Principle of Reflection, Absorption and Passage of Photons through Bodies

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Abstract.

In given article is opened the principle of reflection, absorption and passage of different photons of light through a body depending on mass (energy) of the photons and depending on mass of nucleuses of atoms of the body. This article also describes the principle of diffraction and dispersion of photons.

Given article is one of a series of articles, which form together "Real theoretical physics", opened on the basis of existence of the ether. This new theoretical physics is strictly materialistic and opens the essence of all physical phenomena.

1 Reflection, Absorption and Passage of Photons through Bodies

The ethereal sphere of nucleuses of atoms has a greater density than an internuclear ether, because the nuclear field is pushing from the internuclear ether to the nucleus the mats, which have small mobility. The photons having the greater density have the greater mass and accordingly a greater impulse, i.e. a greater energy.

The photons of light, which are directed on a body, collide with body ether, which is located between nucleuses of atoms of the body. If photons consist from is mats, which have a greater mobility than the mats of the internuclear ether, then the density of these photons is less than the density of this internuclear ether. In this case the photons cannot pass through the internuclear ether of the body and move from this ether outside. It represents a reflection of photons from a surface of a body. Such bodies as silver, bronze, lead, tin and others, with a polished surface reflect all photons of light. At a smooth flat surface of a body, the reflection of photons from

this surface occurs so, that the corner of falling is equal to the corner of reflection. And at a nonplanar (zigzag) surface of a body, the photons are reflected from this surface under different corners.

If photons consist from mats, having smaller mobility than the mats of the internuclear ether, then the density of these photons is more than the density of the given internuclear ether. In this case the photons pass through the internuclear ether before collision with the nucleuses of atoms of the body. If the density of photons is more than the density of the ethereal sphere of nucleuses of atoms, then the photons pass through the ethereal sphere of nucleuses of atoms and pass through all body to outside.

If the density of photons is less than the density of ethereal sphere of nucleuses of atoms, then the photons are reflected from nucleuses. Herewith the corner of reflection of photons from the surface of the body can be a miscellaneous depending on character of collision of the given photon with the nucleus of atom.

If density of photons same as well as density of ethereal sphere of nucleuses of atoms, then the photons at collision with a nucleus of atom are dissolved in the ethereal sphere of this nucleus, i.e. are absorbed by a nucleus.

If a body consist of different atoms, then a part of photons of light can be reflected from nucleuses of atoms, and a part of photons can be absorbed by atoms or pass through the body. Photons which are reflected are forming the color of the body. As reflection of photons occurs in the superficial layer of a body, then the surface of the body is visible only.

Formation different color in a thin film of different thickness, at getting of an light on it, occurs due to that that the photons having greater mass have greater energy and have a greater opportunity to pass through the thin film and not being reflected, and at the thickening of the film, the photons have a smaller opportunity to pass through a film.

Some bodies consist of such atoms, that at impact on them of a light ray, the photons of the light are not reflected from the atoms of a body and not absorbed by atoms of a body, but pass through the body. The body through which passes the photons of light without their absorption at collision with the nucleuses of the body, is transparent. Smooth glass is a transparent body. If one side of flat glass to cover with a layer of other body which reflect the photons, then the reflected photons will pass back through the glass. That is used for manufacturing mirrors.

Infra-red ray passes through glass, and the ultra-violet ray consisting of photons of smaller mass and accordingly smaller momentum, do not pass

through glass. Photons of ultra-violet ray are absorbed by a sphere of nucleuses of atoms of glass as they consist of mats, having a identical mobility.

There are bodies which have such atomic-molecular structure, that they only absorb photons and cannot reflect or overlook the photons. Such bodies are black-colored and are called the *absolutely black bodies*.

2 Diffraction and Dispersion of Photons

The superficial nuclear field (the general nuclear field of atoms of the superficial layer of a body) in any point above the flat surface of a body is directed perpendicularly to the surface of the body. The nuclear fields in different points inside of the body are directed in the different sides.

If a photons ray hits a given body in a direction which not perpendicularly to the surface of the body, then the superficial nuclear field acts on the photons of this ray so, that the photon ray at passing through the surface of the body changes its direction.

If a photon ray hits on a body not perpendicularly to the surface of the body, then the superficial nuclear field refracts this photon ray on the surface of the body so, that its direction becomes closer to the direction of the field. If the photon ray goes from inside of the body to outward , then this photon ray also refracted by on the surface of the body because of action of the nuclear field. The corner between the entering beam and the internal beam is equal to the corner between the internal beam and the leaving beam, as the beam deviation on the input in the body and on the exit from the body occurs equally. If the entering beam is perpendicular to a body surface, the beam does not deviate at the input through this surface in the body, because such beam is on one line with the direction of the nuclear field. Similarly internal beam, perpendicular body surfaces, does not deviate at an exit through this surface. Fig. 1 shows the deflection of the photon ray in various cases.

Deflection of a photon ray is proportionally to the force of the superficial field and is inverse proportionally to the mobility of the mats of photons, i.e. is proportionally to the mass (energy) of photons. As the force of the nuclear field of one atom is proportionally to the mass of the nucleus of atom, then the force of the superficial nuclear field is proportionally to relative density of the body. Therefore the angle of the deflection of the photon ray which is passing through border of two different matters, is proportionally to the

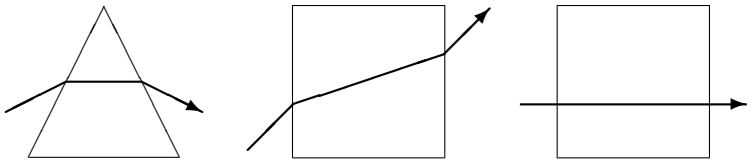

Figure 1: Deflection of photon rays

ratio of density of one matter to density of other matter and proportionally to the energy (mass) of the given kind of the photons forming the ray.

The phenomenon of deflection of a photon ray upon passing from one substance to another is called the *passage diffraction*, while the phenomenon consisting in different magnitudes of deflection of different photons of the ray depending on their energy (or in other words, frequency of radiation) is called the *passage dispersion*.

A photon ray passing through a rarefication in a proximity of a body is subjected to the action of the surface nuclear field. The field deflects the photon ray in the direction coinciding with the direction of this field, that is, in the directions of the body. The phenomenon of the deflection of a photon ray when it passes at a close distance to a body, where the surface field within the range of the body field is called the *surface diffraction*. If a photon ray consists of photons of different energy, then the photons of different energy are deflected at different angles from the previous direction of motion. The photons with a greater energy are deflected at a greater angle than the photons with a lower energy. The defelection of a photon ray at a different angle depending on the energy of photons of a ray passing near the body where the surface field acts is called *surface dispersion*.

Photon rays may be also deflected under the influence of a gravitational field. So, for instance, light rays passing along the surface of the Moon during a solar eclipse are deflected in the direction of the Moon. The phenomenon of deflection of a photon ray upon the passage of the ray i a proximity of a gravibody, where a gravitational field is acting is called the *gravitational diffraction* of a photon ray.

Dispersion is observed not only in surface diffraction, but also in gravitational diffraction. For instance, if the photons of sun rays pass along the surface of the Earth, the photons whose energies are higher (lower frequency o fradiation) and correspondingly lower mobility (sphericity) of their mats

are pushed by the gravitational field towards the Earth's surface than photons of lower energies. Therefore, when one observes the sunrise and sunset, when the sun rays pass along the Earth's surface, the infrared rays and the visible rays close to them hit the Earth while the ultraviolet rays and the visible rays close to them bypass the Earth; due to this, the Sun seems to be red upon the sunset and sunrise.

The diffraction and dispersion can be observed not only in the case of photon rays, but also in the case of electron rays, X-rays and of moving neutrons, atoms and molecules. For instance, when a polycrystal is irradiated by electrons, after having passed through it, the electrons form rings on a photographic film. But since electrons have the same energy (average mobility of mats) each, dispersion of an electron ray is formed due to different velocities of electrons passing through the polycrystal.

Conclusions

1. Reflection of photons from a body occurs, if the mobility of the photons is more than the mobility of the internuclear ether of the body.

2. Absorption of photons by nucleuses of atoms of a body occurs, if the mobility of the mats of the photons same as the mobility of mats of ethersphere of the nucleuses of these atoms.

3. Photons passes through bodies, bypassing nucleuses, if the mobility of the mats of the photons less than the mobility of the mats of ethersphere of the nucleuses of atoms, i.e. if the photons have enough big mass (energy).

4. The diffraction of photon ray occurs due to the action of the surface nuclear field (which is the set of nuclear fields over the surface of the body) on the photons.

5. Dispersion of photon rays occurs due to the fact that the surface nuclear field acts more on photon with greater mass, because they have a smaller mobility.