

What is light?

Gerd Koehler, June 2021

Physicists are discussing this question since a long time.

Some experiments show results as if light is a particle, some other as if light is a wave. Fundamentally you could think of four different viewpoints:

1. light is particle
2. light is wave
3. light is both particle and wave
4. light neither particle nor wave

Our logical mind thinks, that it is necessary to opt for one of the four viewpoints, because each of the four seems to be in contradiction to the other three.

This contradiction is eliminated, when we assume, that light is a process, which includes all four viewpoints as four necessary aspects or phases of an overall process. This kind of approach is based on the idea of the great Indian philosopher Nagarjuna¹ who postulates, that all phenomena are beyond the four extremes of existing, non-existing, both and neither. I took this approach and from that developed a graphic model, which I called the „quantum model“. In Fig. 1 of this model the wave is depicted as arrows and the particle (photon) as gray dot. Wave and particle are manifesting from the same source, where neither wave nor photon are manifest. Within this source wave and photon are just potential, but not manifested yet. Therefore this source is called "not-manifested potential".

The well-known quantum-physicist Prof. Dr. Hans-Peter Dürr, has described a similar process of manifestation from the not-manifested in one of his lectures², where he talks about the movement of an electron from A to B: "... the point here is, that there is nothing in-between. In the left the electron disappears and in the right it will appear again, which means that out of nothing something appears and is sinking back again into nothing. It is a lively, genuine creativity, which means, that it is not a development and not an unfolding, but that it is something really new, which than disappears. It is like at the beginning of the *BIG BANG*, it takes place continuously: The world is created new every moment, but with a memory of the world before. (quote translated from German)"

In his lecture Dürr uses the term *BIG BANG* not to refer to the famous event, which might have happened 13,7 billion years ago, but to point out, that *BIG BANGS* are happening here and now continuously. Therefore it is not the same electron moving from A to B. The electron A vanishes into nothing, and out of that nothing the electron B arises "*BIG BANG-like*". That means, that Electron B arises as a totally new electron. At the same time it looks like the electron A, because it has arisen with a memory of the electron A, which had vanished just before.

In the same way photons arises "*BIG BANG-like*" from the not-manifested potential in my quantum-model. The term *BIG BANG* points to the fact, that this kind of arising brings about not only new manifestations of form (photon), but new manifestations of space as well. Fig.2 shows this manifestation of space depicted here as white area with a black dot. This manifestation of space follows the same logic as the manifestation of form: wave and dot in space arise from the not-manifested potential, where neither wave nor dot&space are manifest, and dissolve back into this common source. One light-process could be viewed as consisting of two main processes: Wave and dot&space manifest flash-like (Fig.2), followed by the flash-like manifestation of wave and particle (photon) in Fig. 1. The dot in space is kind of "invitation" for the photon to manifest there.

In this *quantum model* a photon just appears and disappears flash-like, so that it does not have a chance to move forward. But if photons don't travel forward, how could we then measure a velocity of light? In this *quantum model* the motion of light would result from the fact, that the next photon will appear in a set distance from the place, where the preceding photon has disappeared (Fig. 3). When all these new photons appear sequentially with a set distance to each other, it looks as if a light-beam is moving. What we measure as the velocity of light is not the velocity of one photon moving, but the velocity, which results from the set frequency of flash-like appearing new photons and their set distance to each other.

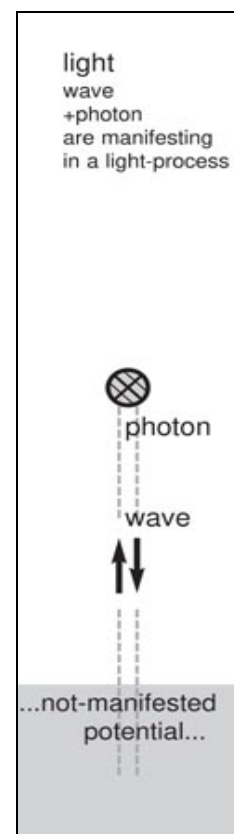


Fig. 1

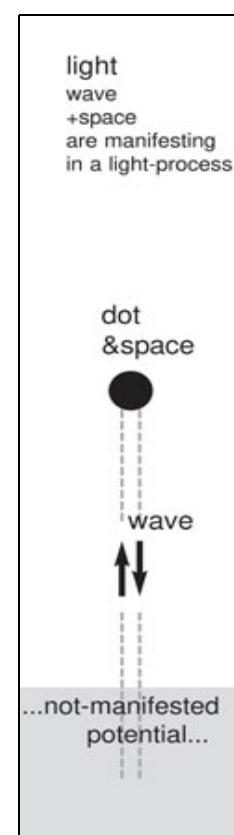


Fig. 2

Fig. 3 shows a sequence of overlapping light-processes, which are animated continuously, for example by a light-bulb. The black dots of space and the gray dots of form share the same place, but in this graphic the black dots are depicted a bit left from the gray dots to show, that space is primary and form follows.

The first three photons appear within air and have the same distance to each other. The result will be a constant velocity of light. If the light-processes then enter a body of glass, the distance must be shorter, because the velocity of light in glass is reduced. But how does photons "*know*", what distance to take. This *knowing* arises from the not-manifested potential. And because photons arise new each time from that source, *fresh-knowing* about the appropriate distance is available for each new photon. Therefore photons also *know*, that they have to take the longer distance, when leaving the glass body. That means, that light immediately changes its velocity in air after leaving the body of glass.

In summary you can say, that light is a sequence of cyclical and creative processes, which bring about flashes of energy (wave), flashes of space (black dots surrounded by a white area) and flashes of photons (gray dots). All arise from the same source, from the not-manifested potential of the universe. The sequence flashes with the frequency of the respective light, which is about hundreds of Trillion times per second. The sequence is digital, because there are always gaps between each light-process. The digital flashes of energy are interpreted by most physicists as waves, the digital flashes of form as particles.

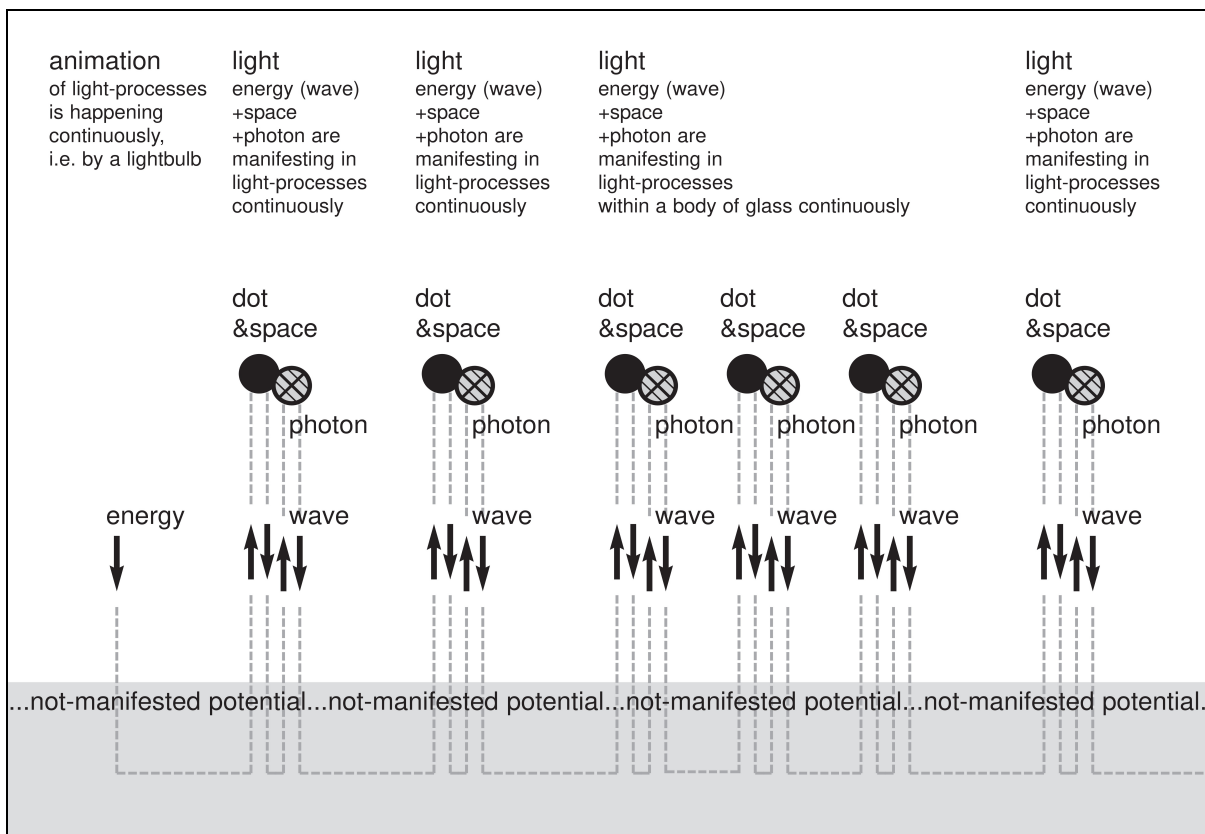


Fig. 3 Sequences of light-processes

¹⁾ Related videos: <http://lumido.eu/html/videos.html>

²⁾ Lecture by Prof. Dr. Hans-Peter Dürr (in German) www.youtube.com/watch?v=oVEQoUynYHk

Any feedback is welcome.