power corresponds to short focal length. The SI unit for optical power is the inverse metre (m^{-1}), which is commonly called the dioptre.

Converging lenses have positive optical power, while diverging lenses have negative power. When a lens is immersed in a refractive medium, its optical power and focal length change.

For two or more thin lenses close together, the optical power of the combined lenses is approximately equal to the sum of the optical powers of each lens: $P = P_1 + P_2$. Similarly, the optical power of a single lens is roughly equal to the sum of the powers of each surface. These approximations are commonly used in optometry.

An eye that has too much or too little refractive power to focus light onto the retina has a refractive error. A myopic eye has too much power so light is focused in front of the retina. Conversely, a hyperopic eye has too little power so when the eye is relaxed, light is focused behind the retina. An eye with a refractive power in one meridian that is different from the refractive power of the other meridians has astigmatism. Anisometropia is the condition in which one eye has a different refractive power than the other eye.

See also [edit]

- Vergence
- Lens clock
- Vertometer
- Lensmeter
- Plate scale

References [edit]

1. ^ Greivenkamp, John E. (2004). *Field Guide to Geometrical Optics*. SPIE Field Guides vol. FG01. SPIE. p. 7. ISBN 0-8194-5294-7.

This optics-related article is a stub. You can help Wikipedia by expanding it.

Categories: Optics | Optics stubs