The Lorentz Transformations of Mass, Space, Time, and Gravity

$$m' = M/\sqrt{1-v^2/c^2}$$

A moving body's kinetic mass m' is equal to its zero momentum rest mass M divided by the square root of one minus its absolute velocity squared v^2 divided by the speed of light squared c^2.

A Lorentz Transformation Thought Experiment
GPS Clock Calculations
A Triplet Paradox Experiment

The Lorentz transformation of mass equation is a principle of measurement that is classed as one of the laws of physics like linear momentum ($p = mv$), angular momentum ($I\omega = mvr$), Force ($F = ma$), acceleration ($a = s/t^2$), ($Energy/Mass = C^2$) of matter, ($E/M = cC$) of photons, and the ($E/M = c^2$) of the momentum of moving bodies. The Lorentz transformation combines the above seven laws of experimental physics for the calculations of the conservation of momentum. It comes into play whenever a body of mass undergoes measurable acceleration or deceleration. This equation calculates the changes in a body's mass that occur with measured changes in its momentum. When a body is accelerated, its mass increases and when it is decelerated, its mass decreases to a minimum at Zero Momentum Rest.

Energy/Mass is the Fundamental Component of Reality

When Einstein borrowed the old equation $e = mc^2$ as the fundamental metaphysical assumption for the massless photon in his Special Relativity theory, he made a mistake in imagining that energy and mass could be physically separated as stand alone entities. Energy and mass are always equal in every conceivable experimental measurement and calculation of a Lorentz transformation. Energy and mass are the same thing cannot be separated in any way except as concepts in equations to measure their values separately. The are like the two sides of a coin. We can examine the "heads" side or we can examine the "tails" but there is no conceivable way that we can physically separate them.

There are three ways that the Energy/Mass of atoms and photons are calculated and measured. The rotational $E/M = CC$ of atoms at rest where the mass of the circlon shapes of electrons and protons is spinning at rotational C in two different directions. The linear $E/M = c^2$ of the momentum of atoms in motion and the equal in linear and rotational $E/M = cC$ of photons. ($e = mc^2/2 + e = mC^2/2 = mcC$). When the Energy/Mass of a body is measured, the result is always the angular momentum of a rotating body or the linear momentum of a body in motion. A photon has two equal quantities of energy from the linear and rotational motions at c and C of a single mass.

For an example of the differences in Energy/Mass consider a spaceship moving at 86.7% c. The Energy/Mass = c^2 of the rocket's linear momentum (kinetic mass increase) would now be equal to the Energy/Mass = CC of the angular momentum of the rocket's atoms. At this point, the rocket's linear E/M = c^2 would be equal in measured value to the rotational E/M = C^2 of all its atoms. This doubling in mass of the craft and the components of its clocks causes the length of recorded clock intervals to double as their rate slows to one-half. Clocks must slow when their linear momentum is increased while their angular momentum remains conserved and constant.

There has never been a fundamental definition of "energy" other than to say it can only be measured as a two-way force producing two equal and opposite changes in momentum that can also be calculated and measured as two unequal quantities of kinetic energy. Energy is just a secondary component of momentum and only becomes momentarily real and measurable during dual equal changes in momentum produced by a force caused by a change in momentum. A single force is measured as two unequal energies. The force of gunpowder in a cannon produces two exactly equal and opposite momenta in cannon and cannonball but the cannonball has far greater kinetic energy than the recoiling cannon.

The Lorentz transformation of time ($t' = T /\sqrt{1-v^2/c^2}$) calculates the length of a clock's time intervals as it slows down or speeds up in direct proportion to increases or decreases of the Energy/Mass of the clock's momentum vector relative to Zero Momentum Rest. When a 1 kg clock is accelerated, its mass increases and its time intervals grow longer. When a clock is decelerated, its mass decreases back to m = 1 kg at rest and its time intervals grow shorter to a maximum rate and minimum interval of t' = 1.0. When the clock reaches ZMR and has no linear momentum to dilate its intervals.

This change in the duration of clock intervals has nothing to do with the imaginary concept of "metaphysical time itself". Motion induced changes in clock rates are simply the mechanical effects of the conservation of angular momentum on the increasing or decreasing mass in the clock's internal moving mechanisms. As a clock's linear Energy/Mass (momentum p = mv) increases with increasing velocity, the rotational Energy/Mass (angular momentum Iω = mvr) of its rotating and vibrating components remains constant. It is the conservation of angular momentum that causes the components clocks and atoms to slow their rotational motion and increase the intervals of time that they record. This process is reversed when clock is decelerated and the lengths of its recorded intervals are decreased.

The Lorentz transformation is a principle of measurement and not a theory. It is simply the equation for calculating the conservation of momentum with the measured values of mass, space, time, and gravity. To obtain correct values for momentum vectors, the equation must be used whenever acceleration and deceleration are measured. At low velocities, changes in mass are insignificant but real. They are carefully measured with GPS clocks and in the direct and transverse photon Doppler shifts of the Pound-Rebka experiment.

While Einstein incorporated the Lorentz transformation into both of his relativity theories as a principle of measurement, it is not a component of the metaphysical assumptions made in either the special or general theories of relativity. He borrowed the Lorentz equation for calculations of his own metaphysical assumptions about the force and motion of atoms, photons, and gravity. All physical theories of gravity and physical motion must use the equation to get accurate measurements.

The Lorentz transformation of mass, space,and time does not produce a physical change in the length of rulers but rather a change in the parameters of the measurement process. If moving observers use a laser range finder to measure the length of an extended body, their slowed clocks would cause them to measure either a contraction in the body's length or an increase in the speed of light.

Einstein's 1st Postulate Falsified

Contrary to Einstein's 1st postulate, the slowing of clocks due to increased momentum provides an experimental method for astronauts inside their ship to measure their absolute velocity relative to ZMR but not the direction of that motion. If they were moving at 1/2 c, they would measure the speed of light in any direction to be 1.15 c. The speed of light does not change but the astronaut's slowed clock makes it appear to speed up. The speed of light is measured to have a different value in every moving frame.

Complementary Measurements of Relative Motion

Both $m' = M/\sqrt{1-v^2/c^2}$ and $t' = T/\sqrt{1-v^2/c^2}$ determine the inertial frame for each body of mass such as an atomic clock. There are an infinite number of inertial frames with different values for their momentum vectors $p = mv$, but the cosmos contains only a single Zero Momentum Rest frame where $p = 0$, $v = 0$, $m' = 1$, $M = 1$, $t' = 1$ and $T = 1$. The values of p, v, m', and t' are changed in every other imagined moving frame.

All clocks with the same ZMR velocity (v) have the same mass increase and increased clock intervals regardless of the direction of their motion. It is the absolute velocity of a clock's momentum vector that determines its mass value and time intervals and not the relative velocity between any two bodies. Two clocks can be moving side by side at $v = x$ and have no relative velocity between them or they can be moving in opposite directions with a relative velocity of v = 2x. In both cases the values for their mass and time intervals will be the same.

Even though the relative motion between bodies in two moving frames has no effect on their mass and time, it is the only component of each body's absolute momentum vector that can be measured. The experimental process is unable to separate a single measured acceleration vector into the separate components of its absolute acceleration and deceleration vectors that produce changes in a clock's mass and time intervals.

A Lorentz Transformation Thought Experiment

The following experiment allows observers to separate absolute motion from relative motion. It demonstrates that Lorentz transformations always establish absolute momentum and never relative motion.

Imagine two pairs of spacecraft containing Cesuim-133 clocks and technicians. Each pair of craft is separated by some distance and moving toward one another at a measured relative velocity of 1 km/s. One craft is at Zero Momentum Rest with a velocity of v = 0 while the other is moving toward it at v = 1.0 km/s. The second pair of spacecraft are moving nearly side by side at v =150,000 km/s (1/2 c) and v = 150,001 km/s respectively. From their relative motion, we must conclude that each pair of clocks is moving along separate momentum vectors that are nearly identical. In each case, the technicians measure them to be moving toward one another with an average relative velocity of v = 1.0 km/s.

In the course of the experiment, the two crafts move close together, pass, and then move farther apart. The purpose of the experiment is to acquire information about the true absolute motion of each of their clocks. The technicians use Doppler shifted photons to monitor their changing relative motion as they pass. This relative velocity measured with Doppler shifts is only valid for individual points in time. Photons are blue-shifted as the clocks approach and then are red shifted as they recede from one another. At the time interval when the two ships pass, there are no Doppler shifts between them (except for minor transverse shifts) indicating they have no relative motion. However, when all of the Doppler measurements are calculated together, it is determined that the two ships's average relative velocity is v = 1.0 km/s.

At the point where the spaceships pass, it is easy for the technicians to compare the difference in their clocks' intervals and determine their true absolute velocities. If one clock is actually at rest with a mass value and time interval of t' = 1.0 and the other has an absolute velocity of v = 1.0 km/s, then the mass and time interval of the moving clock would be m' & t' = 1.0000000000056. However, with one clock moving at 150,000 km/s and the other moving at 150,001 km/s, then the first clock would record time intervals of 1.15470054 and the second clock's intervals would be 1.15470310. The difference in clock rates between a v = 1.0 km/s relative velocity at rest and a v = 1.0 km/s relative velocity at 1/2 c is enormous. The clock interval increase for 1.0 km/s at ZMR is more than 5 orders of magnitude smaller than the difference in intervals for v = 1.0 km/s of relative motion between clocks moving at v = 1/2 c.

Lorentz Transformation Mass and Time Values for 1/2 c

Mass of Clock at 1 km/s--------------- $m' = M/\sqrt{1-v^2/c^2}$ = 1.0000000000056 kg
Clock interval for 1 km/s ------- $t' = T/\sqrt{1-(1\text{ km/s})^2/c^2}$ = 1.0000000000056
Mass of Clock at 150,000 km/s------ $m' = M/\sqrt{1-v^2/c^2}$ = 1.15470054 kg
Mass of Clock at 150,001 km/s------ $m' = M/\sqrt{1-v^2/c^2}$ = 1.15470310 kg
Clock interval for 150,001 km/s -$t' = T/\sqrt{1-(150{,}001\text{ km/s})^2/c^2}$ = 1.15470310
Clock interval for 150,000 km/s -$t' = T/\sqrt{1-(150{,}000\text{ km/s})^2/c^2}$ = 1.15470054
Difference in clock intervals of 150,001 km/s & 150,000 km/s ---.00000256
Difference in clock intervals of v = 0 km/s & v = 1 km/s----.0000000000056
Difference in mass increase for v=1 between v =1 and v =150,001-- 457,142
A 1 km/s velocity increase at 1/2 c produces 457,142 times more kinetic mass than a 1 km/s velocity increase from rest.

The Zero Momentum Rest Frame of Atoms and Photons

The idea of a zero momentum rest frame $m' = M/\sqrt{1-0^2/c^2}$ is a metaphysical principle for the mass and clock intervals of m', M, t', & T, all = 1.0. This imaginary zero velocity metaphysical frame is just a featureless void of empty three-dimensional space that can never be measured because it has no physical parameters. As Einstein imagined there are an infinite number of other possible moving frames that can be measured with clocks and accelerometers. Each frame has a different value for its momentum vector (p = mv) and a different time interval (t'/T) for its clock. These frames all share relative motion with the single ZMR frame. In all moving frames, mass and time intervals have equal values of (m' = 1+) & (t' = 1+). Increasing the velocity of a clock increases its mass and momentum and the conservation of angular momentum in turn increases the length of its time intervals.

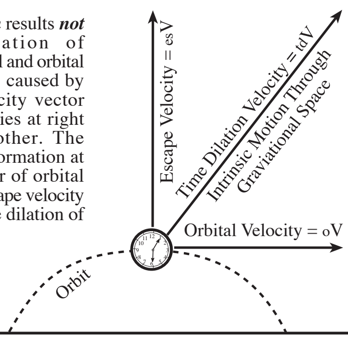
Two actual experiments that use the Lorentz transformation principle to calculate the mass and time differences between two Lorentz transformation frames are the GPS clock measurements and the Pound-Rebka measurements of gamma photon momentum.

Global Positioning System Clock Calculations

In the GPS measurements, clock intervals between two different moving frames are calculated and measured. The first frame is the combined velocity vector of the rotational (orbital) velocity ($_{o}v$ = 448 m/s at equator) at Earth's surface and the measured perpendicular upward gravitational escape/surface velocity at Earth's surface ${}_{es}V = \sqrt{2gR_E} = 11{,}189$ m/s. The Lorentz transformation velocity $v = \sqrt{{}_{es}v^2 + {}_{o}v^2}$ at Earth's equator is 11,198 m/s. The second frame is the combined vector of the GPS satellite's orbital velocity ${}_{o}V = 3868$ m/s and the vertical upward gravitational escape/surface velocity ${}_{es}V = 5471$ m/s at its orbit. The Lorentz transformation velocity $v = \sqrt{{}_{es}V^2 + {}_{o}V^2}$ of each of the 24 GPS satellites is 6700 m/s and all of their clocks run at the same rate. The constantly changing relative velocities between them has no effect on their constant clock rate.

Orbiting Atomic Clock Rate Equations

Orbital time dilation results ***not*** from a combination of gravitational potential and orbital motion. Rather, it is caused by the combined velocity vector (${}_{td}V$) of two velocities at right angles to one another. The Lorentz mass transformation at the combined vector of orbital velocity (${}_{o}V$) and escape velocity (${}_{es}V$) causes the time dilation of orbiting clocks,



$${}_{td}V = \sqrt{{}_{es}V^2 + {}_{o}V^2}$$

Time dilation velocity (${}_{td}V$) of an orbit is equal to the square root of the sum of the escape velocity squared (${}_{es}V^2$) and the orbital velocity squared (${}_{o}V^2$).

$$T_k = \frac{T_0}{\sqrt{1 - \frac{{}_{es}V^2 + {}_{o}V^2}{C^2}}}$$

A clock's kinetic time interval (T_k) is equal to its rest time interval (T_0) divided by the square root of one minus the escape velocity squared (${}_{es}V^2$) plus the orbital velocity squared (${}_{o}V^2$) divided by the speed of light squared (C^2).

Earth Clock and GPS Clock Experimental Values

Mass of 1kg clock at relative motion- $m' = M/\sqrt{1-v^2/c^2} = 1.000000000113$ kg
Relative velocity interval----------------- $t' = T/\sqrt{1-v^2/c^2} = 1.000000000113$
Mass of Earth clock at 11.2 km/s---------$m' = M/\sqrt{1-{}^2/c^2} = 1.000000000697$ kg
Mass of 1 kg GPS clock at 6.7 km/s---$m' = M/\sqrt{1-v^2/c^2} = 1.000000000249$ kg
Earth Clock's velocity interval ----$t' = T/\sqrt{1-(11.2)^2/c^2} = 1.000000000697$
GPS Clock's velocity interval ------ $t' = T/\sqrt{1-(6.7)^2/c^2} = 1.000000000249$
Interval slowing needed to synchronize GPS clocks -------- .000000000448

These calculations are not made with the equations of General Relativity theory's metaphysical assumptions of undetectable gravitational potentials and equivalent gravitational force and motion. These potentials are derived from measured inertial gravitational accelerations and escape/surface velocities and they cannot be measured independently. It matters not whether you use calculated gravitational potentials or measured escape/surface velocities in your calculations. The results will come out the same either way because the calculated potentials are derived from measured velocities and accelerations. The metaphysical assumption of imaginary gravitational field potentials is not needed to calculate the correct GPS clock rates.

The Triplet Paradox Experiment

There is a third type of Lorentz transformation experimental measurement that makes a comparison between not two but four or more Lorentz velocity frames.

One example of this is the so called Twin Paradox experiment where one twin stays home in an assumed zero velocity Lorentz frame and the other goes on a long, high velocity, journey into space and back. When the astronaut twin returns home, he is younger than his brother due to the difference between the unchanging clock intervals of Earth's Lorentz rest frame and the increased length in clock intervals of the outbound or inbound Lorentz velocities. If both legs of the journey are at the same measured velocity, then the dilated clock time intervals will be the same for the back and forth portions of the trip.

The glaring problem with calculating the results of a twin paradox experiment is that the actual zero momentum rest frame cannot be easily located and Earth's true momentum cannot be located beyond comparing Earth's location with the motion of bodies in the universe in general and the Doppler shifts in the momentum of 2.7˚K Cosmic Blackbody Radiation photons in particular.

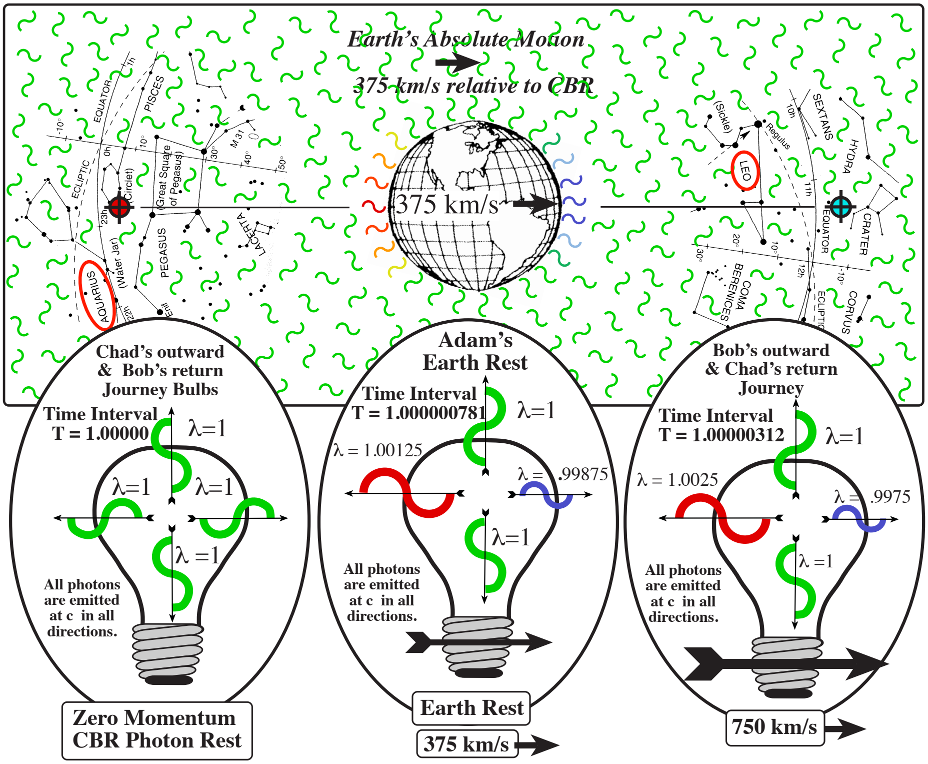
The thought experiment illustrated here is performed by identical triplets. Adam, Bob & Chad. Adam stays on Earth for two years and watches his clock. Bob uses his accelerometer to measure an acceleration to 375 km/s in the direction of the constellation Leo, maintains that velocity for one year and then records the time on his clock, turns around and accelerates to 750 km/s back towards Earth. This gives him a relative velocity with Earth of V = 375 km/s.

Chad accelerates to 375 km/s in the direction of Aquarius and then after one year he records the elapsed time on his clock, turns around and accelerates to 750 km/s back towards Earth. This also gives him a relative velocity with Earth of V = 375 km/s. Both triplets spend two years traveling at a velocity of V = 375 km/s relative to Earth.

If we use relativity's time dilation formula $t' = t/\sqrt{1-v^2/c^2}$ to calculate the clock rates for 375 km/s, we find the intervals of Bob's and Chad's clocks are t' = 1.000000781 versus Adam's zero velocity intervals of t' = 1.0. These measured values are only valid for the special situation where Earth is at rest in the Zero Momentum Rest frame. Common sense tells us that Earth cannot possibly be at rest in the ZMR frame. If nothing else, we can see Earth moving relative to the sun and the sun moving relative to the galaxy. Earth's true momentum vector must remain unknown until the triplet paradox experiment has been completed. By measuring the difference in time intervals between each leg of an astronaut's journey, it is possible to measure the magnitude of Earth's velocity along the vector of the twin's journey. Only if the two intervals are the same can we determine that Earth is at rest along that vector.

Now, if we use the formula to calculate Earth's values within a 375 km/s velocity vector between Leo and Aquarius, we get different intervals for all three clocks. Adam's Earth clock with an assumed interval of T = 1.0 is now calculated to have a Lorentz interval of t' = 1.000000781.

Triplet's Journey in 2.7˚K Cosmic Blackbody Radiation Time



Triplet Paradox Experimental Values

Clock interval of Zero Momentum Frame - $t' = T/\sqrt{1-0^2/c^2} = 1.0$
Lorentz mass of relative velocity ------- $m' = M/\sqrt{1-375^2/c^2} = 1.000000781$ kg
Clock interval of relative velocity --------- $t' = T/\sqrt{1-375^2/c^2} = 1.000000781$
Lorentz mass of fastest legs -------------- $m' = M/\sqrt{1-750^2/c^2} = 1.000003124$ kg
Lorentz mass of stationary clocks ----------$m' = M/\sqrt{1-0^2/c^2} = 1.0$ kg
Clock interval of fastest legs --------------- $t' = T/\sqrt{1-750^2/c^2} = 1.000003124$
Clock interval of stationary "legs" ---------- $t' = T/\sqrt{1-0^2/c^2} = 1.0$
Average clock interval of to and fro legs ---------------------- = 1.000001562
Increased mass of Earth at 375 km/s --------------------------- = 1.000000781
Clock interval of Earth's 375 km/s Lorentz velocity frame -- = 1.000000781
Measured interval between Earth clock & Triplet's clock ---- = 1.000000781
Measured mass and time interval of Earth clock------- m & t' = 1.0

On Bob's trip toward Leo, he is actually traveling at 750 km/sec relative to the ZMR frame. This increases the momentum of his atomic clock and increases its interval to t' = 1.000003125. This is four times slower than Adam's slowed Earth clock. After one year, Bob turns around, marks his clock, and accelerates to 750 km/s toward Earth to obtain a relative velocity of 375 km/s. In actuality, this is all deceleration that brings Bob to the position of ZMR. On Bob's "trip" back to Earth, he is actually sitting still while it is Earth that is traveling at 375 km/s to meet him. With no momentum to slow his clock, Bob's clock is running faster than Adam's clock with a time interval of $t' = T/\sqrt{1-0^2/c^2} = 1.0$. Bob can determine he is actually at v = 0 ZMR by observing no dipole anisotropy in the temperature and momentum of the 2.7°K CBR photons.

When Chad accelerates to 375 km/s in the opposite direction towards Aquarius, he is actually decelerating to a stop. This decreases his clock's momentum to zero and causes it to run at its maximum rate of t' = 1.0. He also will not be able to measure any dipole anisotropy in the momenta of 2.7°K CBR photons. He sits at rest for one year while Earth moves away from him at v = 375 km/s. He then records the time on his clock and accelerates to a momentum vector of v = 750 km/s towards Earth, giving him a relative velocity of 375 km/s. His clock will now have an interval of t' = 1.000003125 for his true velocity of v = 750 km/s.

In these calculations, Bob and Chad spent half their journeys sitting at rest with clock intervals of t' = 1.0 and the other half moving at v = 750 km/s with clock intervals of t' = 1.000003125. The average momentum frame time dilation interval of the traveling triplets is t' = 1.000001562. Relative to Adam's unmeasured Earth clock's rate of t' = 1.000000781, the traveling triplets will measure their average time dilations for both their trips to be t' = 1.000000781. By recording the elapsed time on their clocks when they turn around, Bob and Chad will be able to determine the correct clock time intervals for each leg of their journeys. This will allow the triplets to determine that the true motion of Earth is 375 km/s towards Leo without using the stars or the CBR dipole anisotropy as a reference.

While it is true that special relativity's twin paradox calculations for a zero velocity frame and the calculations for an arbitrarily moving Earth rest frame yield identical results for the total time dilation of Bob's and Chad's round trip journeys, they give greatly different results for the time intervals of individual legs of the triplet's journeys. When the triplets record the time intervals for each leg of their journeys, they find that they are not equal even though they were careful to maintain a precise relative velocity of V = 375 km/s with Earth. This relative velocity can be measured and verified with both inertial navigation accelerometers and photon Doppler shifts between Earth and the spacecraft. The triplets can then use the measured differences in these two clock intervals to calculate the true value for Earth's velocity and momentum vector.

These results clearly show that the Zero Momentum Rest frame is the only possible preferred frame and all of special relativity's arbitrary "rest" frames can be measured to be moving frames with unique momentum vectors. While special relativity's relative motion theory is able to calculate the correct average time intervals for the triplet's two-way trips, it fails completely to give correct time intervals for individual one-way legs of the trips without incorporating Earth's true momentum vector p = mv relative to the absolute frame.

The Zero Momentum Preferred Rest Frame

The absolute negative existence of the Zero Momentum Rest frame calculates and measures the position and magnitude of Earth's momentum and establishes the true values for its mass, space, time, and gravitational force and motion.

The measured time interval of 1.000000781 second, hour, year etc. tells us that Earth is moving at 375 km/s along the same x vector of the triplet's trips. The difference in time intervals between each leg of the triplet's trips determines the direction and magnitude of Earth's Lorentz velocity. There are three vectors of motion and this measurement only identifies. Earth's true momentum vector xyz velocity is v = 375 km/s along the x axis and zero velocity along the y and z vectors. This value is obtained from the measurement cosmic blackbody photons.

In a triplet paradox experiment where Adam, Bob and Chad travel along the x, y, and z vectors, it would be possible to compare Earth's momentum vector with the momentum vectors of photons relative to the same Zero Momentum Frame where a one kilogram clock is $m' = M/\sqrt{1-0^2/c^2} = 1$ kg.

Zero Momentum Rest is not an Aether Frame

ZMR is the measured preferred absolute rest frame of the Living Cosmos. Special Relativity calculations are only correct when the idea of intrinsic relative motion is abandoned and the equations are based on the ZMR. In any other of relativity's inertial frames, Lorentz calculations will yield incorrect values for experimental measurements of the time intervals in individual legs of a Twin Paradox experiment.

Not even the most dedicated relativity enthusiast can deny that the location of the Living Cosmos's Zero Momentum Rest frame represents the preferred rest frame for all accelerometer readings, photon Doppler shifts, and Lorentz transformations used to calculate and measure the conservation of linear momentum. All photons move at exactly c within this frame and it is the only frame in which it is possible to make correct calculations for one-directional time dilations. It is also the only frame in which there are zero Doppler shifts in emitted and absorbed photons. While the very existence of the Doppler effect demands a common rest frame for all photons, Doppler shifts, by their very nature, can only be used to measure relative motion. Doppler shifts are two way measurements of one way motion. Except at ZMR, all photons are Doppler shifted by unknown amounts at both emission and absorption. All that can ever be measured is the relative motion between source and observer.

Even true believers in aether will usually choose ZMR as the location for their aether since it appears to be the common frame for the speed of light. They propose that all photons are measured to move at c relative to their idea of a zero velocity Lorentz aether. Most aether people try to put their aether's rest frame at the common frame of their idea of cosmic blackbody light waves.

Special relativity does not attempt to locate a position of rest for its metaphysical assumption of a 4-dimensional spacetime continuum field. It is a postulate of the theory that the parameter of absolute space can't be measured because the laws of nature are measured to be the same in all moving frames. Einstein didn't say that an absolute frame did not exist. He simply couldn't figure out a way to physically locate it. Had he lived long enough to see the Pound-Rebka experiment, GPS clock measurements, and the cosmic blackbody radiation, he would have certainly abandoned his idea of intrinsic relative motion.

The Lorentz Transformation of Personal Mass and Energy

What the Lorentz transformation of mass, space, time, and gravity means is that, when we accelerate an automobile East on the highway, both the car and our body increase in mass in proportion to the momentum increase of the acceleration. In this case, the change in our energy and mass is very small, but by comparison, the mass inherent in our kinetic energy begins to become significant when we consider the absolute velocity of 375 km/s that our bodies have relative to the ZMR frame identified by the dipole anisotropy of 2.7˚K Cosmic Blackbody Radiation. This velocity has increased our linear Energy/Mass = c^2 and gives a 100 kg person a kinetic energy of 1.8×10^{13} Joules and an increased kinetic mass of about 200 milligrams. Our absolute velocities relative to ZMR gives us each real linear kinetic energies that are about equal to the first atomic bomb that was exploded in New Mexico (10^{13} Joules) (see *Joules of the Universe*). This energy is completely hidden from us and could only be realized by the negative kinetic energy needed to slow us down to a stop at ZMR. While this velocity might at first seem to be very fast, it is only about 1/800th the speed of light. For our bodies to double in mass, we would have to travel in a spaceship at 87% the speed of light. At this velocity, our rest mass and kinetic mass would be equal and we would each have personal kinetic energies equal to about one million atomic bombs (10^{19} Joules).