

The ALFA Model

Absolute Lab frame & Flexible Aether

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Robert Bennett

robert.bennett@rcn.com

**Truth always on the Gallows;
Lies forever on the Throne**

Blog Links

Progress in the ALFA model and challenges
are posted at

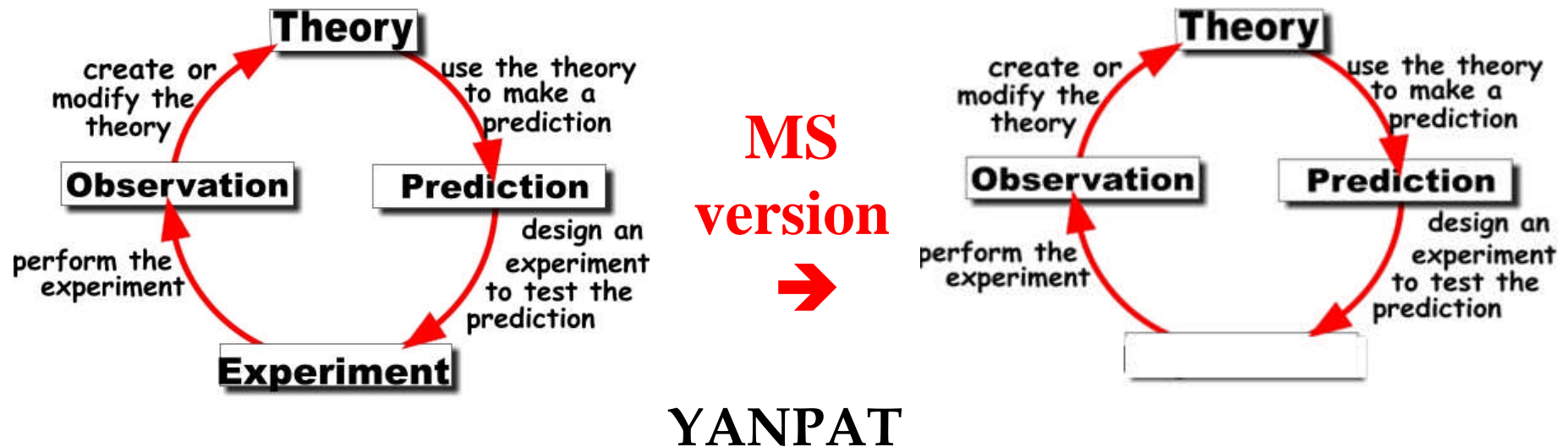
<http://alfachallenge.blogspot.com/>

An ongoing critique of relativity can be found at

<http://mythpages.blogspot.com/>

Video conference

Sept 10, 2011



ALFA - revisits classic interferometer experiments

Rules:

- Scientific Method (pre-modern version)
- Logical Fallacies 101

Handling inconsistency

When a contradiction is found:

- abandon the theory, or
- eliminate the contradiction.

SR premises in conflict

I. $V_{x,y} = -V_{y,x}$ for inertial frames x,y

II. $V_{ph,x} = c$ ph: photon

III. $V_{x,x} = 0$

Let $x = ph$ in these equations.....

From II & III :

$$V_{ph,ph} = c = 0 \quad \text{XXX}$$

From I : $V_{ph,y} = -V_{y,ph}$

But $V_{y,ph}$ is untestable/unfalsifiable

by Sci Meth XXX



The agnostic consequence of ignoring contradictions:
Nothing can be proven true



Let $1 = 0$

But

$$\begin{array}{rcl} 1 = 0 & & \text{False} \\ + 0 = 1 & & + \text{False} \\ \hline 1 = 1 & & \text{True} \end{array}$$

So MS science can prove any test of SR is valid.....
because its basic premises conflict.

Testability: capable of being falsified by a test here and now

Consistency: no contradictions in premises, test or meaning

The dissident paradox - how to recognize violation of relativity?

Principle of relative motion: $V_{x,y}(t) = -V_{y,x}(t)$

If false, there must be at least one case where

$$V_{x,y} \neq -V_{y,x}$$

→ existence of a preferred frame.

**If an absolute frame *abs* exists,
then $V_{x,abs}$ must be used in physical laws.**

Pop quiz: What is $V_{abs,x}$?

Testing for an absolute reference system:

Abs Frame I: $V_{x,y} \leftrightarrow -V_{y,x}$

Abs Frame II: $V_{x,y} = V_{x,abs}$

Abs Frame III: $V_{abs,x} = 0$

Dynamic laws that have a velocity dependence, terms with $F(v)$, will have their simplest form in the preferred frame, where objects at rest will have

$$v = 0$$

EG: the centripetal force $F_c = mv^2/r$

will only be zero when the mass is at rest in the preferred frame.

The Lorentz force will only have an \mathbf{E} field contribution

when the charge q is at rest in the preferred frame,

$$\mathbf{F}_L = q (\mathbf{E} + \mathbf{v} \times \mathbf{B}) \rightarrow \mathbf{F}_L = q \mathbf{E}$$

The Aether model

- A general model of operational behavior, avoiding structural assumptions → errors.
- The raw substance of matter (bound states of aether) .
- Can have any properties that matter has.

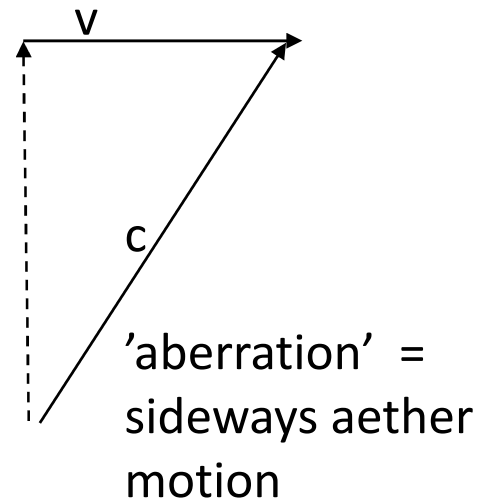
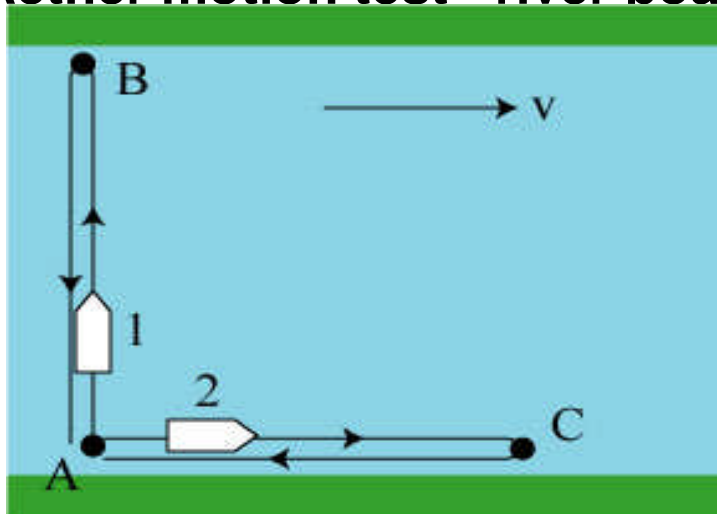
3 types of **aether phases**:

solid like ice, a grid or rigid lattice (Lorentz, Maxwell, M&M)

flexible passive, dragged by mass motion, like water **entrained** by a propeller(Stokes)

flexible active, an autonomous natural flow, like a river, the Jet or Gulf streams (?)

Aether motion test - river boat model



A TWLS test on #2 will not detect the aether speed v , since $\frac{(c+v)}{2} + \frac{(c-v)}{2} = c$

The photon speed for #1 is $(c^2 - v^2)^{1/2} = c(1 - v^2/c^2)^{1/2} \sim c(1 - 2v^2/c^2)$

This change in c of order (v^2/c^2) Michelson and Morely sought to measure.

Early aether tests

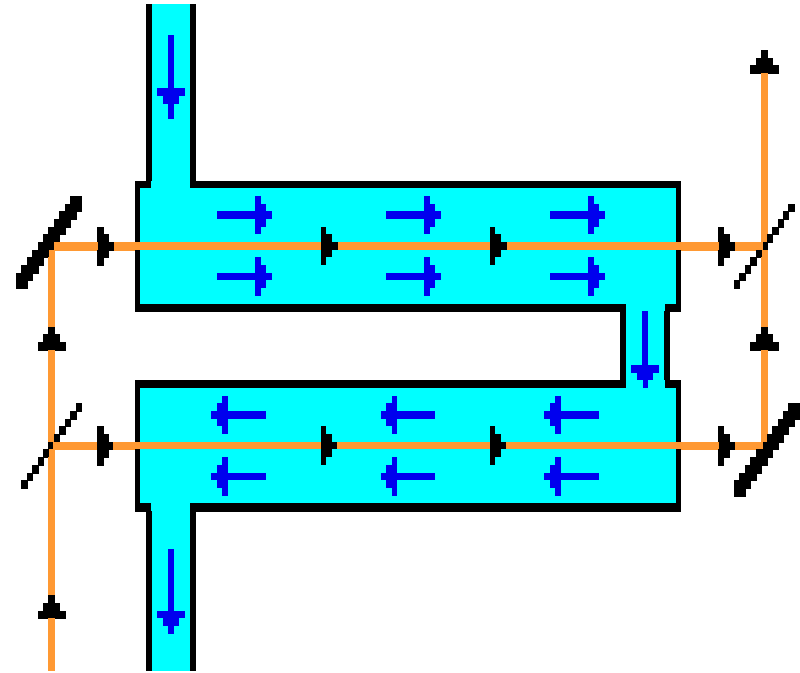
Fizeau water pipes 1861

Fresnel proposed that matter moving at v would partially drag aether along, reduced by the drag factor

$$\left(1 - \frac{1}{n^2}\right).$$

Fresnel's Law :

$$SoL = \frac{c}{n} + v \left(1 - \frac{1}{n^2}\right)$$



$$\rightarrow SoL_{ph,lab} = V_{ph,ae} + V_{ae,lab}$$

Light speed in aether obeys (Galilean) vector addition.

Three notes:

Fiz 1 - Aether is measured within the dragging medium(water)

Fiz 2 – The reference frame is the lab frame!

Fiz 3 – First proof of a flexible aether → aether is NOT an absolute frame!

M&MX– 1886

Earth's annual motion through aether

Assume :

- 1) Copernican HC model
- 2) Fixed aether

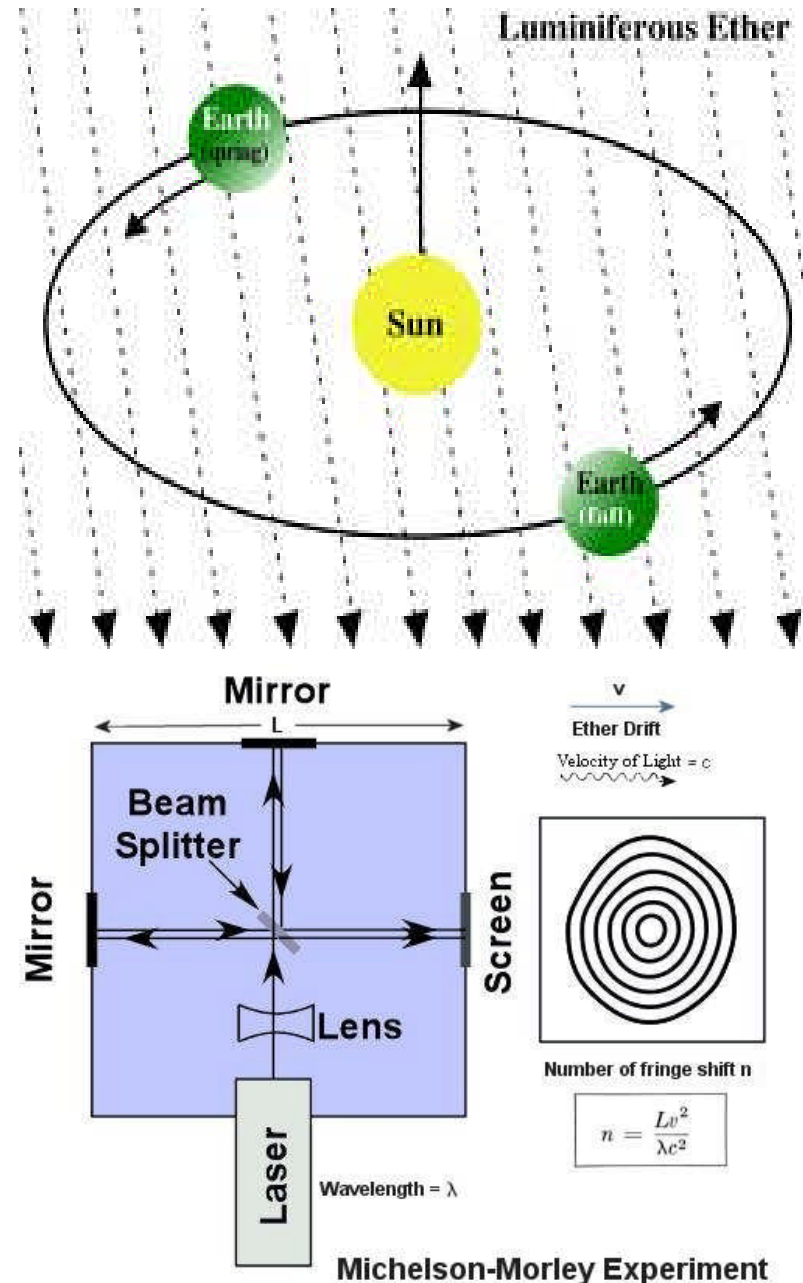
→ daily and annual periodic change in aether direction

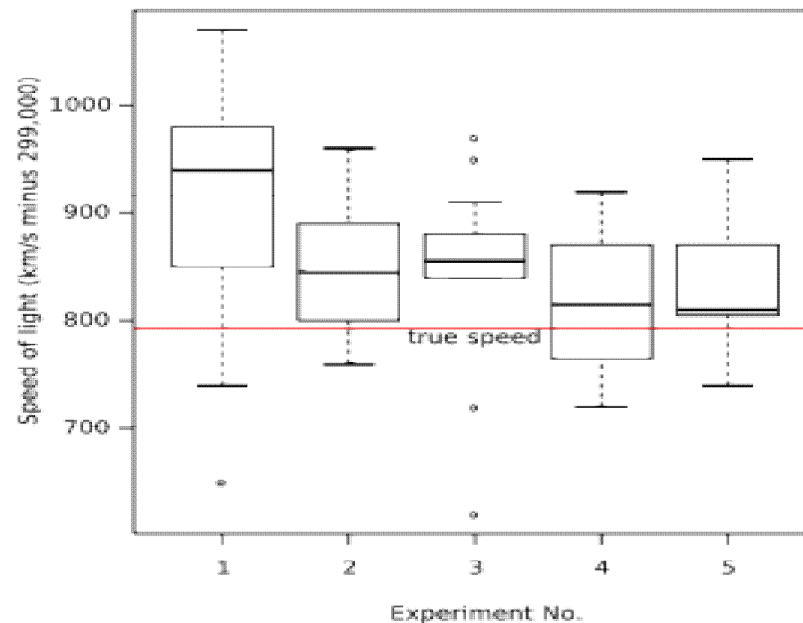
The annual change is due to the orbital speed of 30 km/s.

River & boat analog → aether stream & photon model

Result: aether speed of ~ 5 kms, about 15% of expected.

= 'Null' result??





Box plots from the Michelson–Morley experiment

Four interpretations by Michelson
DID NOT INCLUDE THE OBVIOUS –
Earth and aether approximately at rest

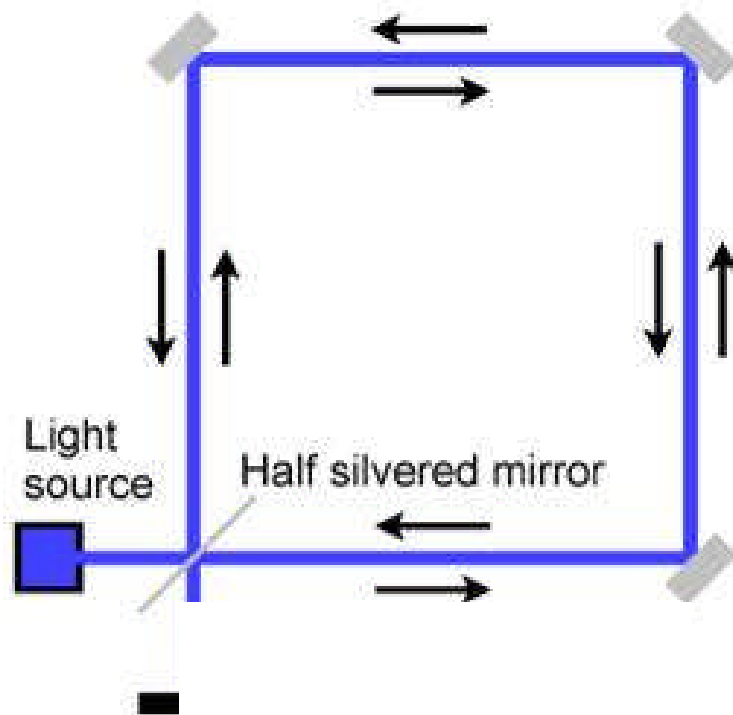
MS conclusion:

There is no aether (Einstein), or
the **Earth and aether are co-moving.** (why not not moving at all ?)

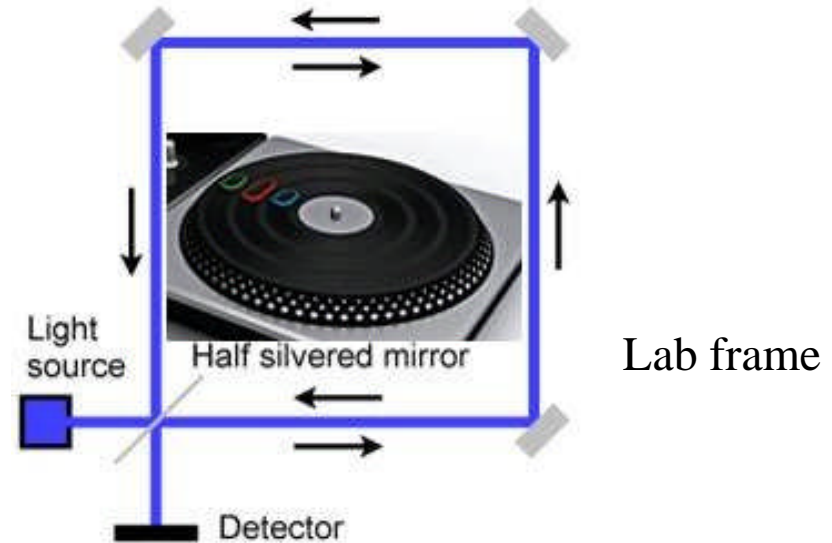
Sagnac – the key test

SagnacX 1913 detects the overlapping pattern of 2 counter-rotating light beams on an interferometer that is

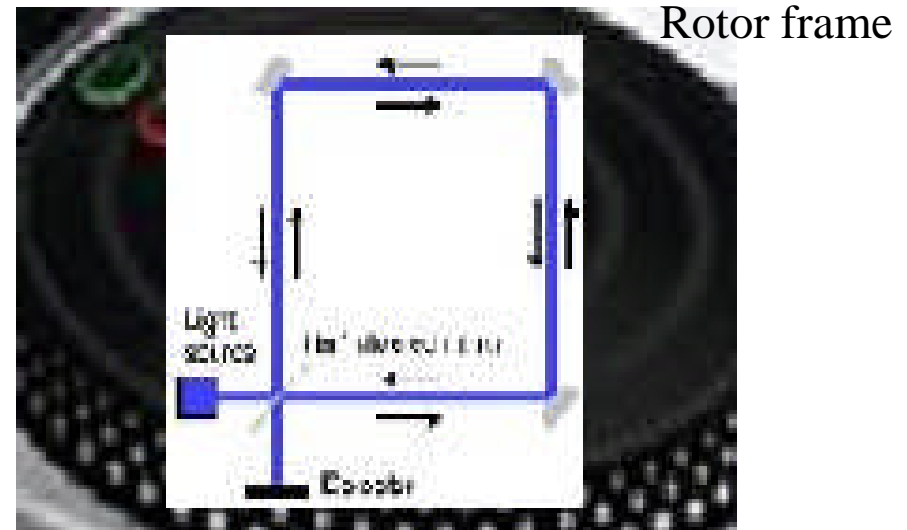
a) stationary in the lab frame



b) rotating in the rotor frame



Lab frame



Rotor frame

SR: $\text{SoL} = c$, always

Sagnac: The SoL is anisotropic

- it is not c in either frame!

SR !

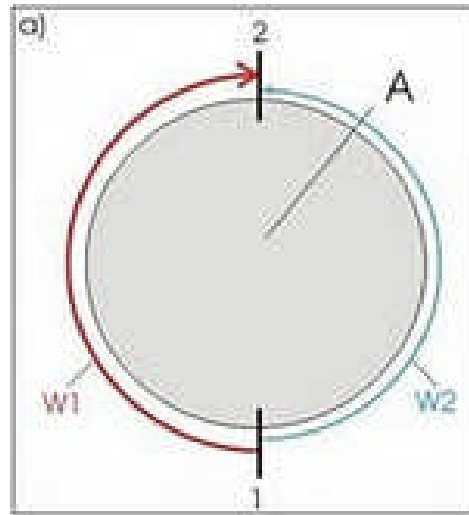
| | | |
|---------|----------------------------|-------|
| Results | LAB | ROTOR |
| | (for the co-rotating beam) | |

$$\text{SoL} = \quad c + v \quad c + v$$

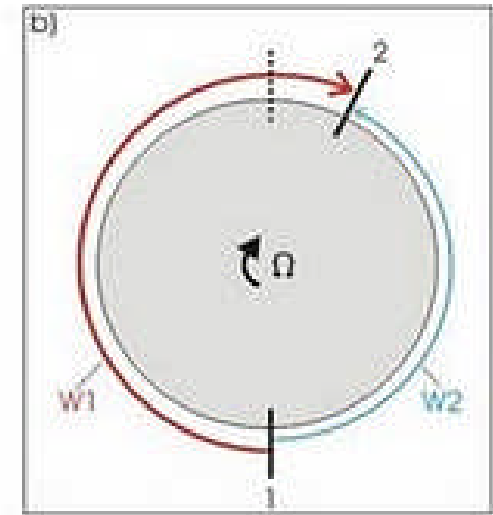
Sagnac concluded that:

- rotation fully entrained the aether in the nearby space at the speed $\mathbf{v} = \mathbf{r}\omega$ (FizeauX showed partial dragging within the dielectric)
- SoL change was due to aether motion in the optical path, either a boost (+) for co-rotation or a reduction(-) for counter-rotation.
- SoL was independent of both source and detector speed

MS relativist reaction: All consistent with SR!



No rotation, then



CW rotation

in both frames

The ALFA model

Absolute Lab/Flexible Aether

Premises :

1) Light speed in aether is always c (c/n in dielectric)

$$V_{ph,ae} == c$$

2) Galilean velocity addition is valid: (based on Fizeau's exp.)

$$\begin{aligned} SoL &== V_{photon,aether} + V_{aether,reference\ system} \\ &= V_{ph,ae} + V_{ae,x} = c + V_{ae,x} \end{aligned}$$

Alternate Sagnac theories

SPECIAL RELATIVITY is invalid

→ There must be some preferred frame abs in which

$$V_{abs,x} = 0 \quad \text{and} \quad V_{x,abs} \neq 0$$

$$V_{abs,x} \neq -V_{x,abs} \quad \& \quad V_{x,y} = V_{x,abs}$$

RITZ BALLISTIC is invalid

- claims the SoL depends on the source's speed.

STATIC RIGID AETHER is invalid $V_{ae,lab} = 0; V_{ae,rot} = 0$

Prediction: $So_{lab} = V_{ph,ae} + V_{ae,lab} = c + 0 = c$

Sagnac result: $So_{lab} = V_{ph,ae} + V_{ae,lab} = c + v$

Dynamic Aether Summary



For

- lab frame : Aether speed = v (measured)
- on rotor : Aether speed = zero (predicted)

NO! Aether speed still measured as v !
same as lab frame speed!

Another dead end?

EUREKA!

The lab/ECEF frame has absolute properties.
..... Only aether motion in lab is observed.

Non-lab frames measure aether motion
ONLY from the lab view.



Dynamic aether with full dragging:

Sagnac data: $V_{rot,lab} = v$

Sagnac's insight: aether co-rotates with rotor

→ $V_{ae,lab} = v$ and $V_{ae,rot} = 0$

Applying the dynamic aether assumptions:

The lab $SoL = V_{ph,ae} + V_{ae,lab} = c + v$

agrees with SagnacX ... \checkmark

The rotor $SoL = V_{ph,ae} + \underline{V_{ae,rot}} = c + 0$ not v ??

→ $V_{ae,rot} = 0$ must equal v to agree with results

→ Conflicts with the dragging assumption,

$$V_{ae,rot} = 0$$

Can aether speed = v in both frames,
even if they are in relative rotation ?!

YES! Recall .. SR was refuted → preferred frame must exist.

Compare with the Abs. Frame condition II : $V_{x,y} = V_{x,abs}$

$V_{ae,rot}$ and $V_{ae,lab}$ both equal v ! → $V_{ae,rot} = V_{ae,lab}$

→ $lab = abs$ Lab is the *absolute* frame !

From vector analysis, $V_{ae,rot} = V_{ae,lab} + V_{lab,rot}$

Substituting $v = v + V_{lab,rot}$

→ $V_{lab,rot} = 0 \neq V_{rot,lab} = v$

In the rotating frame the lab is at rest!

If relativity were true $V_{lab,rot}$ would equal $-v$, not 0.

As the rotor can have any speed the result is general:

ABSOLUTE REST THEOREM:

$$\underline{V_{lab,x} = 0}$$

The lab is always at rest with respect to any rotating system, when applying EM laws.

The Earth is the frame of absolute space sought by Newton and rejected by Einstein.

Conclusion:

Only the Absolute Lab (ECEF) frame with
Flexible Aether model agrees in both frames
with SagnacX:

$$Sol = c + v$$

and with similar tests—
M&MX, R.Wang FOC, Dufour&Prunier, etc.

The SoL is $c + v$ for the co-rotating beam,
in both lab and rotor frame,
independent of source and detector motion, but
DEPENDS ON AETHER MOTION IN THE LAB FRAME.

Reality vs. Phenomena

Air-water view: apparent length

All air view : true/real length

aether density: refraction

aether motion : anisotropy, aberration



Absolute Time in ALFA

The conditions for having an absolute chronometer:

- Stable
- Global synchronization
- Autonomous operation
- Universal accessibility across the world
- Immunity from environmental changes

Stellar rotation provides a universal master clock in the time domain.

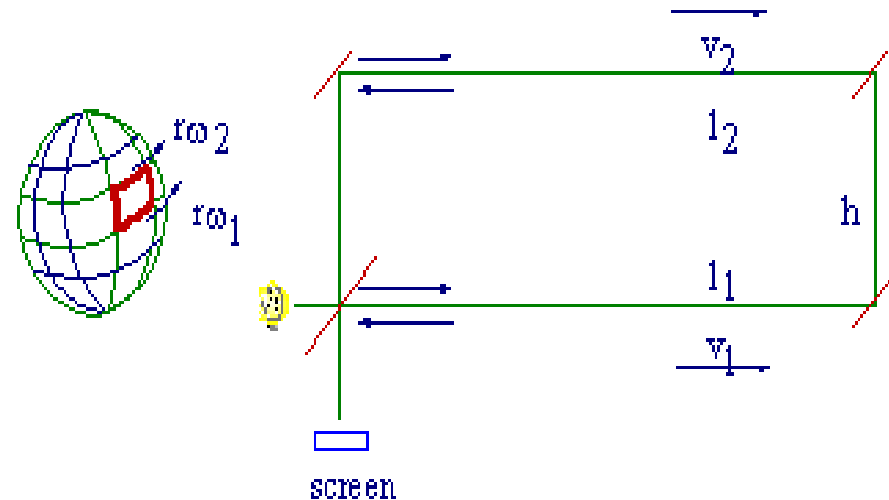
..... atomic/EM clocks introduced in 1960s

Absolute time = astronomical/stellar/cosmic time

Michelson-Gale 1925

A Sagnac macro test
to detect Earth's rotation,
which decreases
with latitude

optical path: 1.2 mile pipe



Mic-Gale took result as the Earth's rotation,
BUT

Sagnac's result showed the Earth doesn't rotate.

Overlooked/ignored:

Could be aether rotation westward around a static Earth
rotation detection by light requires an aether medium.

Test result

$$SoL = c + r\omega = c + v$$

r is the distance to polar axis

ω is the sidereal angular velocity

from ALFA : $SoL_{lab} = c + V_{ae,lab}$

from the test result: $SoL_{lab} = c + v$

$$\Rightarrow V_{ae,lab} = v$$

v = aether flow near the ground

Conclusion: an autonomous aethersphere rotates westward at every latitude in one sidereal day.

A natural wind, not forced

the analog of rivers or the Jet and Gulf streams.

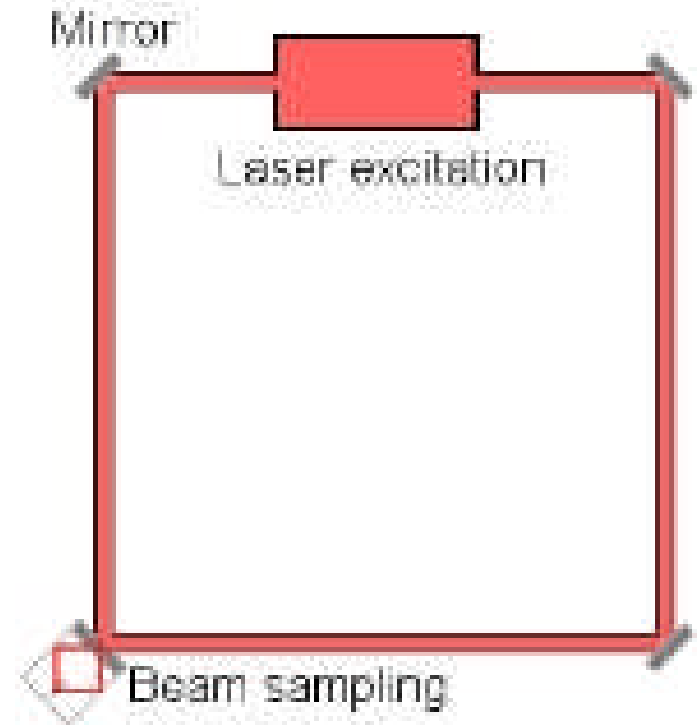
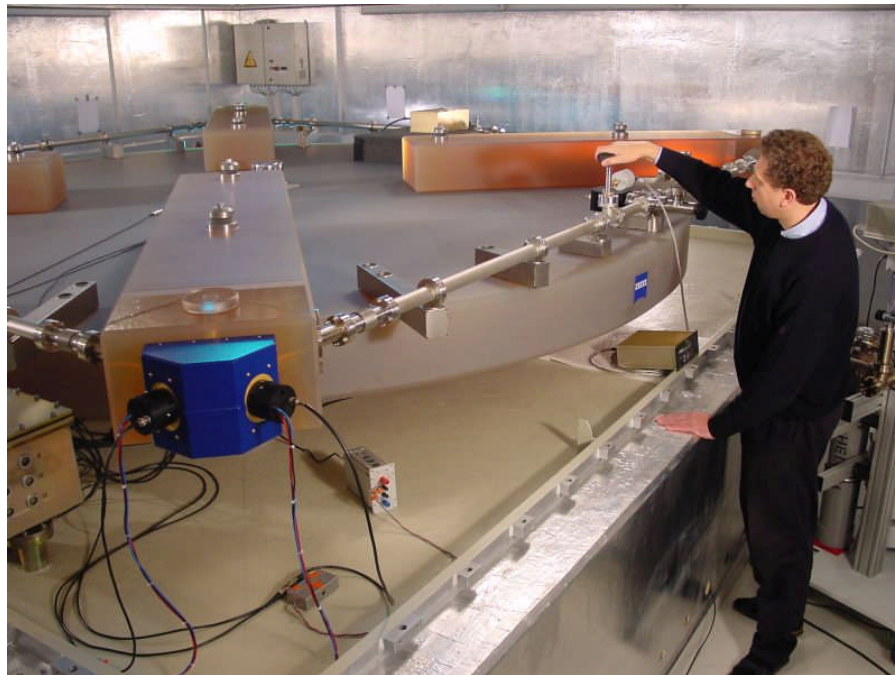
More evidence: GPS “Sagnac” effect; E-W radio signal delay;

Foucault pendulum

What's rotating.... Earth or Ether?

If Earth..... Then a static Earth is the absolute frame!

Ring laser gyro - Univ of Canterbury NZ



Earth's ω is 10 times $>$ ring laser's sensitivity

More Empirical Support

M&M Redux

Why did M&M get a null result?

ALFA model/Sagnac result:

$$O(v/c)$$

M&M 'null' result:

$$O(v^2/c^2)$$

aether surface speed is $\ll c \rightarrow V_{ae,lab} \sim 0$

(beyond the M&MX testing limits)

ALFA explains the null result as a motionless Earth and slow aether.

$$SoLlab = c + (\sim 0)$$

Dufour & Prunier 1937

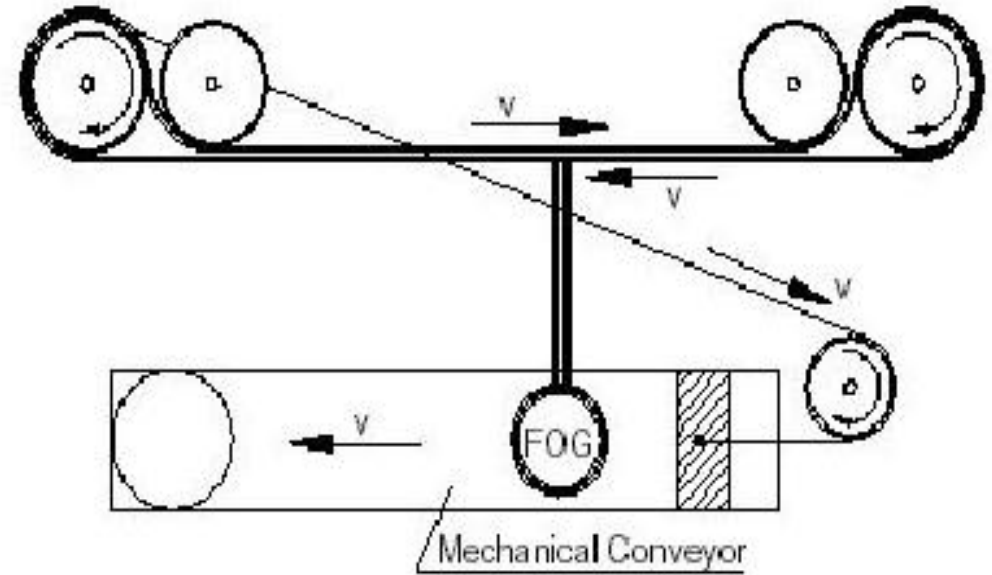
- extended Sagnac, with important additions.
- The lab and rotor frame SoLs are equal.

$$SoL_{lab} = SoL_{rot} = c \pm V_{ae,lab}$$

- No change with optical parts mix of lab and rotor
- The effect extended at least 10 cm from the rotor

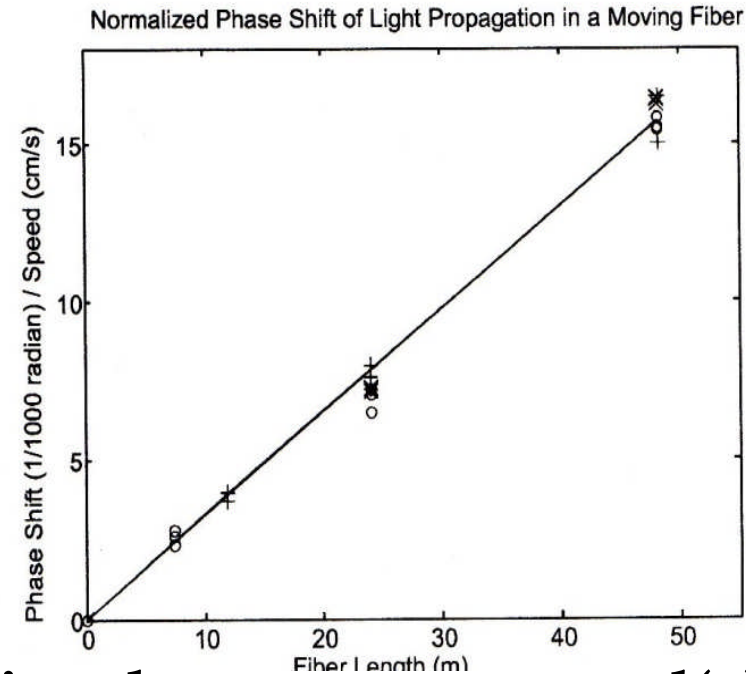
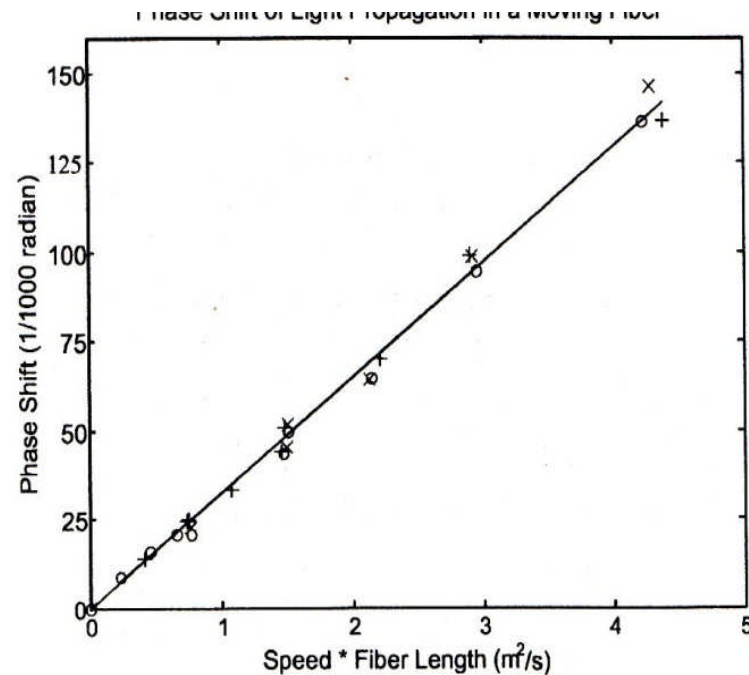
Ruyong Wang FOConveyor- 2005

SagnacX only held for rotational drag aether.
But Wang got same result for linear drag.



Improvements:

- the Fiber Optic Gyro - FOG
- Fiber optic guides, not mirrors
- Multiple coils to amplify the phase shift,
like a transformer secondary coil



The phase shift(y) is proportional to conveyor speed(x). ...

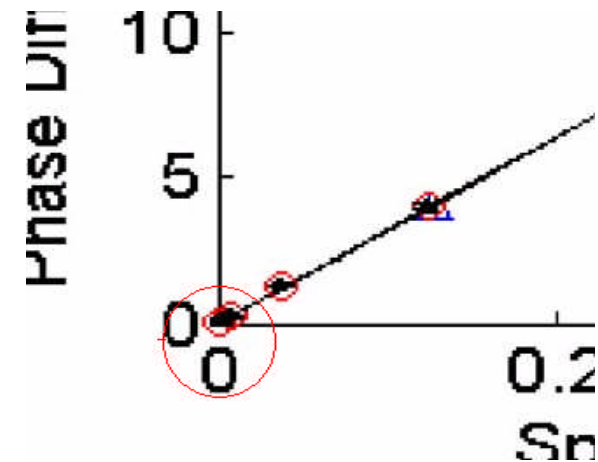
$$\text{Phase shift} \sim vL$$

Same cause as Sagnac X.....

matter drags aether at the same [linear] speed

=> Sagnac effect independent of rotation

NOTE: Graph clearly displays
zero speed in the lab frame.....
no orbital/galactic/CMB motion!



**The absolute speed of the lab frame is
ZERO (0) !**

Conclusion:

The ALFA model is not restricted
only to photons in rotating aether....
holds for ALL aether motions.

The ALFA model axioms are:

1) Light speed in aether is always $c \Rightarrow$

$$V_{\text{photon,aether}} = V_{\text{ph,aether}} = c$$

2) Absolute velocity addition: (lab = ECEF frame)

$$SoLx = V_{\text{photon,aether}} + V_{\text{aether,lab}} = c + V_{\text{ae,lab}}$$

3) Absolute Rest theorem:

$$V_{\text{lab,x}} = 0$$

The lab/Earth is universally at rest

4) ALFA theorem:

$$SoLx = c + V_{\text{ae,lab}}$$

Whatever reference frame is used, light speed only depends on aether speed in the lab frame.

5) Absolute time:

$$Tx = T_{\text{astro,lab}}$$

measured with the aethereal motion of the stars

.... cosmic time

The universal ALFA

Sagnac's result has been applied to matter-waves –
Ca atoms, neutrons and electrons.

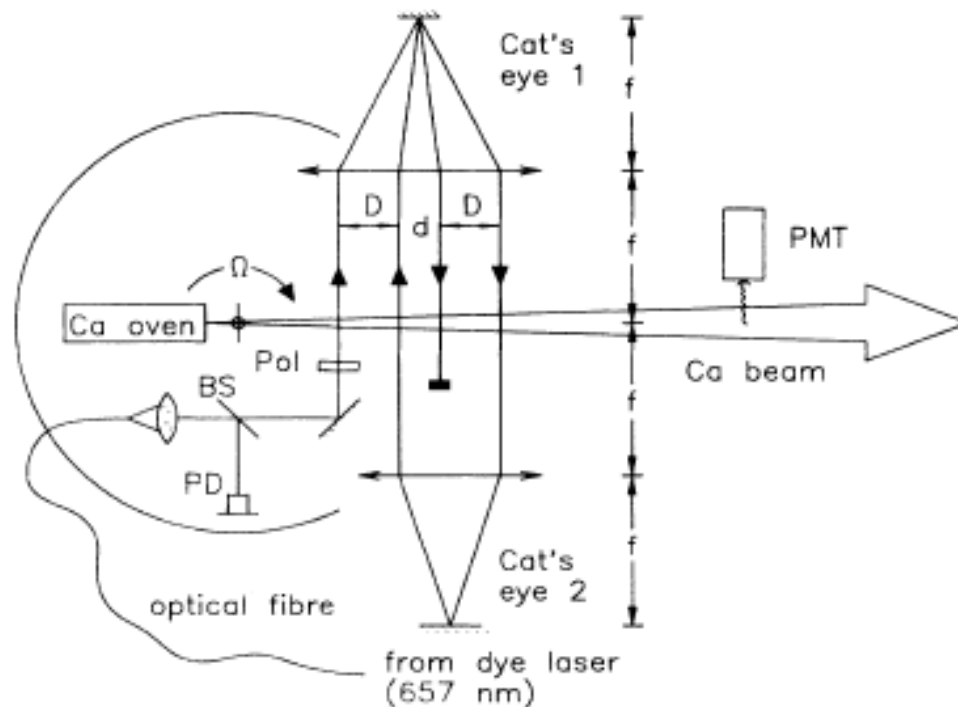
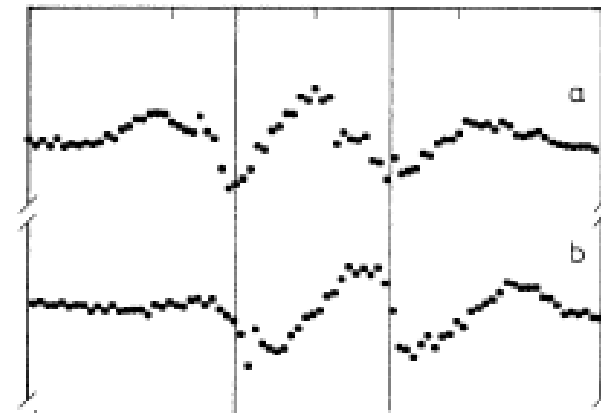


FIG. 1. Experimental setup to record optical Ramsey fringes in a calcium atomic beam by means of four traveling waves in a rotating system (see text).



Beam shifts right
from top to bottom

Summary: The ALFA formula for photons ,

$$SoL = c + / - V_{ae,lab}$$

is replaced by

$$SoM = V_{m,ae} + V_{ae,lab} = V_{max} + v$$

ALFA model applies to:

- rotation and translation
- photons and particles

Conclusion:

ALFA is a general relationship between moving aether and objects in the lab frame.

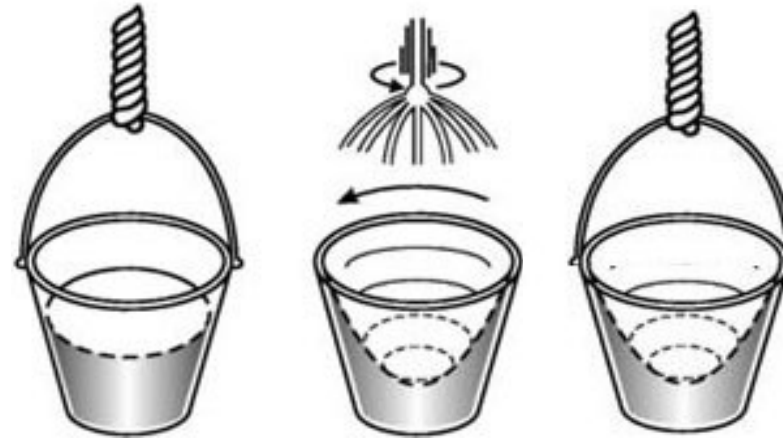
Newton's spinning bucket ...

Spinning bucket (simplified)

Newton: evidence of absolute space

Mach and Bishop Berkeley:
relative rotation caused by
distant matter

Analyze in lab and bucket frame,
as with Sagnac.



bucket ~ rotor; water motion detects aether entrainment ~ light beam

Bucket drags aether at $v \rightarrow$ aether drags water at $v(1-1/n^2) \rightarrow$ vortex forms

When bucket rotation stops, vortex still indicates rotation !

..... with respect to what ?? **LAB FRAME!**

Analysis of mid position in bucket frame.....

Lab frame : middle position

$$\begin{aligned} V &= \text{speed of bucket in lab frame} = V_{b,l} \dots \\ &= \text{speed of water} = V_{w,l} \dots \\ &= \text{speed of aether} = V_{a,l} \end{aligned}$$

Bucket frame: ... centered any place on the
bucket axis

We expect $V_{w,b} = 0$, since $V_{w,l} = v$

→ $V_{a,b} = 0$, since aether drags the water

But the real motion is rotation, as vortex proves!

→ $V_{w,b} = v = V_{a,b} \neq 0$

..... Same anomaly as Sagnac!

To obey the laws of physics

bucket aether motion data must convert to lab motions

So

$$V_{x,b} = V_{x,lab}$$

Lab frame motion must be zero, so

$$V_{l,x} = 0$$

The speed of an object in frame x is computed from the Galilean law ...

$$V_{x,l} = V_{x,a} + V_{a,l}$$

These three mechanical results in red agree with Sagnac analysis and are consistent with an EM ALFA model.

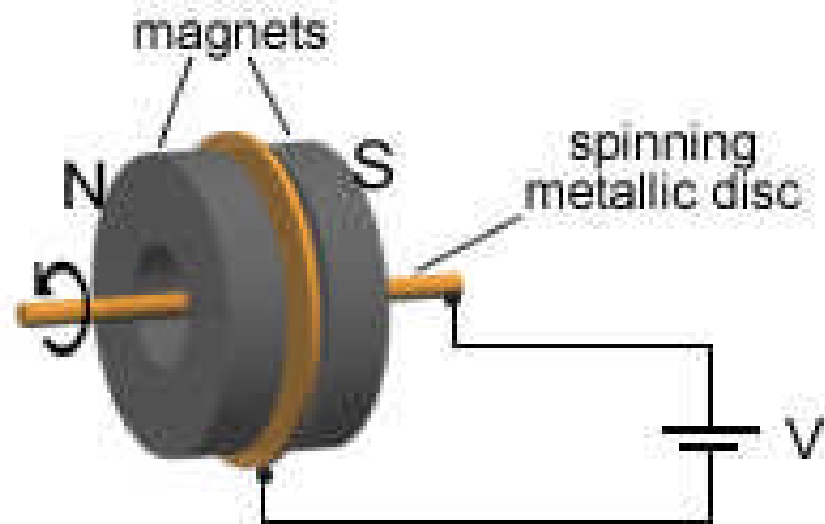
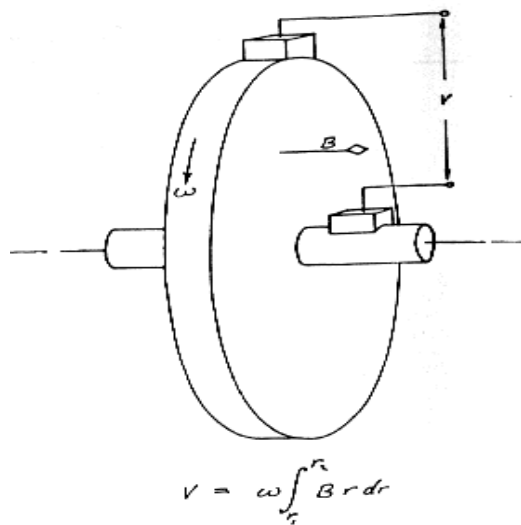
Conclusions:

- **A flexible aether is consistent with the bucket result.**
- **Aether can drag matter, as well as the reverse,
as was seen in SagnacX and FizeauX. (Newton's 3rd law)**
- **Newton was right... almost. His vague concept of absolute space is actually the lab/ECEF frame - the absolute frame for measuring motion of aether.**

Faraday Rotor Generator 1831

An induced emf/current is produced if a joined conductor and magnet are rotated with no relative motion, but spinning together in the lab frame. This is contrary to Faraday's and Maxwell's laws.....

but in agreement with ALFA and Hertz's EM equations.



Maxwell's equations

Gauss's law

$$\nabla \cdot \mathbf{E} = \frac{\rho}{\epsilon_0}$$

Gauss's law for magnetism

$$\nabla \cdot \mathbf{B} = 0$$

Faraday's law of induction

$$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}$$

Ampère's circuital law

$$\nabla \times \mathbf{B} = \mu_0 \mathbf{J} + \mu_0 \epsilon_0 \frac{\partial \mathbf{E}}{\partial t}$$

Assumptions: a **stationary inflexible EM aether** as reference frame

But tested under **lab conditions**!

... Yet they are applied – unmodified – in many other frames, inertial and not.

Invariance test

| Laws | Galileo | Lorentz |
|------------|---------|---------|
| Maxwell EM | No | Yes |
| Newton GI | Yes | No |

Focus on making mechanics invariant under Lorentz transforms....

But there was little interest in making Maxwell's laws Galilean invariant.

.....huge ambiguity about aether and the environment:
the reference frame(s) for source, detector and aether .

Hertz replaced partial with total temporal derivatives in Maxwell's law....

$$\partial/\partial t \rightarrow d/dt = \partial/\partial t + \mathbf{V} \cdot \nabla$$

ALFA takes the convective term to be the aether velocity in the lab frame,

$$\mathbf{V} = \mathbf{V}_{ae,lab}.$$

Faraday's law becomes

$$\nabla \times \mathbf{E} = - d\mathbf{B}/dt = \partial\mathbf{B}/\partial t + \mathbf{V} \cdot \nabla \mathbf{B}$$

=> invariant under Galilean transforms to first order in v/c .

The history of EM neglected Hertz and elected Maxwell to prominence

Maxwell's forms are valid as a subset of the more general Hertz equations...
when the aether velocity $\mathbf{V}_{ae,lab}$ is zero in the laboratory.

Hertzian EM laws

$$\begin{aligned}\nabla \cdot \mathbf{E} &= \rho/\epsilon_0 & \nabla \times \mathbf{E} &= \partial \mathbf{B} / \partial t + \mathbf{V} \cdot \nabla \mathbf{B} \\ \nabla \cdot \mathbf{B} &= 0 & \nabla \times \mathbf{B} &= \mu_0 \mathbf{J} + \mu_0 \epsilon_0 (\partial \mathbf{E} / \partial t + \mathbf{V} \cdot \nabla \mathbf{E})\end{aligned}$$

Hertz took aether to be dragged fully within matter – the Stokes hypothesis
– disproven later in the Fizeau test

His error was aethereal interpretation, not the insight of his convective modification of Maxwell's equations.

Maxwell's equations have no explicit dependence on motionon velocity. The Lorentz force equation does, and its Galilean transformation from the aether frame (no prime) to the lab frame (primed) is instructive, when $\mathbf{V} = \mathbf{V}_{ae,lab} \neq 0$

$$\mathbf{F} = q(\mathbf{E} + \mathbf{V} \times \mathbf{B}) \implies q'[\mathbf{E}' + \mathbf{V}' \times \mathbf{B}'] = q[\mathbf{E} + \mathbf{V}_{q,lab} \times \mathbf{B}]$$

where $\mathbf{V}' = \mathbf{V}_{q,lab} = \mathbf{V}_{q,ae} + \mathbf{V}_{ae,lab}$
and the charge and fields are invariant in the Galilean transform.

The lab frame removes the ambiguity about reference frames when applying EM laws.

Conclusion: The Hertzian EM equations predict the Faraday anomaly, if the convective velocity is the speed of aether in the lab, $\mathbf{V}_{ae,lab}$

Some slight consequences of the ALFA paradigm

Relativity refuted.

Big Bang fizzles.

Cosmological Principle is found to be unprincipled!

Aether waves cause QED enigmas.....Entanglement...

Newton's 3 laws now include aether effects.

Kinetic energy is anchored, absolute meaning of rest.

All physical laws involving speed must use lab frame:
Centripetal, Coriolis, Lorentz forces.

Lorentz transforms - inertial frames - Riemannian
geometry - Minkowski space –
are of no physical importance..... Math curios.

Mach's principle disproven – rotation is not relative.

Vae,lab has no known limit..... Cosmology revision!

Conclusions

SR is inconsistent and invalid.

Aether exists, is flexible, both actively and passively, and is
NOT the absolute reference frame.

For all types of motion the laboratory /Earth Centered Earth Fixed (ECEF)
reference frame is preferred.

Astronomical time is the absolute time base.

ALFA challenge

Responses are solicited that refute this model...

Please stick to objective evidence using the scientific method and logic.

References

Progress in the ALFA model will be posted at

<http://alfachallenge.blogspot.com/>

An ongoing critique of relativity can be found at

<http://mythpages.blogspot.com/>

Paradigm buster

- Existence of
 - Dynamic aether
 - Absolute frameBut not the same!
- 2 aether types active /passive
 - Dragged/entrained
 - Autonomous/natural
- Absolute frame is....an object in the aether
Mother Earth!

Reaction.....

As if told late in life that you were adopted!

**Truth always on the Gallows;
Lies forever on the Throne**