

# A List of Unresolved Problems in Physics, Solved by the New Paradigm

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Abstract. The goal of this publication is to organize problems from various fields of physics that were resolved by the new paradigm.

Key words: gravity, dark matter, dark energy, elementary particles, wave–particle duality, spin, Planck's formula, diffraction, refraction, light deflection, light delay, atom model, electric charge, positron, microcurrent.

## 1. Introduction

Many authors have written about the need for a new paradigm in physics, for example, [1], [2]. Such a paradigm was presented 4 years ago. The new paradigm has a classical approach, except for Tesla's primary substance [3]. However, the latter is the central issue of the new paradigm.

Before the first publication of the paradigm, there were 20 years of persistent searching for solutions. Only when the puzzle was completed did progress begin. This explains why, in a short period, this new paradigm resolved many unsolvable problems of modern physics.

## 2. The list of problems, solved by the new paradigm

- A new understanding of gravity explains the mechanism of this phenomenon and its true causes.
- Based on this understanding, the issue of dark matter is resolved.
- The problem of dark energy is resolved in a similar way.

- The origin of the gravity of massive bodies is elucidated.
- The paradox of wave–particle duality is resolved.
- The origin of the electron spin is revealed.
- The physical reason for the two-fold gravitational acceleration of a horizontally moving photon is explained.
- The nature of the electron charge is revealed.
- According to this model, a positron is not an antiparticle but an electron moving backward.
- The origin of Ampère’s microcurrents is explained.
- The mechanism of charge creation in thunderclouds is revealed.
- A physical explanation for Planck's formula for photon energy is given.
- An explanation is provided as to why X-rays penetrate soft tissue.
- The large magnetic moment of the electron is explained.
- The physical mechanism of the phenomenon of total internal reflection is revealed.
- Diffraction at the edge of an obstacle is shown to occur for the same reason that light deflects near the Sun, i.e., as a result of gravity.
- A new model of the atom resolves the issue of electron orbits and reveals the nature of the emitted photon.
- The reduced speed of light in glass is explained.
- The experiment by Hau et al. demonstrating a light pulse speed of 17 m/s is explained.
- On the same basis, the deviation of a laser beam in the empty gap between Casimir plates is predicted and experimentally confirmed.
- The vacuum energy density crisis is resolved.
- A correction is provided for the law of universal gravitation.

The solutions to these problems are discussed in [4].

### 3. Conclusions

The new paradigm achieved the goals set by Shukri Klinaku in [1], namely the nature of matter, wave-particle dualism, the issue of "dark matter," and the unification of electrical and gravitational forces have been resolved. Photons do have mass. The new paradigm also confirmed Klinaku's statement that "Nature is simpler than Physics represents it."

### References

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