**References**

1. Информационные технологии в социально-культурном сервисе и туризме. Лекція по курсу: «Информационные технологии в туризме» URL: https://studizba.com/lectures/69-turizm/1015-rekreacionnaya-geografiya/18752-informacionnye-tehnologii-v-turizme.html (Last Accessed 29.11.2020).
2. Теодорович Н.Н., Муравьев И. Б. Роль информационных технологий в развитии турбизнеса. *Сервис в России и за рубежом.* 2011. Вип.1. С.193-206. URL: https://tourlib.net/statti_tourism/teodorovich2.htm (Last Accessed 29.11.2020).

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## VISUALIZATION OF THE LIGHT INTERFERENCE PROCESS

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Visualization is an important tool for understanding the patterns of the studied physical processes. The proposed method allows not only to see the processes invisible to the naked eye, but also to obtain the values of physical quantities that change during these processes.

The complexity of the study of parietal processes lies in their many parametricities, three-dimensionality and non-stationarity, which significantly complicates the use of computational modeling methods. An initial body (ball) was created for the work, which was cut off and four rows of faces of geometric points remained.

With the help of a radiation modifier, a simulation of light passing through a lens was created. A plan was created with the lens and light source. The light source was an imitation lamp. A plan is created that simulates a screen that is at a perfect distance from the lens.

Then with the help of a sphere an imitation of ionizing photons is formed. A color modification of the radiation was created for each of them (see on Figure 1). With the help of animation we see on the screen the redistribution of light energy in the form of Newton's rings.

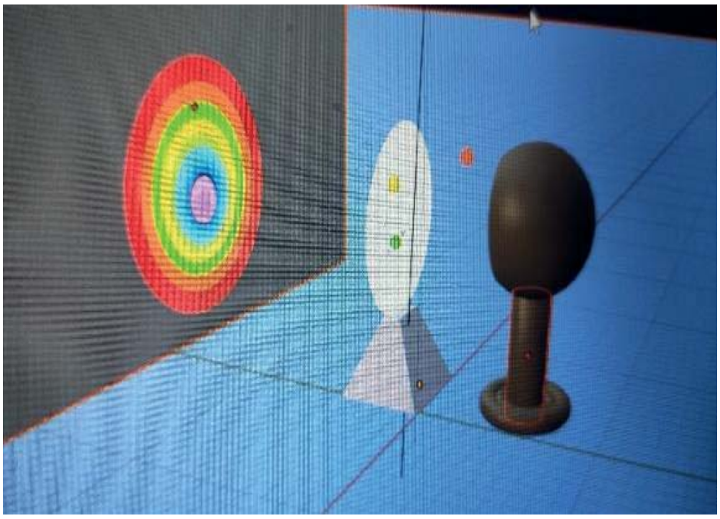

*Figure 1. Visualization of the light interference process*

During this work, the knowledge gained in the study of physical laws and acquired skills in working with Blender Foundation software version 2.8 was consolidated. Using this version is free, simpler, allows you to create a more complex model of visualization of the physical process, the program runs on a PC.

**References**

1. Advances in Imaging and Electron Physics. Chapter One - New Physical Principle for Interference of Light and Material Particles. ScienceDirect: веб-сайт. URL: https://www.sciencedirect.com/science/article/pii/S107656701730085X (дата звернення: 15.10.20)

2. Blender tutorials: blender: веб-сайт. URL: https://www.blender.org/support/tutorials/ (дата звернення: 16.10.20)

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## PARALLEL WORLD HYPOTHESES IN PHYSICS

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The problem of parallel worlds is one of the most speculative and controversial in modern science, philosophy and the media. Basing on the studies by Nikolai Kuzansky (Krebs), J. Bruno, H. Huygens, G. Leibniz, S. Hawking it is sensible to believe that such worlds exist. Most people professing a materialistic worldview, Cartesian rational science and philosophical materialism, prefer to estimate tangible evidences on their own rather than trust clever theories of symplectic geometry or exalted incantations. One remarkable idea known as the many-worlds interpretation of quantum mechanics postulates that all the outcomes that can possibly occur actually do happen, but only one outcome can happen in each universe. It takes an infinite number of parallel universes to account for all the possibilities, but this interpretation is just as valid as any other.

A stable parallel world is possible if connected (closed) structures (atoms, bodies) and interactions between them are possible in it, as in our world. The physical cohesion of the structural elements is provided by the holding (centripetal) forces of interaction of the elements themselves or some central body (core). For the atoms of our material world, these are electromagnetic (mainly electrostatic) forces of interaction between the nucleus and electrons, for planets – the force of attraction of the central star. The viability of structures is determined by the ratio of centripetal and centrifugal intrastructural forces. In an atom, centrifugal forces are the forces of inertia of rotating electrons, in a planetary system.

The joint action of centripetal and centrifugal intrastructural forces (taking into account the laws of conservation of energy and angular momentum in a dimensional Euclidean space) was first studied by the Austrian-Dutch physicist P. Ehrenfest in 1917 for the electrostatic interaction of two charges (nucleus and electron) and gravitational interaction of two bodies (stars and planets). The Pythagoreans, Aristotle, I. Kant, A. Poincaré, A. Einstein, G. Minkowski, G. Weil, P. Uryson and others were engaged in the problem of the dimension of space in various aspects. But it was Ehrenfest who obtained fundamental results in the field of physics of dimensional Euclidean spaces. So, Ehrenfest's theory is functional within the boundaries from the atom to the solar system in Euclidean space. And outside these boundaries? In the submicroworld, strong and weak intranuclear interactions do not obey the inverse square law of the three-dimensional macrocosm, and, accordingly, several hypotheses of the multidimensional microcosm have been proposed, the fact that there are no free quarks has led to the emergence of a hypothesis about the one-dimensionality of space inside microparticles. At the same time, the currently known laws of deep space do not yet give serious refutation of the three-dimensionality of macrospace, and, accordingly, there are no serious theories of stable multidimensional macrocosm. Scientists like Stephen M. Feeney claimed to find evidence suggesting that our universe collided with other (parallel) universes in the distant past. Nobel laureate Steven Weinberg in his last work suggested that if the multiverse existed, too. B. Greene, the author