Prism Experiments with Laser Beams

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Smoot and COBE have established anisotropy in the CMB microwave background. The solar system was found to move through CMB at a speed of 370 km / sec towards coordinates L 264, B 48 (galactic) = L 172, B -11 (ecliptic) near Tau Leonis. Earth travels within the solar system at 30 km / sec on its orbit around sun. The laser beam experiment should explain whether, and if so, to what extent, this motion affects direction and speed of a laser light beam. For a few days around both 4th of February and 20th of April (exactly 5 weeks before and after the opposition's constellation of Tau Leonis), a laser beam directed through a prism has shown slight shifts detected at a distance of 7.5m. The shifts during these days need to be confirmed by a professional laboratory.

1. Introduction

I started under the assumption that the refraction angle of a laser beam passing through a moving prism changes due to the motion of the prism. Every year since 2007, I have actually observed slight movements of the laser's light point at a distance of a few meters only for several days during the second half of April.

2. Experiment April 2009

A laser is firmly attached to a massive metal frame by means of two vices, together with an external switch. A prism is also attached by a vice to this frame at a distance of 50 cm and mounted so that it works as a mirror, thus perpendicularly diverting the laser beam into the south>north direction. A scale with thin lines spaced at 1 mm is firmly attached at right angles to the outgoing beam at a distance of 7.5 meters. This diagram was then photographed, enlarged and recorded by a digital camera.

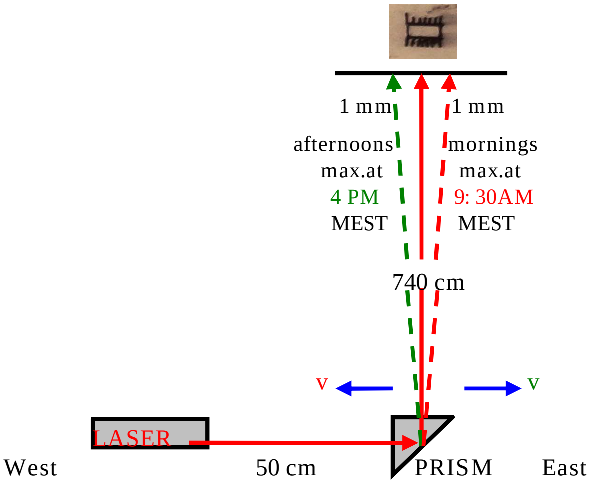

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Fig.1. Experiment April 2009

During the days between 18th of April and 22nd of April 2009 the same small, but definitely noticeable shifts of the laser light point have been observed (All times given in Middle European Summer Time, MEST):

Other influences on the laser beam can be precluded by observation of external conditions. Towards the end of April, no further movement is detected. The light point stays fixed at the same spot during the entire day, as is supported by more tests over periods of weeks and months. This indicates that no other factors affect the laser beam, and therefore the stability of this system is ensured throughout the entire year.


April 21, 4:00 PM


April 21, 12:30 PM


April 22, 9:30 AM

3. Experiment February 2010

Laser and prism attached as before, but the second laser without the prism in order to make a comparison how much the prism affects the laser beam.

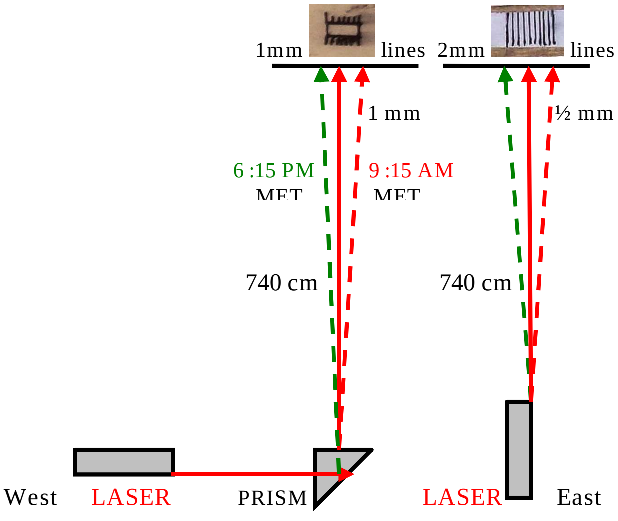


Fig. 2. Experiment February 2010

Between 2nd of Feb. and 6th of Feb. 2010: Same effects during these five days as on Feb. 2 (MET zone)

Feb 2, 9:20 AM

Feb 2, 1:30 PM

Feb 2, 6:20 PM

Note the direct beam on the right hand side: At approx. 9AM (MET) the 6th line to the left is covered by the light spot, but at 6PM it is seen. Since the lines in the diagram on the right side are at 2 mm spacing, the shift should equal only 0.5 mm, thus appear not quite as clearly as in the left beam directed through the prism. This indicates that the moving prism has a special effect that remains to be explained.

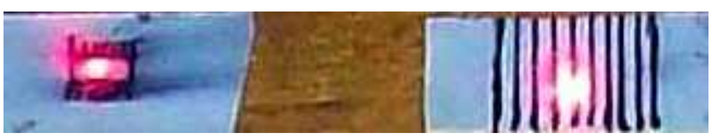
The effect then weakened somewhat like the photos of Feb 5.

Feb 5, 9:10 PM

Feb 5, 6:20 PM

As of 7th of February no shift was noticed, and the light points always remained at the same position, as seen in above photo taken on Feb. 2 at 1:30 PM. Here are by example photos taken on 12th of Feb. (no more shift).

Feb 12, 9:20 AM



Feb 12, 6:15 PM

4. Experiment March-April 2010

Throughout the entire year, there was no shifting of the laser light point observed, except on the days mentioned.

In order to confirm this, I made observations of the laser-point every hour for the entire day on March 13th, the day of the opposition's constellation of Tau Leonis and right between the time when the shifting was observed around Feb. 4th and April 20th. And there was no shifting on this day.

I tried the same laser-experiment (like Fig.2) again around April 20th, 2010, and I observed a minor shift of the laser-point, but the shift and the photos were this time not clear enough to use in a real documentation.

April 19, 9 AM

April 19, 4 PM

April 20, 8 AM

April 20, 4 PM

5. Explanation

If earth's motion at 370 km/sec towards Lion or its orbiting around sun at 30 km/sec have an effect on a laser beam, then such an effect should be noticeable throughout the year. A shift of the laser light point, however, is only observed on a few days close to the 4th of Feb. and the 20th of April.

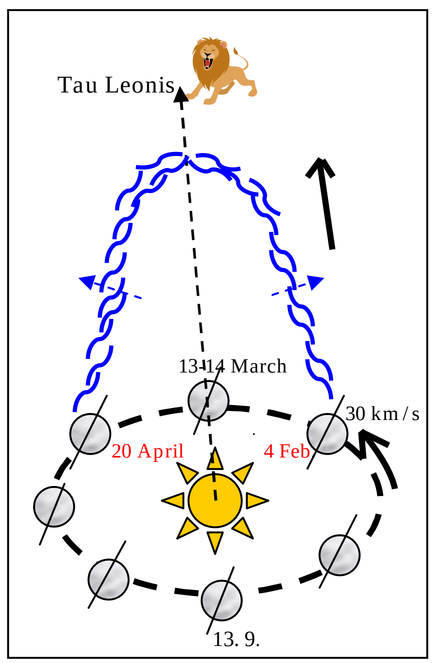


Fig.3. The Sun moving toward Leo

On the 13th / 14th March, the Tau Leonis is in opposition with the sun in the Lion Constellation, meaning that Sun-Earth-Lion are all lined up. Sun therefore, drives earth and all other planets towards Lion. The observed shifts will occur exactly 5 weeks before and after this opposition's constellation.

It may now be assumed that the solar system's movement towards Lion causes a disturbance in the CMB, some kind of "bow wave." The "bow wave" of a ship always stays at the same distance from the stern of the observer's ship moving at constant speed. Therefore, a disturbance in the CMB always remains at a proportionally equal distance relative to the sun.

Earth crosses this disturbance zone at v = 30 km / sec on its orbit around sun. This could cause the laser beam to slow down by a fraction v / c (or less, depending on the angle between laser and prism, and between prism and wall) and therefore the light spot to stay behind on the wall by a portion of v / c = 1 / 10000 (for a distance of 7.5 m this would be 0.75 mm). This means:

1. If the laser beam crosses the disturbance wave at right angles, the light point stays behind towards the west due to the wall's advancing towards Lion (towards left on sketch and photo),
2. If, however, the laser beam propagates parallel to the disturbance wave, then the light spot moves towards the right due to the wall's advancing along earth's orbit now cutting perpendicularly through the disturbance zone.

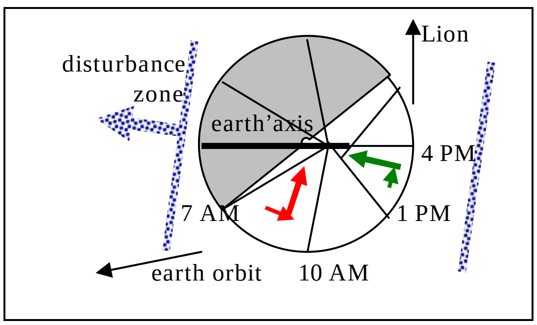


Fig. 4. Middle of April (MEST)

This shift is only due to the slowing down of the laser beam by a fraction v / c = 1 / 10000. The motion of the wall towards Lion at 370 km / sec had no effects here because this has no influence throughout the entire year, provided that the laser beam moves at the same constant speed.

6. Proposal for Further Experiments

The slight shifts of the laser light point could be observed only for a few days around both 4th of February and 20th of April (exactly 5 weeks before and after the opposition's constellation of Tau Leonis).

The reason may be an disturbance zone (like Fig.3) caused by the movement of the solar system towards Tau Leonis. On these days a professional experiment under laboratory-type conditions should verify these shifts.of the light-point of a laser-beam directed through a prism.

The experimental setup should be like shown in Fig.1 und 2, so that the laser-beam lies due to the earth rotation first in the direction to Tau Leonis and then across this direction. This should not be too complicated, because just a prism and a laser beam are needed and at a greater distance a detector that continually records the light spots during periods of up to 24 hours.

7. Conclusion

Slight shifts of the laser light point could be observed for five days, from 18th till 22nd of April 2009, and from 2nd till 6th of Feb. 2010 – and always at the same time of day for both time periods. On the 13th and 14th of March, each point on the Lion Constellation, towards which our solar system moves at 370 km / sec, is in opposition to sun. Therefore, Sun - Earth – Lion are all lined up on this day, and the shifts have been observed exactly five weeks before and after this opposition constellation.

Since I lack the technical means for precise observation, it would be essential to carry out such an experiment on said days under laboratory-type conditions. This should not be too complicated, because just a prism and a laser beam are needed (preferably in different positions) at a distance of some 7.5 meters, plus a detector that continually records the light spots during periods of up to 24 hours.

Should such a shift actually be confirmed, experts from all areas of physics (including astrophysics and astronomy) would be obliged to participate in discussions over the possible explanation of this phenomenon and of the influence due to the prism. For now at least, the prerequisite is that the effect be measured exactly and precisely with respect to time of day, direction of light beam, length, degree of latitude and angle with the earth's axis and its orbit, which was impossible for me alone.