Science with Blinders

By J.A.J. van Leunen

Last Changed: 19 January 2018

Abstract

To work efficiently with objects, it is not necessary to know the detailed structure of objects. It is sufficient to know the behavior of these objects.

Applied Physics

Applied Physics is a profession in which the performers apply their knowledge to achieve their purpose with utmost accuracy and pragmatism. They do this with blinders on because there is no need to understand in advance all facets of the situation. Only those facets that affect the outcome are important. For example, a large and well-known laboratory can do extensive experiments with light and achieve great results, without one of the experimenters having any idea of how light particles are structured. However, it is important to know the behavior of that kind of particle to a sufficient degree. Every physicist knows that photons constitute light beams. Also, the behavior of these photons is widely known. Some consider photons as point-shaped objects. Others consider the photons as electromagnetic waves. None of these assumptions is correct. In the free space, waves cannot bridge the huge distances that photons can travel after which eyes or other detectors can still observe them. Only with the help of waveguides can waves reach a very distant target. In free space, electromagnetic fields cannot support these objects over huge distances. The field needs electrical charges in the vicinity to be able to form a usable carrier.

The descriptive differential equations

Physics has not yet investigated the structure of photons. We know that light particles must be constituted from solutions of the wave equation or a similar equation. After all, we can explain much of their behavior with that equation. The wave equation has existed for more than two centuries. This equation appears in almost every physics book. These books often include the solutions. It turns out that the equation not only offers waves as solutions. Which solutions occur in a practical situation depends on which solutions the environment evokes with triggers or other actuators. Waves ask for a periodic and harmonic actuator. In general, a vibration consists of a superposition of all kinds of solutions and several actuators can play a role at the same time. A type of solutions is very interesting, and these kinds of solutions have received little attention. These are the solutions that are started by one-time triggers. Usually, these solutions are called shock waves, but that is an erroneous name. They are not waves at all. This document will call them further shock fronts because what moves are the fronts. Shock fronts occur only in odd dimensions. In the shock fronts, the fronts retain their shape. The one-dimensional shock fronts also retain the amplitude of the front. So, during its travel, the one-dimensional shock front does not change.

Spherical shock fronts

As the distance to the trigger point grows, the amplitude of the spherical shock front decreases. The spherical shock front integrates into a volume that has the shape of the Green's function of the field. This volume spreads throughout the field. This fact means that this addition expands the field. Immediately after the trigger, the field deforms locally. If we now assume that the field implements our living space, then that means something that deforms this living space must own a quantity of mass. That mass fades, however, quickly away. The effect of the spherical shock front caused by a point-shaped trigger is so small and so short-lived that it is not measurable in any way. Perhaps that is the reason that physicists never gave attention to these phenomena. Then they do exist. In nature, processes exist that generate dense and recurrently regenerated swarms of triggers of the spherical shock fronts so that they overlap each other's effect in time and space. The process is stochastic and belongs to the elementary particle that in this way gets its existence. The swarm contains a huge amount of hop landing locations. The process generates the hopping path of the particle. The swarm owns a location density distribution. It is equal to the square of the modulus of the particle's wavefunction. Together, the hop landings cause a strong and persistent deformation of the living space. The Green's function ensures that the deformation becomes a blurred map of the swarm. We know this blurred map as the gravitation potential of the particle. Via back-reasoning, we can conclude that the spherical shock fronts are super-tiny basic quanta that own a small fixed amount of mass capacity. The swarm explores this capacity only partly. This story exposes how reality creates gravity and space expansion. It comes down to adding small bits of volume to the regarded field. These bits spread rapidly. Consequently, the stochastic process must continue pumping to maintain the space curvature.

One-dimensional shock fronts

An equally interesting story provides the research of the one-dimensional shock fronts. As lonely objects, they are not perceptible. They can travel very large distances without losing anything of their properties. They have this in common with photons. However, they do not possess a frequency. If the emitter produces the shock fronts at regular instances, then a frequency is produced. If regardless of the frequency used, the emission time of all these shock front strings is equal, then the properties of the shock front strings are starting to resemble the properties of the photons. To complete the story each one-dimensional shock front must carry a standard amount of energy. For this object holds the Einstein-Planck relationship E = h V, where h depends on the selected length of the shock front strings.

Particles and waves

We now have a possible explanation of the structure of a photon. This explanation is quite different from the common explanation. This object is one-dimensional and has a fixed length. Although it has a frequency, it is certainly not a wave. Physics applies waves to describe many light phenomena. How is that explained? Like a location density distribution describes the hop landing locations of the elementary particles, can a probability density distribution describe a coherent swarm of light particles. In both situations, the density distribution owns a Fourier transform. This explanation describes the swarm as a wave package. That wave package represents a superposition of waves and can simulate interferences.

Thus, if the density distribution of a swarm of objects behaves like a wave package, these objects also show wave behavior. This fact holds for elementary particles and coherent swarms of photons.

The stochastic processes that generate the swarms must possess a characteristic function. The density distribution of the produced swarm owns a Fourier transform that equals the characteristic function of the stochastic process. If the characteristic function contains a Gauge-factor that acts as a displacement generator, then the produced swarm will move as a single unit. In other words, the swarm will move as a coherent object.

Object Behaviors

If objects behave in a defined way, it is not necessary to know the internal structure of those objects to be able to cope efficiently with these objects. With blinders on, it is possible to achieve excellent results.

Examples

Photon Lab

In a large laboratory, many experiments are carried out with light. The experiments examine very exceptional interactions between light particles and their surroundings. When inquired, the researchers do not know anything about the internal structure of the light particles. They think that this is not hampering the experiments. After all, they know almost everything about the behavior of the light particles. They do exploit the particle behavior of light, and they use the wave behavior of light. What causes this dual behavior, does not matter to the quality of their results.

Gravitational waves

Gravitational waves are observable vibrations of our living space. These vibrations include more than just waves. There may also be shock fronts and other solutions of the homogeneous second order partial differential equations. At Virgo and LIGO scientists measure the effects of these vibrations in a very sophisticated manner and with utmost accuracy. The composition of the vibration is not important. Only the measurable effect on space geometry is important. In this way, experimenters can detect events in the universe. The measurement of gravity waves performs a warning function. These measurements see the eventual merger of stars and black holes arrive. Subsequently, the experimenters correlate the measurements of gravity waves with observations in other measuring instruments. This cooperation provides a huge amount of new data.

Large spherical shock wave

It is challenging to think what kind of vibration will cause the eventual merger. If this is a spherical shock front, then it is very large in comparison with the impulse response of the field. This shock front has a huge mass capacity and adds a large volume to the field. It is, in any case, a perceptible phenomenon. It would mean that the existence of spherical shock fronts is undeniable. It is the great brother of the impulse responses that in a large swarm give existence right to elementary particles.

Wavefunction

The wave function that quantum physics applies to describe the stochastic behavior of small particles is a real example of how physics deals with blinders when it treats reality. As indicated above, the location density distribution of the hop landing location swarm of an elementary particle corresponds to the square of the modulus of the wavefunction of that particle. The wavefunction, therefore, conceals that a stochastic process fully controls the behavior of the elementary particle. In turn, a characteristic function controls this process. This configuration ensures that the process produces a coherent hop landing location swarm and that this swarm moves as a cohesive object. Elementary particles are elementary modules. Together they manufacture all the other modules and the modular systems that occur in the universe. A stochastic process also controls the modules. Also, here a characteristic function controls the stochastic process.

The characteristic functions of stochastic processes are equal to the spatial spectra of the location density distribution of the swarms that the stochastic process generates. For the modules, the characteristic functions equal a superposition of the characteristic functions of the components.

The superposition coefficient acts as internal displacement generators and thus determines the internal position of the component. Each characteristic function contains a gauge factor. This factor works for the module as a displacement generator and ensures that at first approximation the module moves as a cohesive object. This configuration means that the stochastic process performs a binding task. The characteristic function also ensures that the location density distribution can behave like a wave package. Moving wave packages tend to disperse. Not this wave package, because the process constantly renews the wave package. This description explains why the particle can also behave like a wave and as a group can form interference patterns. The wavefunction started its own life and concealed the actual stochastic structure of the small particles. Thereby contemporary physics explains the binding of particles with forces while in reality, stochastic processes take a significant role in the binding of particles.

References

Look for more details at Http://vixra.org/author/j_a_j_van_leunen and Https://en.wikiversity.org/wiki/Hilbert_Book_Model_Project .