PAR lamp
→ Incandescent lamp

Parabolic reflector
→ Reflector

Perceptual physiology
Field of science concerning the biological aspects of perception, especially the way the brain receives and processes sense stimuli

Perceptual psychology
Field of science concerning the mental and intellectual aspects of perception, especially the way received sense stimuli are processed

Permanent supplementary artificial lighting, PSALI
Additional artificial lighting, especially in deep office spaces with a row of windows along one side of the space only. Permanent supplementary artificial lighting balances the steep drop in illuminance in parts of the space furthest away from the windows and contributes towards avoiding → glare by reducing the luminance contrast between the windows and the surrounding space

Photometer
Instrument for measuring photometric quantities. The primary quantity measured is → illuminance, from which other photometric quantities are derived. Photometers are adjusted to the spectral sensitivity of the eye (V(λ) adjustment). Special, large-dimensioned photometric equipment (goniophotometers) is required for measuring the light distribution of luminaires. Measurement is carried out by moving the measuring device around the luminaire (spiral photometer) or by directing the luminous flux onto a stationary measuring device via an adjustable mirror

Photometric distance of tolerance
Minimum distance above which the influence of the size of the lamp or luminaire on the validity of the inverse square law can be ignored. The photometric distance of tolerance must be at least ten times the maximum diameter of the lamp or luminaire; in the case of optical systems the photometric distance of tolerance is established by experimentation

Photopic vision
(Daylight vision). Vision with → adaptation to luminances of over 3 cd/m². Photometric vision occurs through the → cones and is therefore concentrated on the area around the → fovea. → Visual accuity is good. Colours can be perceived

Planckian radiator
(Black body). Ideal thermal radiator whose radiation properties are described in the Planck's Law

Play of brilliance
Play of brilliance is the decorative application of light. Specular effects produced by light source and illuminated materials – from the candle flame to the chandelier to the light sculpture – contribute towards creating a prestigious, festive or exciting atmosphere

Point illuminance
In contrast to average illuminance, which expresses the average level of illuminance in a space, point illuminance describes the exact level of illuminance at a specific point in the space

Point light source
Term used to describe compact, practically point-sized light source emitting direct light. Point light sources allow optimum control of the light, especially the bundling of light, whereas linear or flat light sources produce diffuse light, which increases with size

Power factor
→ Compensation

Prismatic louvre
Element used for controlling light in luminaires or for controlling daylight using refraction and total internal reflection in prismatic elements

Protection class
Classification of luminaires with regard to the rate of protection provided against electric shock

Reflected ceiling plan
The view of a ceiling plan from above, provided to show the type and arrangement of the luminaires and equipment to be installed

Reflected glare
→ Glare

Reflection
Ability of materials to redirect light. The degree of reflection is expressed in the reflection factor (reflecting coefficient). It indicates the ratio of the reflected luminous flux to the luminous flux falling on a surface

Reflector
System for controlling light based on reflecting surfaces. The characteristics of a reflector are primarily the reflecting and diffusing qualities, and in the case of mirror reflectors the contours of the cross section. Parabolic reflectors direct the light from a (point) light source parallel to the axis, spherical reflectors direct the light back to the focal point and elliptical reflectors direct the light radiated by a lamp located at the first focal point of the ellipse to the second focal point

Reflector lamp
→ Incandescent lamp

Refraction
The bending of rays of light as they pass through materials of different density. The refracting power of a medium is defined as the refractive index

Refraction of light
Bending of rays of light as they pass through materials of different density. The refraction of different parts of the spectrum to different degrees gives rise to the formation of colour spectra (prisms).

Re-ignition
The restarting of a lamp after it has been switched off or after current failure. A large number of → discharge lamps can only be re-ignited after a given cooling time. Instant re-ignition is only possible with the aid of special high-voltage → ignitors

Relative glare
→ Glare

Requirements, architectural
The architectural requirements a lighting concept is expected to meet are dictated by the structure of the architecture. The task of the lighting is to reinforce the way the space is divided up, its forms, rhythms and modules, to emphasise architectural features and support the intended atmosphere of the building. The intention of the architectural design can be underlined, and even enhanced, through the arrangement and effects of the luminaires

Retina
→ Eye

Retro-reflection
Reflection in rectangular reflector systems (triple mirrors) or transparent spheres, by which the light is reflected parallel to the incident light

Rods
→ Eye

Room index
When calculating → illuminances using the → utilisation factor method, the room index indicates the geometry of the space

Scallop
Hyperbolic beam shape of a beam of light. Scallops are produced by grazing wall lighting from downlights

Scotopic vision
(Night vision). Vision with → adaptation to luminances of less than 0.01 cd/m². Scotopic vision is effected with the aid of the → rods and comprises the peripheral area of the → retina. → Visual accuity is poor, colours cannot be perceived, sensitivity to the movement of perceived objects is high

Secondary reflector technology
Luminaire technolgy where an indirect or a direct/indirect component is not produced by lighting the room surfaces, but by the use of the luminaire's own secondary reflector. Secondary reflector luminaires frequently have a combination of primary and secondary reflectors, which allows good control of the direct and indirect → luminous flux emitted

Self ballasted mercury discharge lamp, blended lamp
→ High-pressure mercury lamp with an additional filament within the outer envelope which is connected in series and takes the form of a current limiter, which results in improved colour rendition. Self ballasted mercury discharge lamps need no → ignitor or → ballast, as the name suggests

Shadow formation
Measure for the → modelling quality of a lighting installation. Modelling can be described as the ratio of the average vertical (cylindrical) illuminance to the horizontal → illuminance at a given point in the space

Solid angle
Represented by the symbol Ω
Unit for measuring the angular extent of an area. The solid angle is the ratio of the area on a sphere to the square of the sphere's radius

Spectrum
Distribution of the radiant power of a light source over all wavelengths. The → spectral distribution gives rise to the → luminous colour and → colour rendering. Depending on the type of light produced, basic types of spectra can differ: the continuous spectrum (daylight and → thermal radiators), the line spectrum (low-pressure discharge) and band spectrum (high-pressure discharge)

Specular louvres
→ Reflector

Spherical aberration
→ Aberration

Spherical reflector
→ Reflector

Spiral photometer
→ Photometer

Spot
General term used to describe narrow-beam → reflectors or → reflector lamps

Standard colorimetric system
System for defining luminous colours and body colours numerically. The standard colorimetric system is presented in a two-dimensional diagram in which the colour loci of all colours and colour blends from their purely saturated state to white are numerically described through their x,y coordinates → chromaticity diagram. Combinations of two colours lie along the straight lines that link the respective colour loci. The luminous colour of thermal radiators is located on the curve of the Planckian radiator

Starter
Ingnition device for → fluorescent lamps. When the lamp is switched on the lamp the starter closes a preheat circuit, which in turn heats the lamp electrodes. After a specific preheating time the electric circuit is opened, which through induction produces the voltage surge in the → ballast required to ignite the lamp

Stepped lens
→ Fresnel lens

Steradiant, sr
→ Solid angle

Stroboscopic effects
Flickering effects or apparent changes in speed of moving objects due to pulsating light (through the supply frequency) up to apparent standstill or a change of direction. Stroboscopic effects can arise in → discharge lamps, predominantly in dimmed fluorescent lamps. They are disturbing and dangerous in spaces where people are operating machines. The effect can be counteracted by operating the lamps out of phase (→ lead-lag circuit, connection to three-phase mains) or on high-frequency electronic → ballasts

Sun simulator
→ Daylight simulator

Sunlight
→ Daylight

Surrounding field
→ Central field of vision