

Michelson-Morley Experiment Restated

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Abstract: This article focuses on the subject of the interpretation of Michelson-Morley experiment prevalent among physicists (me excluded absolutely). In so doing, the article aims at helping readers concerning about the sound development of physics to form a correct understanding of the interpretation of Michelson-Morley experiment. Generally in this article, I start from the foundation of classical physics—uniform linear motion, and extend to the foundation of modern physics, illustrating through solid evidence, the notion that “the change of state” and “the change of location” of inertial frame are two different concepts and my idea that in inertia system the reference system for “the change of location” will not necessarily exist independently from natural object. [New York Science Journal.2010;3(2):15-17].(ISSN:1554-0200).

Key words: Michelson-Morley experiment

1. Introduction

The foundation for the physics of 21st century has been overburdened. I notice that the issue under discussion used to exist not as a problem and that people view this common puzzle as a matter of course and have never taken it seriously as an important question, and I realize that theoretical physics seems to be impetuous and clamorous, no longer under the control of nature and reason. Professional physicists vie with each other in splendor on the roof of the mansion of physics, trying their best add grandeur to science fiction. The foundation of the mansion of physics, however, is at grave danger of collapse. Unknowingly I have gradually realized that the terror of the matter has been continuously escalating, because at least at the present stage it has exerted influences on too many astonishing discoveries.

2. Methods

In order to help the reader achieve a better understanding, I will try my best to illustrate in an A-B-C method by following the readers' thread of thought. I spare no effort, although it may prove to be beyond my capability, to make the wording graceful and the logic sound, still unavoidably I might fail to solve the readers' inherent difficulty. Therefore, readers will still have to possess a lot of patience. Moreover, for the sake of easy understanding I feel it

necessary to explain clearly beforehand the major concepts of physics involved in the interpretation of Michelson-Morley experiment and point out as completely as possible the puzzle confronted by the theories of classical physics. While restating on the empirical theories of classical physics, I have consciously adopted the manner of mechanic models so that readers even with some basic knowledge of physics can get rid of the shackle of original habit of mind.

3. Analysis

Faced with the empirical facts of natural objects, I believe that an inevitable remedial opinion can be concluded for “relativity principle” of mechanics: the law that governs the changes of the motion of objects in inertial system corresponds to which of the two mutually uniformly rectilinearly moving reference systems is used to describe “the changes of location” of these movements. As a result, there would be no irresistible confusion brought about by the physicists' inability to distinguish whether the reference system for “the changes of location” of the same event in the inertial frame is absolute or relative. Therefore, I offer my proposal that there exists the indeterminacy of reference system in “the changes of location” of the same event in the inertial frame. This view is contradictory to the uniqueness of “ether” hypothesis of absolute rest in classic mechanics. I point out that

although the “ether” hypothesis of absolute rest is proved wrong in the description of natural phenomena it is nevertheless difficult to imagine that the inevitability of the mistaken “ether” of absolute rest is the natural necessity of the nonexistence of “ether”. However, if the possibility of the existence of “ether” of relative rest has not been eliminated, then the possibility of the existence of “ether” shall not be excluded. In order to define clearly the “ether” of space’s relative rest, I point out in the manner of physical extension that although humankind has failed to obtain the reference system for absolute rest via sensation it is still possible they can derive the reference system through perception. Therefore the “ether” hypothesis of space’s relative rest seems to be inevitable. Then the article proceeds to further discuss the error of the traditional interpretation of Michelson-Morley experiment.

To the physicists’ surprise, the serious mistakes they have committed are not unfathomable but are simple and hidden. This is comparable to a situation in which you can command all the simple and beautiful views from the top of a mountain, which will be hidden from view and unfathomable if you are standing at the bottom of a valley. However, this occurs around us. Physicists have also confronted many similar paradoxical puzzles in the experiments to look for the historical foundation of “ether” wind. The defects of mechanics’ “relativity principle” have caused the deficiency of the indeterminacy of the reference system for physical inertia, and have accordingly introduced mistakenly the “ether” hypothesis of absolute rest to destroy the various phenomena that it thinks are likely to measure the relative “ether” movement. As a result, this has ultimately induced the crisis of the “ether” hypothesis of absolute rest. I point out that, as can be seen from the modified physical opinion, in the experiment of classical historical foundation, the results of Bradley observation are not contradictory to those of Michelson-Morley experiment and the results of Fizeau experiment are not in conflict with those of Michelson-Morley experiment. Therefore, we can come to the conclusion that similar experiments of historical foundation are not contradictory. I believe that the relative rest between the earth and the “ether” tells us that the results of any observation and experiments on the earth can not determine whether “ether” exists or not, that mankind’s observations on the earth have their limitations, and that only the drag theory of “ether” of relative rest can the contradictions unified. I point out that when the existence of “ether” of relative rest becomes inevitable, the puzzle of the inconsistency of

reference systems in classical physics and Maxwell theories can most naturally be resolved.

Readers may ask what right this person has to shake the foundation of classical physics theories so rashly when the historical foundation experiments have developed for centuries and their results have been universally recognized as invincible. My defense is: The rules for the formation of all our thinking concepts should conform to the rule of nature, and the reasonability of this conformity depends upon the degree we can reach in generalizing sensational perception experiences with the help of it. Although simplicity is beauty, being real is the most beautiful, and genuineness has its source in nature. It seems that the physicists of Michelson-Morley experiment have reached unquestionable conclusion, it however never occurred to them that such conclusions have shaken the foundation of classical physics theories and have extended to the foundation of modern physics theories. When I realize the errors of Michelson-Morley experiment in subject presupposition and result interpretation, I have felt the coming debate and harsh criticism. At the same time I am filled with terror. This reminds me of the remark of Franklin Roosevelt in his inauguration address in 1933, “let me assert my firm belief that the only thing we have to fear is fear itself—nameless, unreasoning, unjustified terror which paralyzes needed efforts to convert retreat into advance”. I only intend to offer a clear demonstration of the errors of Michelson-Morley experiment in subject presupposition and result interpretation; I do not want to state directly that it is incorrect. It is necessary to refresh the interpretation of Michelson-Morley experiment, otherwise modern physics will encounter unpredictable obstacle and trap in its development. And modern physics will thus be ushered in the fantasy of mythology. I know that the universal acceptance of an idea often involves a very difficult and tortuous process, and there have been a lot of precedents in the history of science. It is still the case even in this 21st century of ours.

4. Conclusions

My conclusion that “the change of state” and “the change of location” of inertial frame are two different concepts is in contradiction with the “relativity theory” of mechanics, which has by far been universally accepted. I point out that mechanics does not provide adequate foundation for the description of all natural phenomena and that we

should have a new understanding that in the “change of location” of the same event of inertial system there exist two different reference systems that are mutually in uniform rectilinear motion. This new understanding will avoid the puzzle brought about by physicists’ obscure yet obdurate conception as to which of the two mutually uniformly moving reference systems is not related to the inertia reference system. I should acknowledge that the new interpretation of Michelson-Morley experiment presented by this article has its limitations. For example, in order not to affect the question over non-time of classical physics, this book has not explained in detail the effect of the relative motions of time and light source and light wave in two mutually moving clocks. Therefore, it is possible for this article to make hasty generalization. Although Einstein has already made staggering discovery in time and light speed, I believe that theoretical physics still has to make a lot of preparations. Why? Because the foundation supplied for theoretical physics to describe natural phenomena should be adequate, and its rules should be endowed by nature and should not be the result of God’s bestow or mathematical deduction.

That this article contains opinions inconsistent with those of my revered physicist is actually a matter against my will. Theoretical physics is still in progress. I hope that this article may provide beneficial food of thought for readers.

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