

## THE EXPERIMENT OF M&M

After a notable advance and the scientific knowledge of the seventeenth and eighteenth centuries, mainly with the laws, legacies, postulates and theorems left by Newton and other scientists who were also prominent with their research and discoveries. Many publications came from all the parts of the globe, and other names came up and, along with them, many “contradictory” explanations on the ‘[celestial Mechanics](#)’ and ‘[Gravity](#)’. However most of these agreed in one point:

*- There must be a subtle type of energy which interacts with the moving celestial bodies...*

Even though that was the thought in the minds of most the scientists back then, someone had to prove it...

In 1887, two North American physicists, Michelson and Morley, were convinced that they could prove that such energy existed. Back then, Albert Michelson (1852-1931) was already considered an ‘authority’ In studies on ‘Light’, and was the first north American scientist to ever receive the Nobel prize in physics (1907).

Michelson and Morley were responsible for an experiment of maximum importance. They intended to prove the existence of some which could justify the distant interaction between ‘gravity’, an environment where light can propagate, and also the support and movement of the planets throughout ‘cosmic Space’ (CST).

Both scientists (among others) believed that the earth, for example, would travel through a kind of fluid which they called ‘[Ether Breeze](#)’. Based on the law of Newton (action and reaction), that same "Breeze" should also travel through the earth... so, according to them, they were able to measure earth's speed in relation to the "ethereal fluid" (Ether).

They built a piece of equipment especially designed to accomplish this great task, maybe the most important task up until then. It was about an ‘[optical interferometer](#)’ which in turn worked like this:

From a light source (in this case, a common incandescent light bulb), a light beam was to go through two different paths (each 90 degrees apart from the other), obtained through a light dividing mirror fixed upon a smooth and polished piece of granite (such a piece of granite having been carefully horizontally leveled) until they and reach two special mirrors, each one having been attached on both extremities of the square piece of stone. The distance to be gone through by light was exactly 4m towards each direction, and that is, 2 meters going and 2 meters returning.

As soon as the light beams meet the mirrors, they are reflected in the opposite direction to the one they came from until they are projected into the same point on a screen located in the other extremity of the piece of granite. See the following illustration.

**Illustration 02** - Basic scheme of an `optical interferometer` [[Click here](#)]

Their premise was the following:

If there is a “flow of [Ether](#)” going through Earth, it should slow down the light which comes from the direction opposite to it, and “nothing “ should happen to the light beam transversally (perpendicularly). If that were to happen, a light beam would return before the other light beam did and a small shadow or an `[interference fringe](#)` would be able to be “seen “ in the screen (with the naked eye).

The difference in the movement speed of the light beams would be proportional to the size of the shadow or `fringe`, obviously (in case it was possible for it to occur in these conditions).

Something similar would be to measure the speed of the current of a river, by comparing the time it takes for a canoe to move from one margin to the other while another canoe just like it, at the same time, moves against the current through a distance equivalent to the river`s width.

This experience was of vital importance to the scientific community, so much so that, when it happened, the trains, streetcars and other heavy vehicles in Chicago were stopped in order to keep them from interfering in the results.

Such an event was witnessed by the local scientific community and by researchers from many countries. However, the results were not satisfactory, missing the expected values by far...

And, before such a huge experimental error, the opposite has been proven, that is: that “there is no Ether breeze “, or, if it does exist, it does not interfere at all with the speed of light or that of earth. [1]

*- With that conclusion, the celestial bodies were left (momentarily) without physical “support”. It is the equivalent of removing all the water from a fishbowl... How would the fish be able to move?*

**NOTES:**

[1] There were many reasons which prevented the expected results in Michelson and Morley`s experiment from happening, and they are described in detail in other chapters of this work and in other steps of the `Guide`.

*Next, the opportunity the Einstein for the 2nd pillar ... Must-see! [[Click](#)]*