

# The O'Connell effect in eclipsing binaries explained by mass related light speed extinction distances (LASOF) of stars and even planets.

Leo Vuyk  
Architect  
The Netherlands.

## Abstract.

If the orbits of close binary stars are circular, and the light speed is NOT influenced by the speed of the stars, we have to expect that the light curves are symmetrical between moments of eclipse or even conjunction.

However, This is mostly not the case and still an ongoing debate in astronomy and called the "O'Connell effect".

According to Quantum FFF Theory, however I assume that the local light speed around the stars is gravity related for a mass related distance from the source (star) called LASOF ellipsoid, (Local Asymmetrical Oscillating vacuum Frame)

As a result the so called O'Connell effect can easily be explained as a logic result of additional redshift or blueshift by the local lightspeed variation.

At the same time also planets should show such lightspeed extinction effects, which is already measured but not understood by I.I.Shapiro (see "radar astronomy" edition by Evans and Hagfors, 1964).

As a consequence, Einstein's Special relativity rules do not hold.

## Introduction.

If we look at the apparent magnitude of eclipsing binary stars we can discriminate two equally spaced peak magnitudes at point 0.0, 0.5 and 1.0 (fig 1).

This is always explained by the fact that the smaller star is mostly hotter (brighter) and the result is that if the smaller star eclipses (behind the larger star) the minimum peak is larger than the following peak, which is called the Primary eclipse.

The secondary eclipse and minimal magnitude peak is of course related to the opposite eclipse situation, that the larger star is eclipsing behind the smaller star.

The O'Connell effect is not related to this difference in magnitude but related to the difference of the apparent magnitudes in between the two minimal peaks, which makes the figure asymmetric.. See Figure:1.

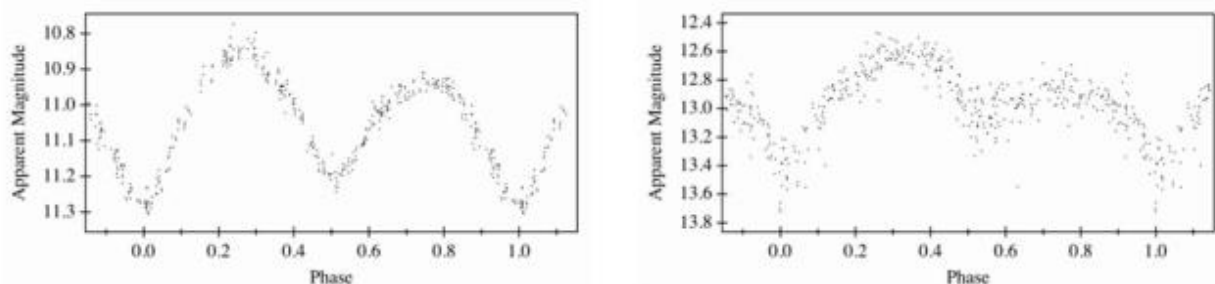
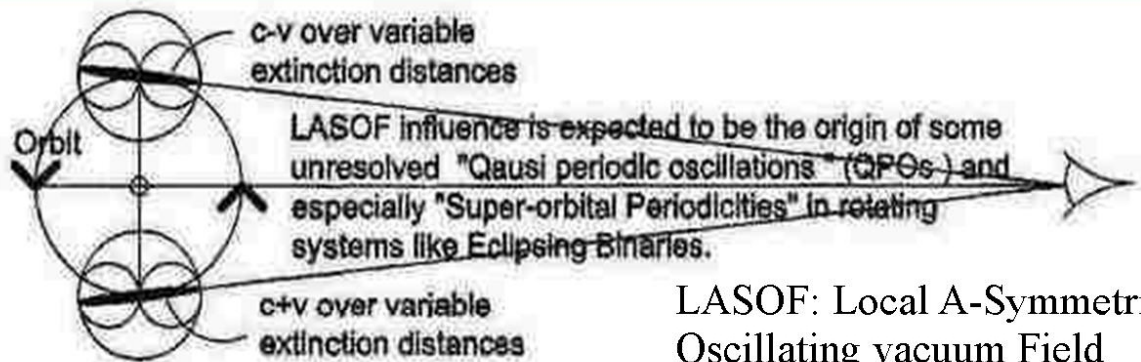
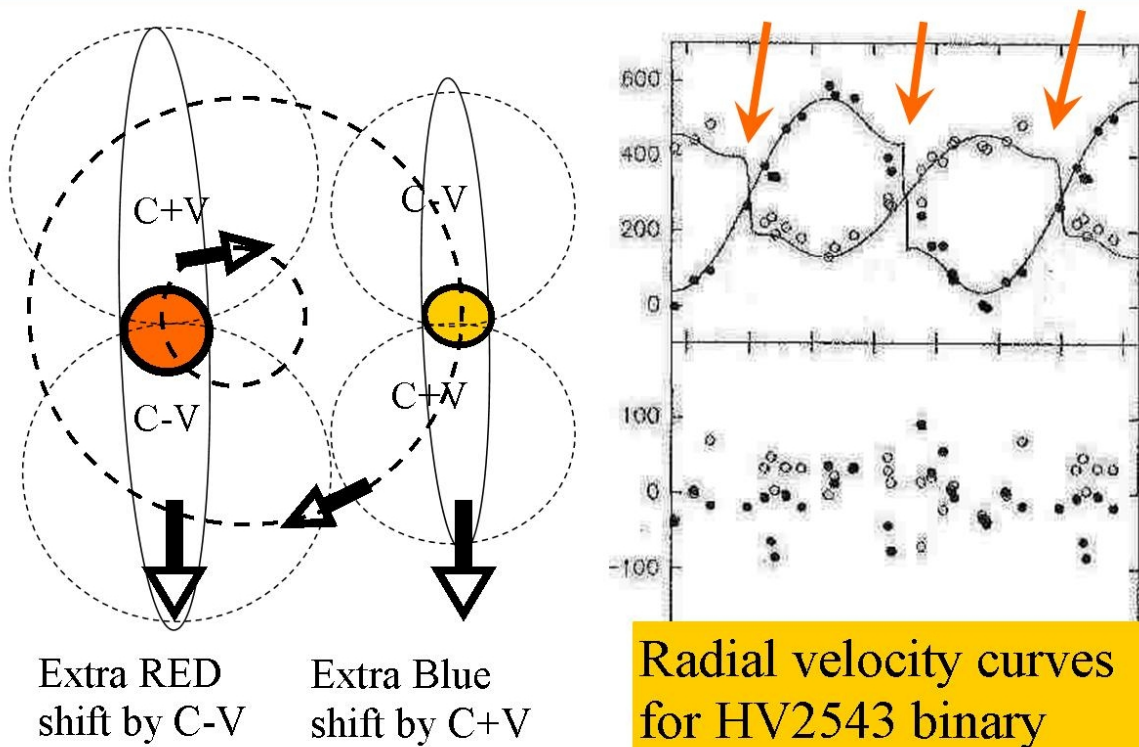


Figure 1 Two typical examples of apparent Magnitude curves of eclipsing binaries with asymmetric maxima and symmetric minima.

LASOF Lightspeed ( $c \pm v$ ) extinction ellipsoid around massive objects as the origin of the anomalous Quasi Periodic Oscillations and the a-symmetric light curves called the O'Connell effect. According to Quantum FFF Theory.



Eclipsing Binary Stars are observed to be alternating red- or blueshifted with a wobbling redshift if passing in front of the other and called "QUASI PERIODIC OSCILLATIONS" (↘) Just like the passing of the SUN by VENUS (see I.I.Shapiro)



**Figure 2** Quasi periodic oscillations in calculated velocities of both binary stars in HV 2543. Due to the LASOF effect it seems that the approaching star to the observer is accelerating before conjunction and decelerating after conjunction. Just as seems to be the case in figure 3 ( Venus)

residuals. Preceding inferior conjunction the residuals are negative whereas following they become positive. This behavior is readily explained by Venus being ahead in its orbit relative to earth, since, in that case, it would be closer to earth than predicted before conjunction and further away afterwards in agreement with Fig. 3-4. Quantitatively, too, the amount seems to be in accord with the earlier determinations. Remarkably, although the residuals shown are enormous relative to the errors associated with some of the more accurate measurements, the discrepancy is caused almost entirely by an error of only 0.5 of heliocentric arc.

The fact that the residuals vanish near conjunction supports the trial values used for the AU and for the radius of Venus. Another interesting feature of the residuals shown in Fig. 3-4 is the appearance of short-period quasi-regular oscil-

Earth-Venus Lightspeed (radar) anomalies (residuals) by I.I.Shapiro in Radar Astronomy 1964. Arrows A are pointing at the overlapping process of mutual LASOF areas of Venus and Earth. According to Quantum-FFF theory.

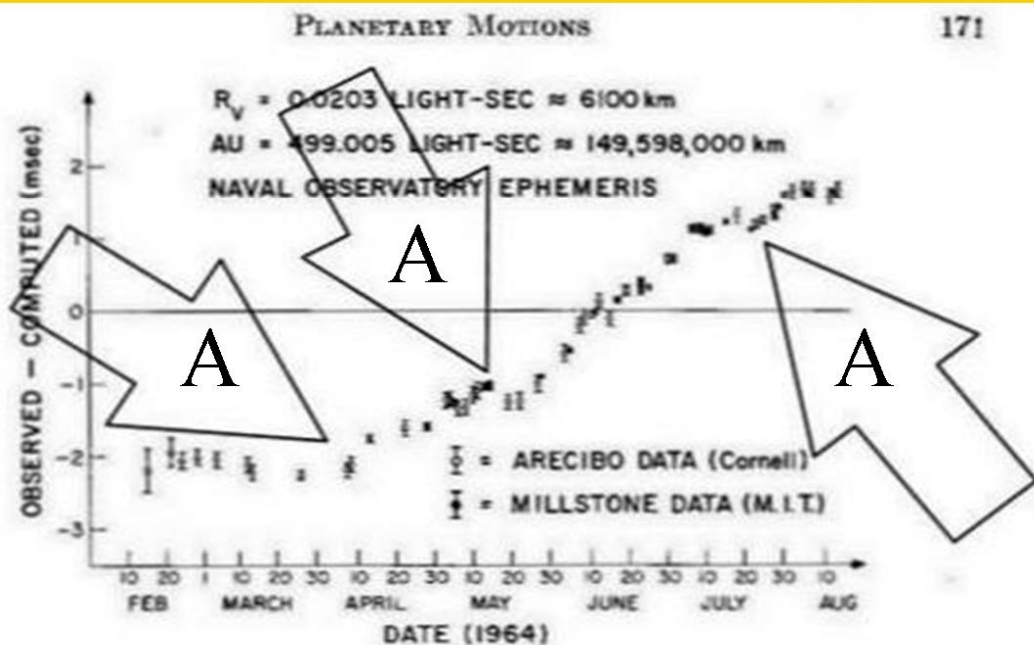


Fig. 3-4. Earth-Venus time-delay residuals resulting from comparison of radar observations with delays computed from U.S. Naval Observatory ephemeris, based on Fourier Series.

Figure 3 Quasi periodic oscillations measured by I.I. Shapiro for the time delay of the conjunction of Venus, earth and sun.



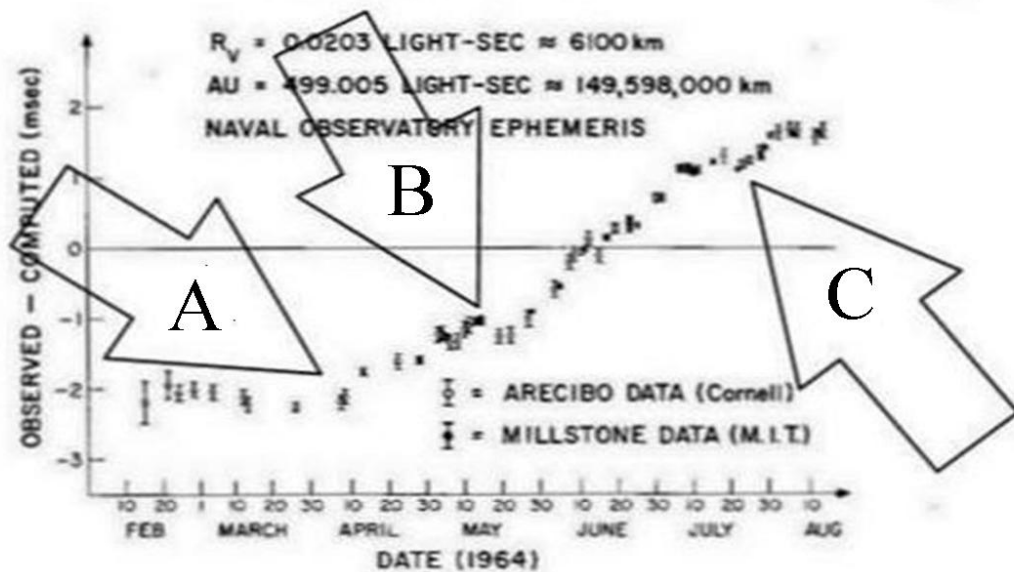


Fig. 3-4. Earth-Venus time-delay residuals resulting from comparison of radar observa-

Bumps in time delay are related to moments of overlap of both LASOFs (Venus and Earth): 10 April ( A ): start firm overlap, 10 May ( B ): start Earth LASOF overlap of planet Venus, 10 July ( C ): start exit overlap of planet Venus

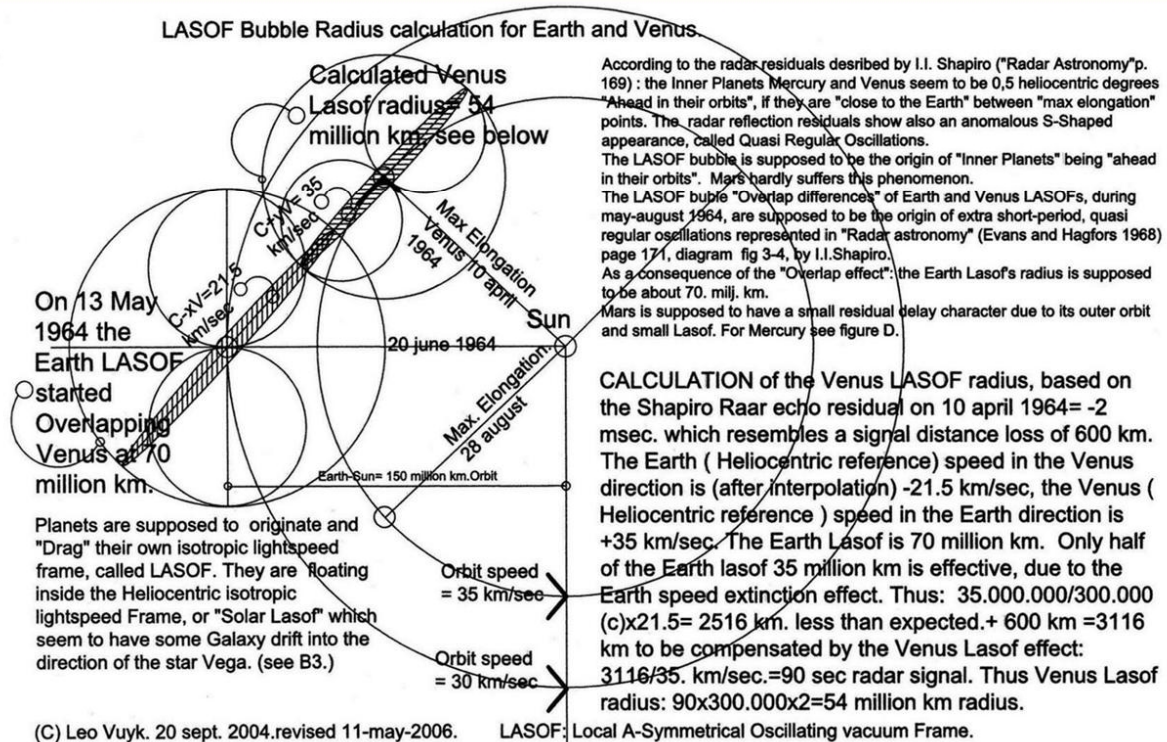


Figure 4, the effect of overlapping LASOFs of earth and venus.



The diagram shows a circular representation of the Earth's orbit around the Sun. The Earth is at the center, and the Sun is at the center of the orbit. The orbit is divided into 12 segments, each representing a different orbital direction. The segments are labeled with the following values:

- Top-left:  $c \cdot 0.97v$
- Top:  $c \cdot 0.98v$
- Top-right:  $c \cdot 0.97v$
- Right:  $c \cdot 0.97v$
- Bottom-right:  $c \cdot 0.97v$
- Bottom:  $c \cdot 0.98v$
- Bottom-left:  $c \cdot 0.97v$
- Left:  $c \cdot 0.97v$
- Top-left (inner):  $c \cdot 0.97v$
- Top-right (inner):  $c \cdot 0.97v$
- Bottom-right (inner):  $c \cdot 0.97v$
- Bottom-left (inner):  $c \cdot 0.97v$

The diagram also includes the following text:

- Interpolation disks of Orbital additional light speed.
- heliocentric radial light velocity  $c \cdot v$
- Earth
- Orbital vector speed Earth 30 km/sec.

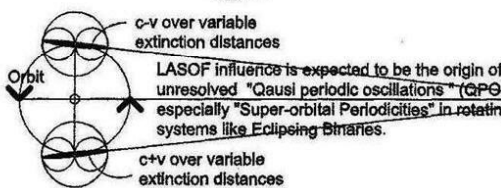


Diagram illustrating the geometry of the proposed laser ranging system. A central Earth is shown with a ground station and two satellites in opposite orbits. The diagram shows the maximum laser radius (70 million km), the Earth's orbital speed (30 km/sec), and the inclination-dependent variable extinction distances ( $c \pm 30$  km/sec). The diagram also shows the Earth's orbital speed (30 km/sec) and the inclination-dependent variable extinction distances ( $c \pm 30$  km/sec).

Yuri Galaev performed optical and radio wave interference experiments which showed results in line with those of D.Miller, see: 2001: Yu.M.Galaev, "Ethereal Wind in Experience of Millimetric Radiowaves Propagation", *Spacetime and Substance*, V.2, No.5 (10), 2001, P.211-225.  
<<http://www.spacetime.narod.ru/0010-pdf.zip>>

SEE ALSO: "Local Ether Theory" C.C.Su, (Taiwan) <http://gem.ee.nthu.edu.tw/>

UNUSUAL variations in JASON-1 Satellite measurements are supposed to be an indication of this variable light speed.

IF-----The speed of light in vacuum is dependent on the emitting body motion, only for a distance of extinction, which is limited by the state of motion, mass and density ( or surface gravity) of the body. (Fig A, B1.) -----THEN as a secondary result: -----The speed of light emitted by Small Mass Bodies, -like GPS satellites- is in addition ONLY adapted to the Large Mass Body (Earth) Reference Frame, into- and away from the SURFACE of the Large Mass Body. (see also Fig. B3).

This complex system (Fig. B2) is supposed to be the origin of the HIGH accuracy of GPS reading ONLY ON EARTH, even obtained for relatively "low horizon elevation" GPS signals. HOWEVER, this is in contrast with the VARIABLE accuracy of "onboard" SPACEBORN or AIRBORN GPS receivers, which are supposed to be vulnerable for LIGHT SPEED VARIATIONS of low horizon elevation GPS satellite signals. see also figure B1 and B3.

**CONCLUSION:**  
LEO Satellite "Onboard" Black Jack LOW ELEVATION GPS measurements should be ANALYZED ON ANOMALOUS DELAY in stead of PUT ASIDE as Outlier, to be able to determine GRAVITY DIRECTION DEPENDENT LIGHT SPEED FRAME DRAGGING.

**Figure 5, the LASOF principle depicted .**



Simplified view of Earth's orbital motion related additional and only initial light speeds, as experienced from the Heliocentric reference frame.

Interpolation disks (based on cosine function) of initial additional /subtractional light speeds ( $v$ ) only for signals GENERATED on Earth.

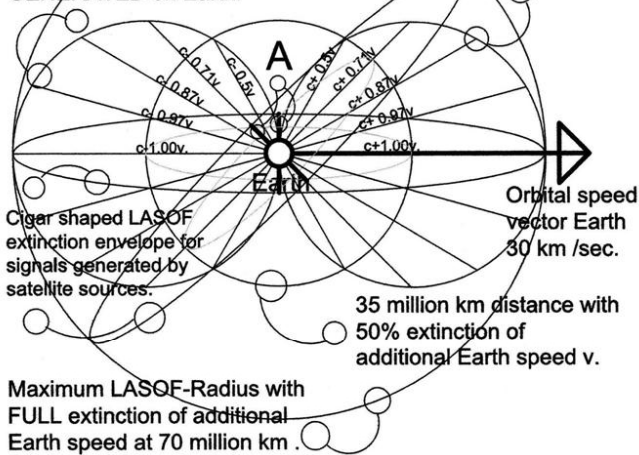


Figure B1a: GRAVITY DEPENDENT LIGHT SPEED FRAME DRAGGING by globular and cigar shaped LASOF (Local Anti-Symmetrical Oscillating vacuum Frame) lightspeed extinction envelopes. The globular LASOF is related to Earth bound sources. The cigar shaped LASOF is related to satellite sources. The major axis of the Cigar shaped LASOF envelopes, is supposed to coincide with the Satellite-Earth axis. Future satellite-GPS distance reading variations should give information about the minor axis (A) of the cigar shaped LASOF envelope.

Author: Leo Vuyk,  
20 sept.2004. revised: 29-10-07.

## Lightspeed variability between massive objects like Venus and the Earth by the LASOF Vacuum.

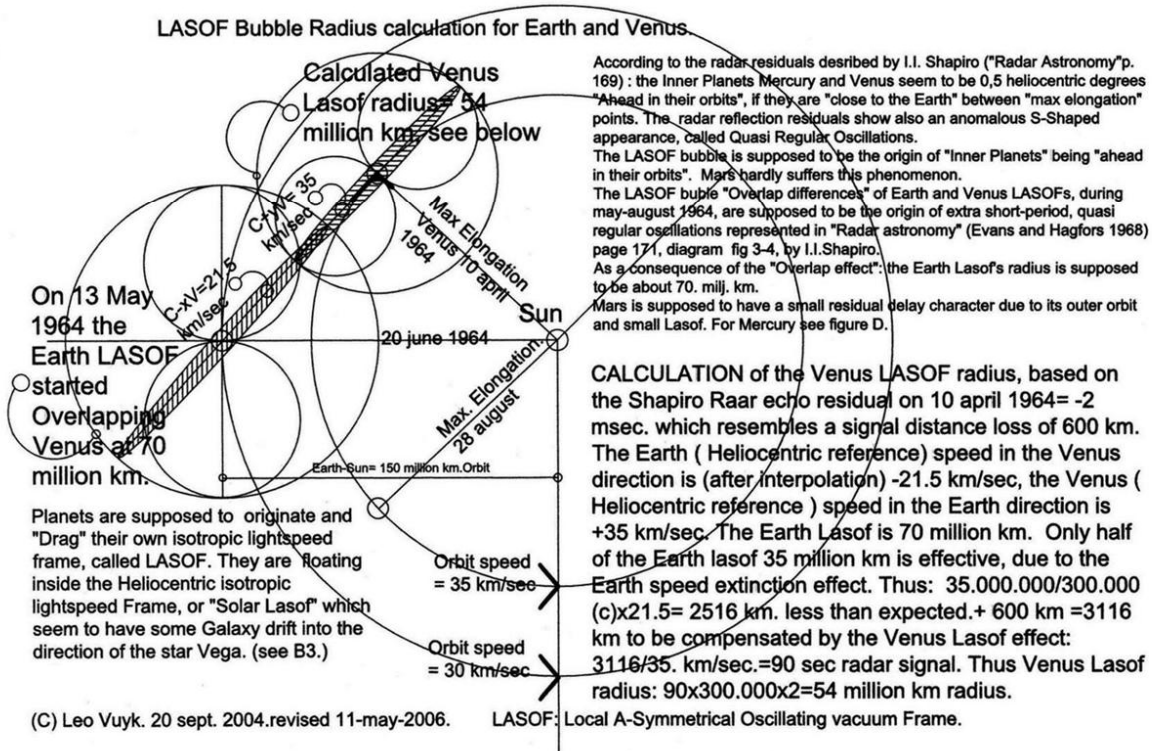


Figure 6, Simplified LASOF around the earth and the relation with Venus LASOF.



A clear example of GPS failure for sat-sat signals at higher altitudes ( CHAMP: 430 km, GPS: 20.000km) Kinematic orbit solution comparison showing GPS data outliers up to 180 meters, (2x) during a CHAMP flight long 24 hours with 15 earth revolutions in 2003.

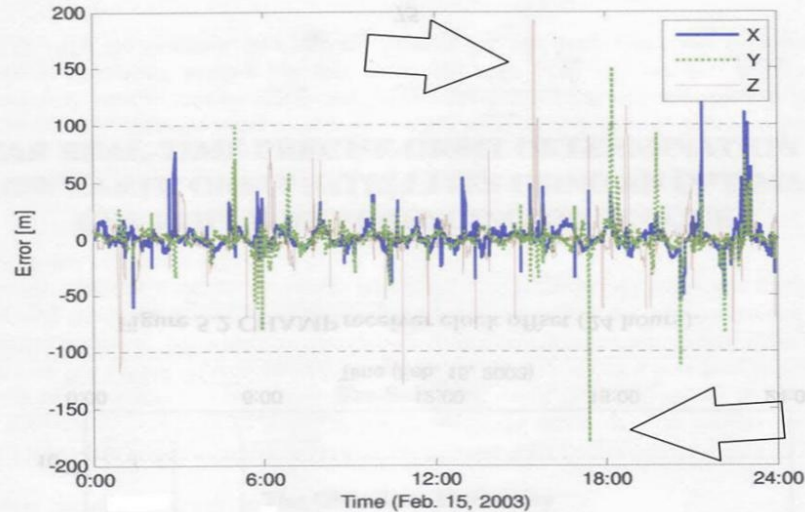


Figure 5.3 Comparison of the absolute kinematic orbit solution, w.r.t. RSO.

Estimation of the LASOF ellipsoid minor axis based on maximum outliers (180m) found in Champ satellite GPS distance measurements. According to Quantum FFF theory.

Calculation of the MINOR AXIS (11821 km) of the LASOF ellipsoid based on CHAMP max outliers of 180 m. measured in 2003. author: Leo Vuyk.

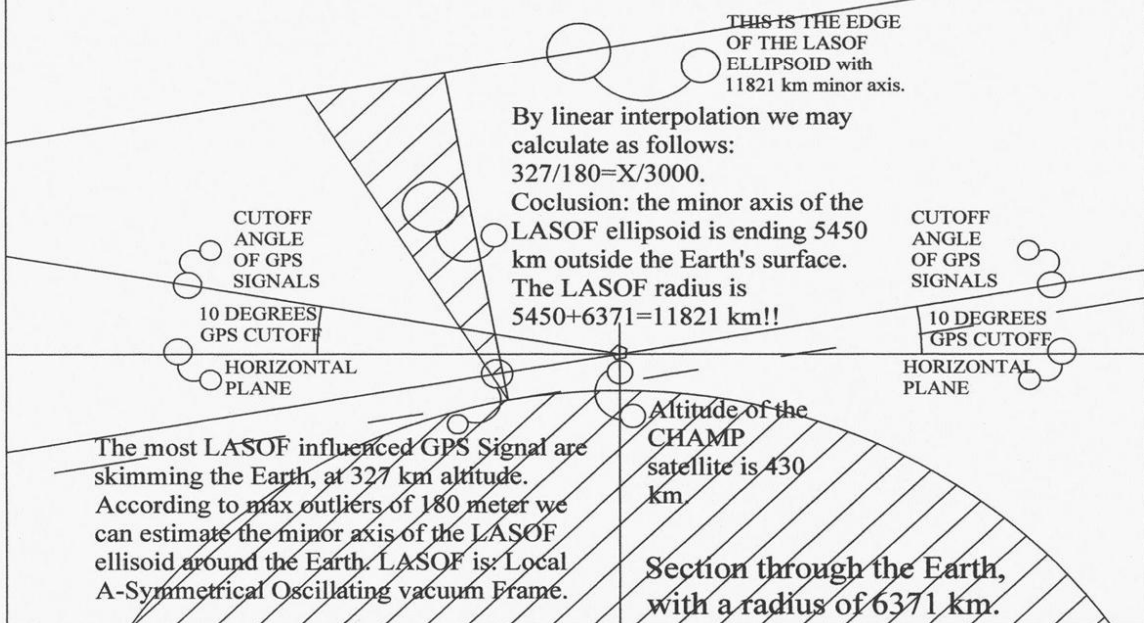
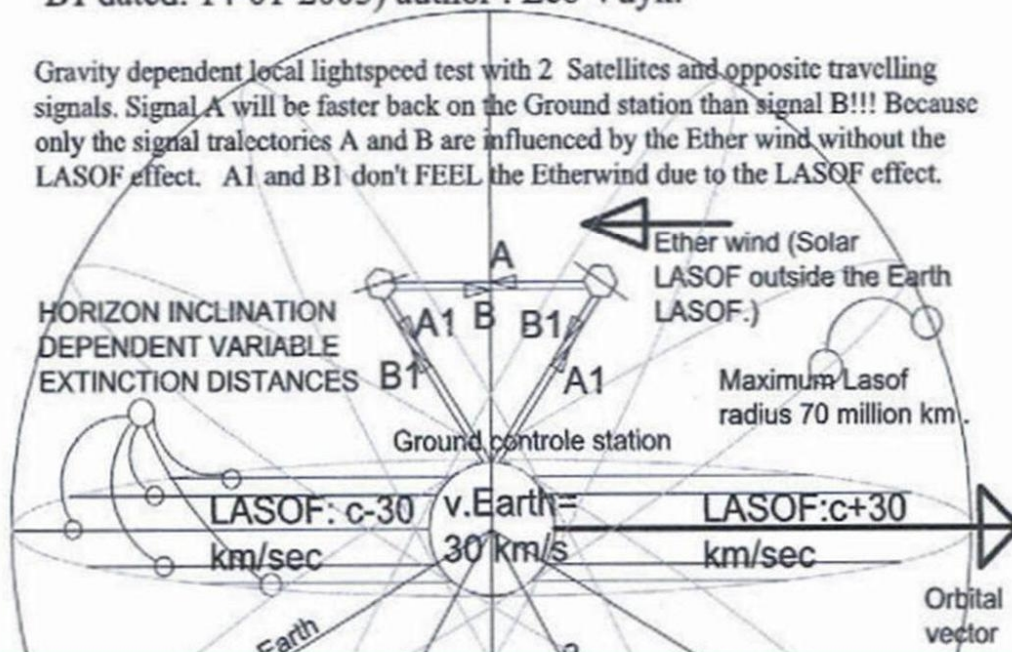


Figure 7 Additional LASOF effects.

**GRAVITY DIRECTION DEPENDENT LIGHT SPEED FRAME DRAGGING by LASOF (Local Anti-Symmetrical Oscillating vacuum Frame). SIGAR shaped LASOF Bubble structure of the Earth with proposals for a future two way TRIANGLE satellite signal interference experiment. date: 9-11-2006 ( this is an enlargement of figure B1 dated: 14-01-2005) author : Leo Vuyk.**

Gravity dependent local lightspeed test with 2 Satellites and opposite travelling signals. Signal A will be faster back on the Ground station than signal B!!! Because only the signal traectories A and B are influenced by the Ether wind without the LASOF effect. A1 and B1 don't FEEL the Etherwind due to the LASOF effect.



Two experiments to show mass related light-speed differnrces (Quantum FFF theory)

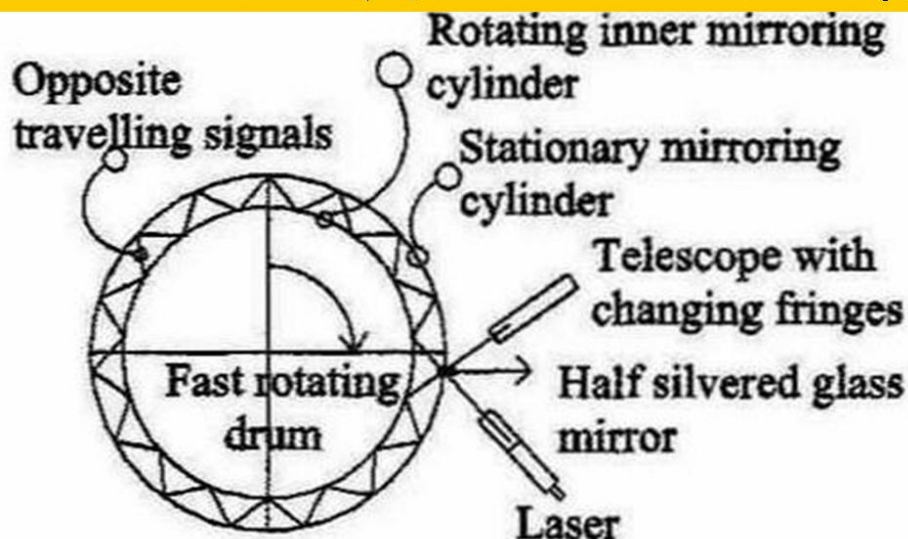


Figure 8, Possible LASOF experiments.



## Mass related lightspeed differences by LASOF (Local A-Symmetric Oscillating Vacuum Frame) effects are origin of Gravity direction dependant lightspeed Frame dragging. (Quantum FFF theory)

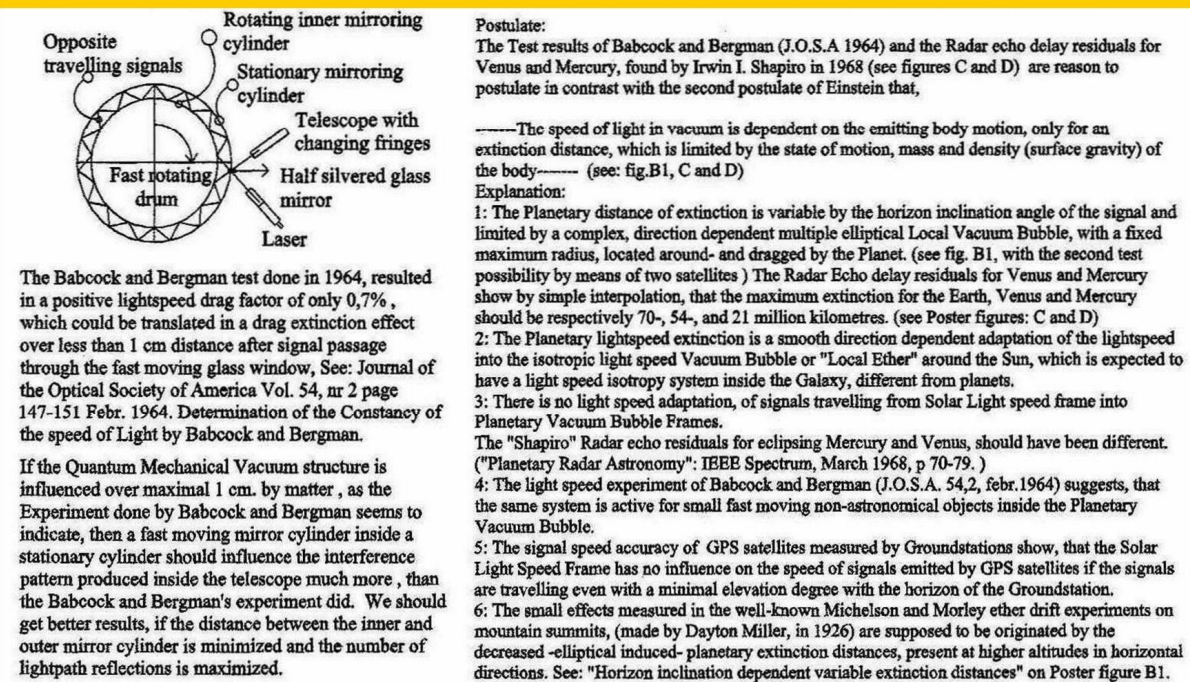


Figure 9, Some early indications of a LASOF effect.

## References:

**[47] The New God Particle and Free Will.**

Author: Leo Vuyk, **LuLu publishers**, 2008.

**ISBN number 978-1-4092-1031-3**

<http://www.lulu.com/spotlight/LeoVuyk>

**[46] Quantum FFF Theory is also published in the form of POSTERS at the Flickr site:**

<http://www.flickr.com/photos/93308747@N05/>

**[45] Numbered listing of Vixra essays by Leo Vuyk (see below).**

[http://vixra.org/author/leo\\_vuyk](http://vixra.org/author/leo_vuyk)

[44] viXra:1401.0115

Calabi Yau Shaped Double Fermion Spin States.

[43] viXra:1401.0071

Democratic Free Will in the Instant Entangled Multiverse.

[42] viXra:1312.0143

The Navel Cord Multiverse with Raspberry Shape.

[41] viXra:1312.0076

Are Sunspots Made of Gravitating Dark Matter Black Holes?

[40] viXra:1310.0101

The New Nuclear Magic Number (34) Explained by the Polar Coaxial Ring System of  
Category: Nuclear and Atomic Physics

[39] viXra:1310.0059

The Semi Relativistic Higgs Field Aether with Mass Related Lightspeed Adaptation.

[38] viXra:1309.0081

New Physics by Table Top Experiments.

[37] viXra:1308.0083

The Raspberry Shaped Super Symmetric Multiverse

[36] viXra:1307.0068

Quantum Function Follows Form Theory, the Small Scale, Posters part 1.

[35] viXra:1307.0067

Quantum Function Follows Form Theory, the Large Scale, Posters part 2.

**[34]** viXra:1306.0218

Dark Matter UFO Dust Particles or Quantum Knots in the LHC at CERN ?

**33,** viXra:1306.0065

The Splitting Dark Matter- Black Hole- Big Bang and the Cyclic Multiverse.

**32,** viXra:1305.0140

Quantum FFF Theory Experiments, a Summary.

**31,** viXra:1305.0041

The Shnoll Effect Explained by Quantum FFF Theory.

**30,** viXra:1304.0022

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**29,** viXra:1303.0211

Hubble Redshift Combined with Universal Contraction is Possible.

**28,** viXra:1303.0053



Micro Birkeland Currents Between Two RF Generated Plasma Balls in the Laboratory.

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**26**, viXra:1301.0088

Two or Three Large Quasar Groups (LQGs) Located at the Start of Two or Three Lyman Alpha Systems and a Part of the Raspberry Multiverse?

**25**, viXra:1301.0050

Dwarf Galaxies and Their Relation with Dark Matter Based Galaxy Anchor Black Holes (Gabhs).

**24**, viXra:1210.0177

Instant Broglie Bohm Pilot Waves, the Origin of All Entanglement Effects in the Lab and Wavefunction Collapses in Our Universe as Related to Our Opposing Anti-Copy Universe(s) According to Quantum FFF Theory.

**23**, viXra:1209.0092

New Dark Matter Black Holes and a New Dark Energy Higgs Field, Lead to a Bouncing CP Symmetrical Multiverse, and New Experiments.

**22**, viXra:1209.0061

Birkeland Currents, Sunspots, Comets and Ball Lightning Originated by New Paradigm Dark Matter Black Holes.

**21**, viXra:1209.0030

Majorana and Sterile Neutrino Solutions in the Quantum-FFF Model.

**20**, viXra:1208.0031

Clumpy Dark Matter Around Dwarf Galaxies a Support for an Alternative Black Hole Theory According to the Quantum Function Follows Form Model.

**19**, viXra:1202.0091

Earth Magnetic Monopole Array Field Interaction with Cyclotron –Synchrotron Electrons and Muon Conversion Used for Levitation Systems.

**18**, viXra:1201.0092

Earth Magnetic Monopole Array Field Interaction with Cyclotron Electrons used for Levitation Systems.

**17**, viXra:1112.0065

LHC Signals Between 121-130 GeV Interpreted with Quantum-FFF Theory

**16**, viXra:1111.0096

Reconciliation of QM and GR and the Need for a Pulsating Entangled CPT Symmetric Raspberry Shaped Multiverse.

**15**, viXra:1111.0061

Black Hole Horizon Curvature Dependent Balance Between Plasma Creation and e-e+ Annihilation in Quantum FFF Theory.

**14**, viXra:1108.0036

Artificial Ball Lightning Production and Exploitation Device for Zero Point Electric Energy Usage.

**13**, viXra:1108.0006

Mass in Motion in Quantum FFF Theory

**12**, viXra:1104.0083

Quantum FFF Theory in Posters.

**11**, viXra:1104.0044

Ball Lightning, Micro Comets, Sprite-Fireballs and X-Ray/gamma Flashes According to Quantum FFF Theory.

**10**, viXra:1104.0002

Stellar Anchor Black Holes as the Remnants of Former Herbig Haro Objects  
**9**, viXra:1103.0097  
ZPE Zero Point Energy Examples Around Black Holes.  
**8**, viXra:1103.0068  
Funktion Follows Form, at the Quantum Scale and Beyond.  
**7**, viXra:1103.0024  
Quantum Gravity and Electro Magnetic Forces in FFF Theory  
**6**, viXra:1103.0015  
Wavefunction Collapse and Human Choice-Making Inside an Entangled Mirror Symmetrical Multiverse.  
**5**, viXra:1103.0011  
An Alternative Black Hole, Provided with Entropy Decrease and Plasma Creation  
**4**, viXra:1103.0002  
3- Dimensional String Based Alternative Particles Model  
**3**, viXra:1102.0056  
Experiments to Determine the Mass Related Lightspeed Extinction Volume  
**2**, viXra:1102.0054  
Atomic Nuclear Geometry Based on Magic Number Logic.  
**1**, viXra:1102.0052  
Construction Principles for Chiral “atoms of Spacetime Geometry

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