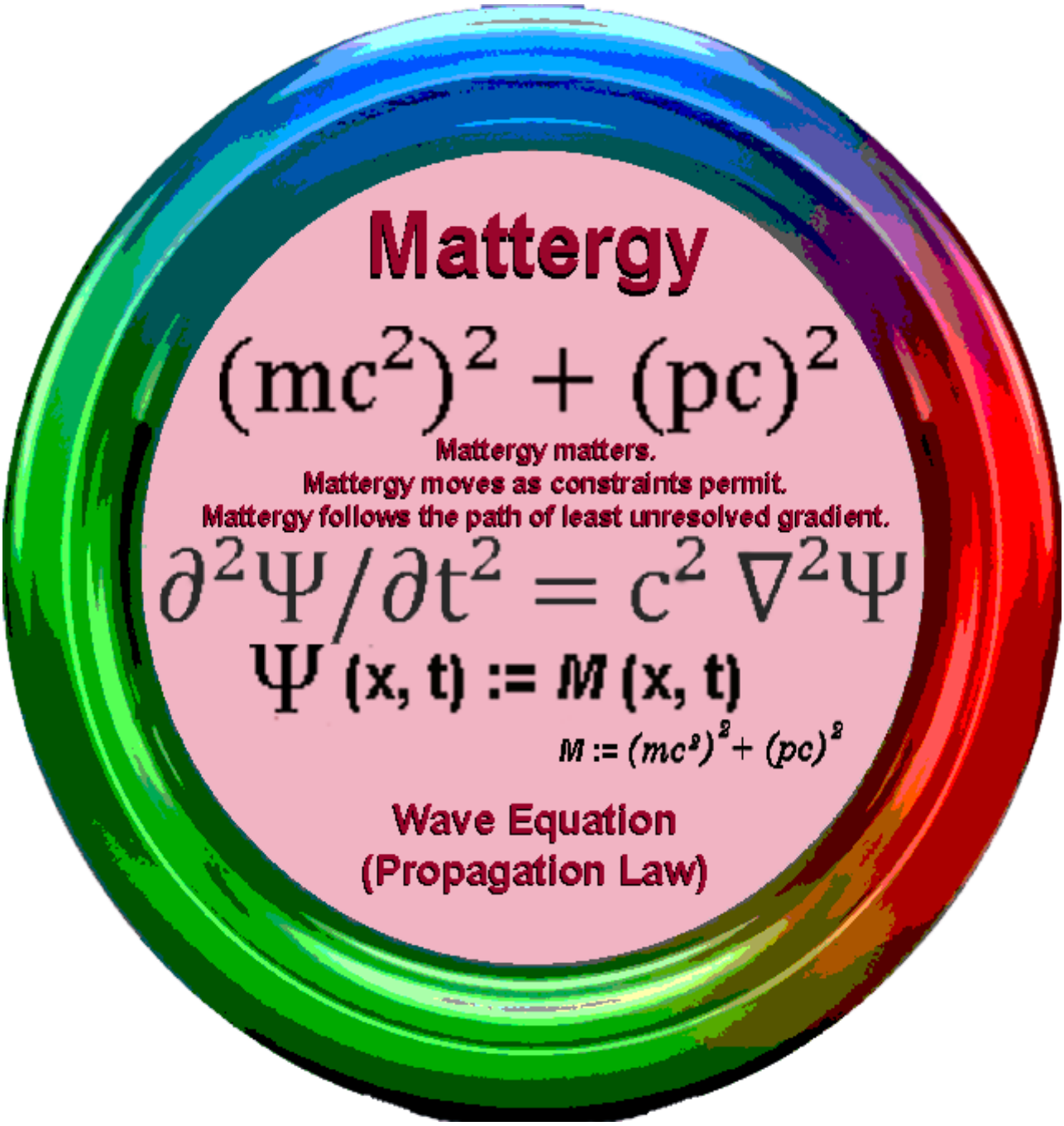
The Spectrum of Mush -- By Craig M. Seavey

Mattergy

100% >----------< 100%	
Rest-Mass	**Momentum-Derived Energy**




Mattergy
$(mc^2)^2 + (pc)^2$
Mattergy matters.
Mattergy moves as constraints permit.
Mattergy follows the path of least unresolved gradient.
$\partial^2\Psi/\partial t^2 = c^2\,\nabla^2\Psi$
$\Psi(x, t) := M(x, t)$
$M := (mc^2)^2 + (pc)^2$
Wave Equation
(Propagation Law)

Mattergy is the bridge between General Relativity and The Modern Newtonian Framework.

GR is using the axioms space and time. The **Axiom of Space** is present in every instance of center, distance, and direction. The **Axiom of Time** is present in every timespan.

Mattergy is ***mattergy*** in the **MNF** and ***spacetime*** in **SR/GR.**

Mattergy := $(mc^2)^2 + (pc)^2$**.**

rest mass + momentum derived energy

The **proper Newtonian Vector/Scalar manifold** is **(x, y, z), t.** This Vector/Scalar manifold is the manifold the Lorentz Transforms use to make their symmetric comparison. This structure is the foundation of the **Modern Newtonian Framework**. Time is universal. Space is Euclidian.

The **improper Minkowski 4D manifold** is **(x, y, z, ct)** where **c (the speed of light)** is there only to place vector units on scalar time, thereby promoting scalar time to vector coordinate. Time and space become geometry. The axioms hide inside that geometry.

Modern Newtivian Framework

Measure Distortion - The Lorentz Transforms
Observed Length Contraction / Time Dilation

The Lorentz Factor (γ): $\gamma = 1 / \sqrt{(1 - v^2/c^2)}$

Relative Speed Defined: $v = d / t$

Hendrik Antoon Lorentz (1904) never invokes spacetime.
Hermann Minkowski (1908) creates spacetime as (x, y, z, ct).
Lorentz compares space - space (vector), time - time (scalar).
The Newtonian Vector/Scalar manifold is (x, y, z), t.

Space Transforms -- x <-> x'.

Forward Spatial (lab --> moving frame): $x' = \gamma (x - v t)$

Inverse Spatial (moving frame --> lab): $x = \gamma (x' + v t')$

Length Contraction (rod measured from lab): $\Delta x = \Delta x' / \gamma$

(Where $\Delta x'$ is length measured in the rest frame of the object.)

Time Transforms -- t <-> t'.

Forward Time (lab --> moving frame): $t' = \gamma (t - v x / c^2)$

Inverse Time (moving frame --> lab): $t = \gamma (t' + v x' / c^2)$

Time Dilation (clock measured from lab): $\Delta t = \gamma \Delta t'$

(Where $\Delta t'$ is time measured in the rest frame of the clock.)

No Privileged Observer

The Lorentz Transforms are symmetric between frames.
At rest > native frame >< non-native frame < moving.
At rest > non-native frame >< native frame < moving.



The Modern Newtivian Framework

The Lorentz Transforms in Matrix Form

The Lorentz Factor (γ): $\gamma = 1 / \sqrt{(1 - v^2/c^2)}$

Relative Speed Defined: $v = d / t$ **where v := |v|**

v (|v|) is scalar, not vector, no direction(s) involved.

c is the speed of light in vacuum.

We map: 

$$\begin{pmatrix} x \\ y \\ z \\ t \end{pmatrix} \Leftrightarrow \begin{pmatrix} x' \\ y' \\ z' \\ t' \end{pmatrix}$$

<- this is a role switch,
no inversion involved,
neither frame is privileged.

$$\begin{aligned} x &= \gamma(x' - vt') \\ y &= y' \\ z &= z' \\ t &= \gamma(t' - vx') \end{aligned} \qquad \begin{pmatrix} x \\ y \\ z \\ t \end{pmatrix} = \begin{pmatrix} \gamma & 0 & 0 & -\gamma v \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -\gamma v & 0 & 0 & \gamma \end{pmatrix} \begin{pmatrix} x' \\ y' \\ z' \\ t' \end{pmatrix}$$

$$\begin{aligned} x' &= \gamma(x - vt) \\ y' &= y \\ z' &= z \\ t' &= \gamma(t - vx) \end{aligned} \qquad \begin{pmatrix} x' \\ y' \\ z' \\ t' \end{pmatrix} = \begin{pmatrix} \gamma & 0 & 0 & -\gamma v \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ -\gamma v & 0 & 0 & \gamma \end{pmatrix} \begin{pmatrix} x \\ y \\ z \\ t \end{pmatrix}$$

The Newtonian Vector/Scalar Manifold: (x, y, z), t.

No Privileged Observer

The Lorentz Transforms are symmetric between frames.

At rest > native frame >< non-native frame < moving.

At rest > non-native frame >< native frame < moving.

The Modern Newtivian Framework: The Spectrum of Mush

Mush: Rest-Mass Dominant @ 75%

Mattergy is $(mc^2)^2 + (pc)^2$

Rest-Mass, Momentum-Derived Energy

Mattergy is the sum of two identities: rest-mass and momentum-derived energy.
At zero speed, matter is 100% rest-mass.
At the speed of light, matter is 100% momentum-derived energy.
Between the extremes lies the Spectrum of Mush.
— the continuous redistribution of the two identities as velocity increases.

As speed decreases, momentum-derived energy shrinks while rest-mass grows.
There is a speed where it is rest-mass that overtakes and dominates energy.

v = .5 c. Momentum-derived energy is the minority contribution.
Rest-mass dominates the energy identity in the spectrum of mush.

100% Rest Mass — **Mass 75% / Energy 25%** — 100% Energy

.5 c

Algebraic steps:

Begin with: $(mc^2)^2 = 3(pc)^2$

Momentum is $p=\gamma mv$, **so:** $(mc^2)^2 = 3(\gamma mvc)^2$

Divide both sides by m^2c^2: $c^2 = 3\gamma^2c^2$

Use The Lorentz Factor: $\gamma = 1 / \sqrt{(1 - v^2/c^2)}$

$$3c^2 = \frac{v^2}{1 - v^2/c^2}$$

Solve for v: $v = \frac{1}{2}\, c = .5\, c$

The Modern Newtivian Framework: The Spectrum of Mush.

Equilibrium: Mass / Energy 50/50

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At the speed of light, matter is 100% momentum-derived energy.
Between the extremes lies the Spectrum of Mush.
— the continuous redistribution of the two identities as velocity increases.

As speed increases, momentum-derived energy grows while rest-mass shrinks.
There is a speed where the two contributions reach equilibrium..

v = .707 c. At this speed rest-mass and energy make equal contribution, equilibrium is a tentative condition in the spectrum of mush.

100% Rest Mass — **Mass / Energy 50/50 .707 c** — 100% Energy

Algebraic steps: Begin with - $(mc^2)^2 = (pc)^2$

Momentum is $p=\gamma mv$, so: $(mc^2)^2 = (\gamma mvc)^2$

Divide both sides by m^2c^2: $c^2 = \gamma^2 c^2$

Use The Lorentz Factor: $\gamma = 1 / \sqrt{(1 - v^2/c^2)}$

$$c^2 = \frac{v^2}{1 - v^2/c^2}$$

Solve for v: $v = \frac{c}{\sqrt{2}}$ = .707 c

The Modern Newtivian Framework: The Spectrum of Mush.

Mush: Energy Dominant @ 75%

Mattergy is $(mc^2)^2 + (pc)^2$

Rest-Mass, Momentum-Derived Energy

Mattergy is the sum of two identities: rest-mass and momentum-derived energy.
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Between the extremes lies the Spectrum of Mush.
— the continuous redistribution of the two identities as velocity increases.

As speed increases, momentum-derived energy grows while rest-mass shrinks.
There is a speed where momentum-derived energy overtakes and dominates.

v = .866 c. At this speed rest-mass is becoming neglibable.
Momentum-derived energy dominates rest-mass identity in the spectrum of mush.

100% Rest Mass — **Mass 25% / Energy 75%** .866 c — 100% Energy

Algebraic steps:

Begin with: $3(mc^2)^2 = (pc)^2$

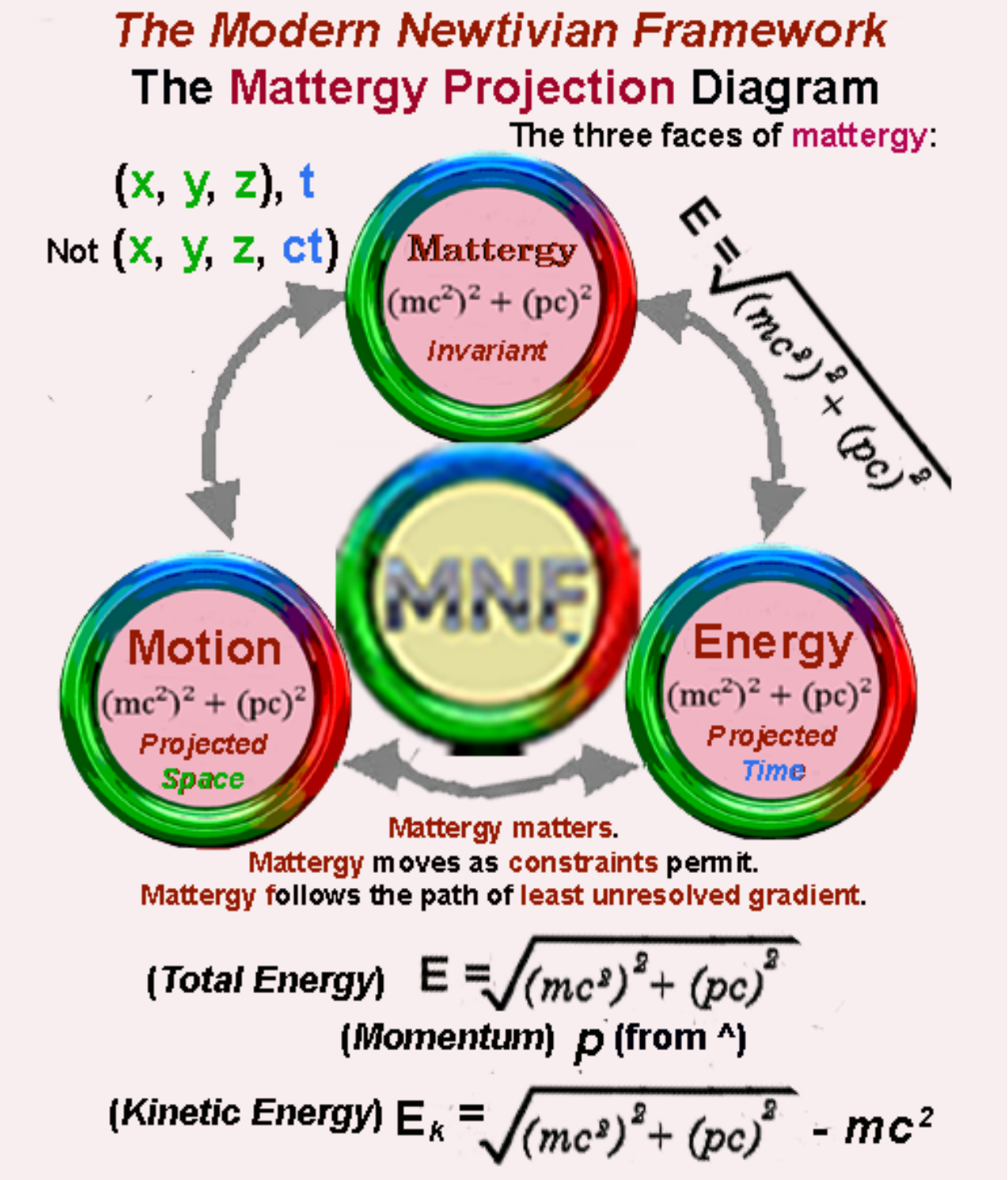
Momentum is $p=\gamma mv$, **so:** $3(mc^2)^2 = (\gamma mvc)^2$

Divide both sides by m^2c^2: $3c^2 = \gamma^2 c^2$

Use The Lorentz Factor: $\gamma = 1 / \sqrt{(1 - v^2/c^2)}$

$$3c^2 = \frac{v^2}{1 - v^2/c^2}$$

Solve for v: $v = \frac{\sqrt{3}}{2}\,c = .866\,c$



The Modern Newtivian Framework restores $(pc)^2$. The projection relates both identity components across motion, both rest-mass and momentum-derived energy.

Regime: $v = 0c$ ... *The Full-Rest Mushmark*.
Partition: 100% rest-mass, no momentum-derived energy.
Physically: A system at rest expresses **no momentum-derived identity**. All of its mattergy is structural. Motion is zero; only rest-mass identity is present. This is the simplest possible physical state: **structure without expression**. Baryonic systems *approach* full at rest identity as constraints reduce motion.

Regime: $v = c$ ... *The Null Worldline Mushmark*.
Partition: No rest-mass, 100% momentum-derived.
Physically: The Lightrealm, pure propagation, all motion is at **c**.

Regime: $v \lesssim 0.5c$ ... *The Rest-Mass Dominant Mushmark*.
Partition: *rest-mass majority, momentum-derived minority.*
Physically: Baryonic systems—atoms, molecules, stars, planets, we here on Earth — *These are loosely bound structures. Structure dominates; motion is expression riding on top of a big rest-mass identity. In the slow regime* **mattergy** *is mostly* **rest-mass. The motion of** baryonic systems are a minority contribution to their total identity.

Regime: $v \lesssim 0.707c$ ... *The Equilibrium Mushmark 50/50*.
Partition: *structure and motion are equal participants.*
Physically: *This is the knife edge where neither identity dominates. Systems here are highly sensitive to constraints—small changes in velocity or binding can flip which identity leads. At equilibrium, mattergy has* ***equal participation of both identities****. Systems in this regime are balanced between structure and expression; small changes in constraints turn identity behaviors toward one dominant or the other.*

Regime: $v \gtrsim 0.866c$ ... *The Energy Dominant Mushmark*.
Partition: *momentum-derived majority, rest-mass minority.*
Physically: *This is where LHC protons, cosmic rays, relativistic jets live. Motion dominates; rest-mass is just the anchor that keeps the identity from dissolving into pure propagation. In the fast regime mattergy is mostly momentum-derived. High-energy beams and collider protons are expressions of motion with only a minority rest-mass* anchor.

Consequence:

Composite baryonic systems cannot enter the Energy Dominant regime intact. Before any near light speed relative measures occur, the ship and its occupant decohere into mush. Time dilation and length contraction never happen because the system's identity fails first.

Elementary particles such as protons do not mush because they are not composite baryonic assemblies. Mush applies only to systems whose identity depends on internal binding. Ships mush. People inside ships mush with the ship. Protons reach the Null Worldline Mushmark, decohering on collision.

It's a spectrum from one extreme to the other, the spectrum of mush is mattergy behaving as mattergy behaves, moving as constraints permit, following the path of least unresolved gradient.

For the full experience of Newtivian Physics
***see:* The Modern Newtivian Framework**
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