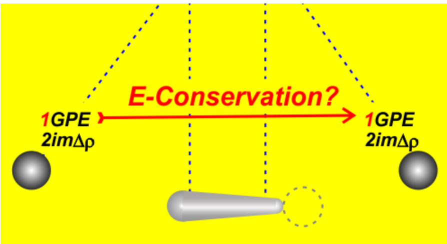
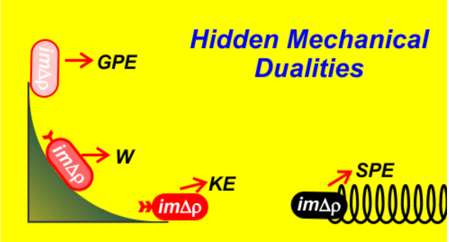
Six Duality Laws of Momentum and Energy

Guide for improving standards.

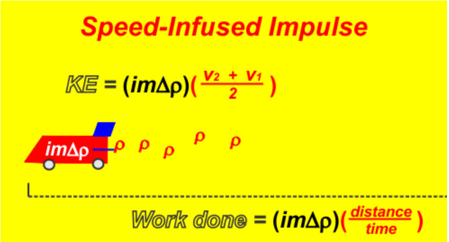
Article 6: Sixth Duality Law of Situational Energy Conservation & Einstein



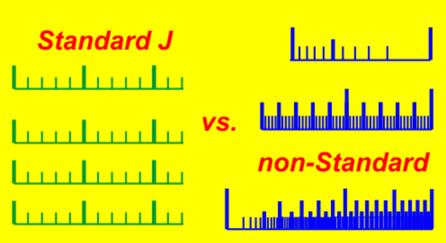
Article 1: First Duality Law of Momentum-Energy Coexistence



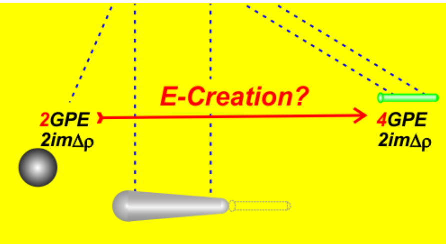
Article 2: Second Duality Law of Perceived Speedy-Impulse



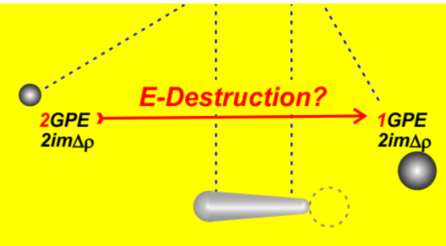
Article 3: Third Duality Law of non-Standard Energy Sizes and Varying Productivity



Article 4: Fourth Duality Law of Situational Energy Creation



Article 5: Fifth Duality Law of Situational Energy Destruction



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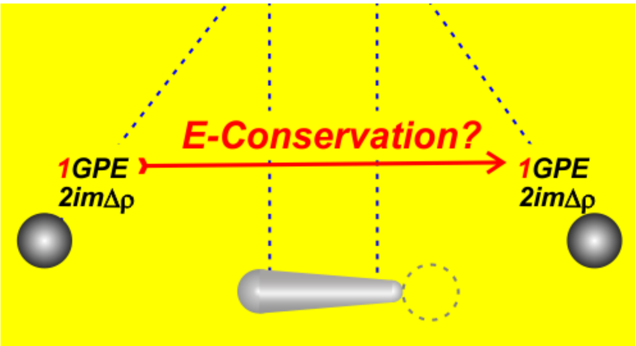


6. Sixth Duality Law of Situational Energy Conservation & Einstein

Du-Ane Du
www.Wacky1301SCI.com, *"Looking at serious science, sideways!"*

Mathematical Duality Law #6: Energy [speedy impulse] and energy-perception are mathematically conserved if and when (1) all measurements are made using standard linearized joules [using the standard-linearized multiplier of 0.84 J/ρ], or (2) when an impulse transfers momentum between two objects with the same joule production rate [same speedy multiplier, J/ρ, m/s] either (a) because the objects have same mass, or (b) because the measurements are made from a reference point that causes the average speeds [speedy multipliers] to appear to be the same, or (c) because the measurements are made from a perspective that causes the objects to appear to change direction without changing speed [such as v becoming -v].

This is the sixth advanced article on the nature of the momentum and energy duality. Recall, the 2nd duality law of perceived speedy impulse states: Energy-work is a (reward oriented, psychological) joint perception of average speed and impulse, speed-infused effort, or speedy impulse (Article 2). Consider the derivation pattern:

$$energy = (average\ speed)(effort) = "speedy\text{-}im\Delta\rho"$$
$$energy = \left(\frac{distance}{time}\right)(im\Delta\rho) = "speedy\text{-}im\Delta\rho"$$
$$energy = \left(\frac{d}{t}\right)(Ft) = "speedy\text{-}im\Delta\rho"$$
$$Work\text{-}energy = (F)(d) = "speedy\text{-}im\Delta\rho"$$
$$GPE = (mg)(h) = "speedy\text{-}im\Delta\rho"$$
$$KE = (\frac{v_2+v_1}{2})(im\Delta\rho) = "speedy\text{-}im\Delta\rho"$$
$$KE = \frac{1}{2}mv_{final}^2 - \frac{1}{2}mv_{initial}^2 = "speedy\text{-}im\Delta\rho"$$

Symbols
$im\Delta\rho$ – impulse
10 ρ = 10 kgm/s
10 ρ = 10 N*s

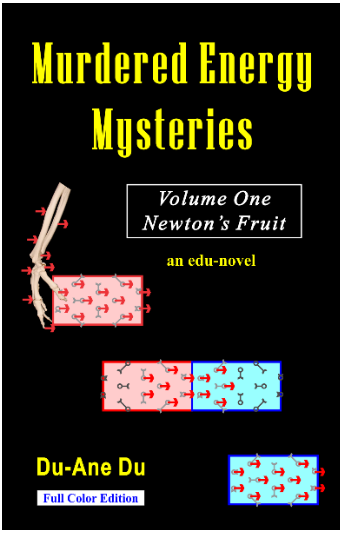
Energy is a joint perception of two simultaneous phenomena. As a result, some situations will create energy-perception, some situations will destroy energy-perception, and some situations will conserve energy-perception.

Here, Article 6 focuses on situations where energy-perception is conserved, while Article 4 focused on situations that create energy, and Article 5 focused on situations that destroy energy.

(Additional advanced articles and simplified discussions can be found at www.Wacky1301SCI.com.)

Energy Conservation during complete momentum transfer

When all of the momentum from a giving object (m_G) is transferred into an equally heavy receiving object (m_R), the impulse/momentum-transfer can be expressed as:



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$$im\Delta\rho = mv_2 - mv_1$$
$$m_G = \boldsymbol{m_R}$$

$$im\Delta\rho_{Given} \rightarrow im\Delta\rho_{Recieved}$$
$$0 - m_G v_G \rightarrow \boldsymbol{m_R v_R} - 0$$
$$m_G v_G = \boldsymbol{m_R v_R}$$

Next, because the objects are beginning or ending at rest, the receiving object's velocity can be expressed as a mass-ratio multiple of the giving object's velocity, by dividing, as follows:

$$\boldsymbol{v_R = \frac{m_G}{m_R} v_G}$$

Similarly, the receiving mass can be expressed as a mass-ratio multiple of the giving mass, as follows:

$$m_R = \frac{m_R}{m_G} m_G$$

When the beginning or ending velocity is zero, the mechanical energy [speedy impulse] transferred can be found using the kinetic energy equation:

$$KE_{"given"} \rightarrow KE_{"received"}$$
$$0 - \frac{1}{2} m_G v_G^2 \rightarrow \frac{1}{2} m_R v_R^2 - 0$$

Now the momentum relationship information can be substituted into the mechanical kinetic energy equation:

$$\frac{1}{2} m_G v_G^2 \rightarrow \frac{1}{2} \left(\frac{m_R}{m_G} m_G\right) \left(\frac{m_G}{m_R} v_G\right)^2$$

The square can be distributed, and the mass ratio information can be moved to the front, to produce:

$$KE_{"given"} \rightarrow KE_{"received"}$$
$$\frac{1}{2} m_G v_G^2 \rightarrow \frac{1}{2} \left(\frac{m_R}{m_G} m_G\right) \left(\frac{m_G}{m_R}\right)^2 \left(v_G^2\right)$$
$$\frac{1}{2} m_G v_G^2 \rightarrow \frac{m_R}{m_G} \left(\frac{m_G}{m_R}\right)^2 \left(\frac{1}{2} m_G v_G^2\right)$$
$$\frac{1}{2} m_G v_G^2 \rightarrow \frac{m_G}{m_R} \left(\frac{1}{2} m_G v_G^2\right)$$
$$KE_{"given"} \rightarrow \frac{m_G}{m_R} \left(KE_{"given"}\right)$$

In other words, when all momentum is transferred from a giving object to an equally heavy receiving object at rest, the mathematical conservation of mechanical kinetic energy [speedy impulse] is always a give-receive mass ratio of the giving object's kinetic energy:

$$KE_{"received"} = \frac{m_G}{m_R}(KE_{"given"})$$
$$KE_{"received"} = KE_{"given"} \ \textit{only when } \frac{m_G}{m_R} = 1$$

This situational mathematical conservational of mechanical energy appears to be occurring because both objects have identical masses.

However, recall that m_G is defined as equal to m_R and $\frac{m_G}{m_R} v_G = v_R$. This means that when the momentum moved from the greater mass to the lesser mass:

$$v_{Give} = v_{Receive}$$
And
$$0 - v_G = v_R - 0$$
$$\frac{v_G + 0}{2} = \frac{v_R + 0}{2}$$
Giving average velocity = Receiving average velocity

Mechanical kinetic energy is speedy-impulse, or (impulse)(average speed). Therefore this situational conservation of energy is actually a function of the equality of the average speeds, and the fact that both masses have the same joule production rate [speedy multiplier]!

This brings us to Mathematical Duality Law #6: Energy [speedy impulse] and energy-perception are mathematically conserved if and when an impulse transfers momentum between two objects with the same joule production rate [same speedy multiplier, J/ρ, m/s] either (a) because the objects have same mass, or (b) because the measurements are made from a reference point that causes the average speeds [speedy multipliers or joule production rates] to appear to be the same.

Note on standard linearized joules

The conclusion to Article 3 "Third Duality Law of non-Standard Energy Sizes and Varying Productivity" states: As the result of Joule's original definitions and experiments, the international treaty for units and measurements contains an unclarified assumption that energy and work are always measured at a fixed speed of 1 ft/s [English] and a fixed productivity of 0.84 J/ρ. Inconsistent adherence to that unclarified assumption has resulted in measurements that may be (1) standard linearized, with an impulse coefficient [IC] = 1.18, or (2) multiple-linear, resulting in a wide variety of non-standard joule sizes, or (3) multi-parabolic, resulting in an infinite variety of continually changing non-standard joule sizes. (Addition or subtraction of non-standard joule sizes can produce answers that violate the law of conservation for momentum.)

The situational creation and situational destruction of mechanical energy occur because mechanical energy is multi-parabolic in nature, and involves an infinite variety of joule sizes.

Standardized joules involve linearized energy. Linearized joules are a mathematical multiple of momentum, and this joule-momentum cannot be created or destroyed. Electric-joules cannot be created or destroyed, light-joules cannot be created or destroyed, and calorie-joules cannot be created or destroyed. (See Article 3) Situational creation and destruction of energy only occur with the many forms of non-standardized mechanical energy.

In any situation, the amount of standardized joules involved can be found using the equations:

$$Standardized\ J = \frac{mv}{[1.185]}$$

$$Standardized\ J = \frac{impulse}{[1.185]}$$

$$Standardized\ W = \frac{ft}{[1.185]}$$

$$Standardized\ KE = \frac{mv}{[1.185]}$$

$$Standardized\ GPE = \frac{m\sqrt{2gh}}{[1.185]}$$

Using these equations, standardized joules become an expansion of momentum, and the law of conservation momentum extends to include standardized joules. Therefore, standardized joules cannot be created or destroyed.

Special impulse-joule relationships

In the mid 1800's James Prescott Joule codified the mathematical relationship between impulse and linearized calorie-joules as 1.185 ρ/J, or 0.84 J/ρ. Fortunately, this impulse-joule ratio extends to electric-joules, light-joules, chemical-joules, and even nuclear-joules. As a result, most scientific activity involves standard linearized joules and the impulse coefficient of [1.185].

Anything expressed in linearized joules can also be expressed as ρ of impulse. For example, the common unit for electric energy, 1 kWh, can be expressed in terms of impulse:

$$1\ kWh = [1.185\ \tfrac{\rho}{J}]\ (1000)(1\ \tfrac{J}{s})(3600\ s)$$

$$1\ kWh = 4.266\ M\rho\ of\ electric\ impulse$$

This reinforces the realization that energy is speed-infused impulse, and standard linearized joules are a scalar expansion of the impulse used [ie. momentum transferred].

The generation of light energy also involves impulse. Scientists measure light energy in terms of standard calorie-joules and standard electric-joules. Therefore, the amount of impulse needed to generate a light wave can be found using the appropriate adjustment to Planck's constant:

$$im\Delta\rho = [1.185\ \tfrac{\rho}{J}]\ E$$

$$Planck's\ im\Delta\rho\ constant = [1.185\ \tfrac{\rho}{J}](6.626 \times 10^{-34}\ Js)$$

$$light\ im\Delta\rho = [(1.185\ )(6.626 \times 10^{-34}\ \rho s)]f$$

Once again, standard linearized joules are a mathematical expansion of the impulse used to make the joules. Calorie-joules are speedy impulse, electric-joules are speedy impulse, light-joules are speedy impulse, and nuclear-joules are speedy impulse.

Nuclear energy is normally expressed in terms of heat-joules and light-joules produced. By definition joules are speedy impulse, so nuclear energy is a mathematical expansion of nuclear impulse. Expressed in terms of Einstein's equation:

$$im\Delta\rho = [1.185\ \frac{\rho}{J}]\ E$$

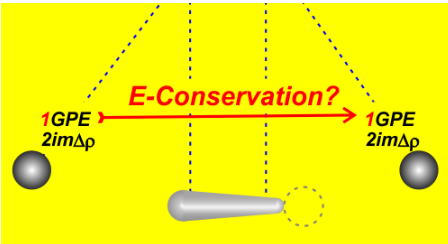
$$nuclear\ im\Delta\rho = [1.185\ \frac{\rho}{J}]mc^2$$

$$nuclear\ im\Delta\rho = [1.185](3.000 \times 10^8\ )mc$$

$$nuclear\ im\Delta\rho = (3.555 \times 10^8\ )mc$$

Nuclear-joules, therefore, are a measure of impulse in action, light-joules are impulse in action, electric-joules are impulse in action, and calorie-joules are a measure of impulse in action.

CONCLUSION 1: **Sixth Duality Law of Situational Energy Conservation:** Energy [speedy impulse] and energy-percep-



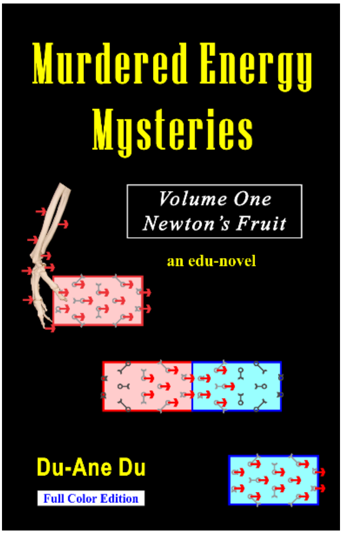
tion are mathematically conserved if and when (1) all measurements are made using standard linearized joules [using the standard-linearized multiplier of 0.84 J/ρ], or (2) when an impulse transfers momentum between two objects with the same joule production rate [same speedy multiplier, J/ρ, m/s] either (a) because the objects have same mass, or (b) because the measurements are made from a reference point that causes the average speeds [speedy multipliers] to appear to be the same, or (c) because the measurements are made from a perspective that causes the objects to appear to change direction without changing speed [such as v becoming -v].

CONCLUSION 2: The alleged theory of "universal conservation of kinetic energy" is mathematically untenable and false. Non-standardized mechanical energy [speedy impulse] is mathematically conserved only when momentum moves between objects with the same joule production rate [same average speed].

Note that the situational mathematical conservation of kinetic energy does affect the kinetic theory of heat, and the *Impulse Theory of Heat*, which is a topic for another article. (See *Murdered Energy Mysteries*, Part 3.)

CONCLUSION 3: **Standardization Corollary #6B:** Standardized joules involve linearized energy with an impulse coefficient of about [1.2]. Linearized joules are a mathematical multiple of momentum, and this joule-momentum cannot be created or destroyed. Electric-joules$_{[1.2]}$ cannot be created or destroyed, light-joules$_{[1.2]}$ cannot be created or destroyed, and calorie-joules$_{[1.2]}$ cannot be created or destroyed. (See Article 3) Situational creation and destruction of energy only occurs with the many forms of non-standardized mechanical energy.

CONCLUSION 4: More research needs to be done into the relationship between mechanical energy and other theoretical forms of energy. Many common beliefs may actually be philosophical myths.



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[*Murdered Energy Mysteries*] is an edu-novel that seeks to increase understanding of the various forms of momentum and momentum transfer, as well as the various forms of energy and energy transfer. The lack of understanding on the part of the scientific community is substantial, and more research needs to be done.

—Du-Ane Du, author of the edu-novel *Murdered Energy Mysteries* (Amazon, Kindle, e-book 2018, paperback 2021.)

For more information, see:
Murdered Energy Mysteries, as well as:

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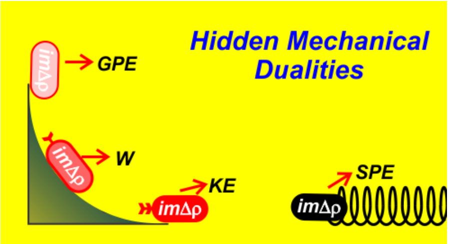

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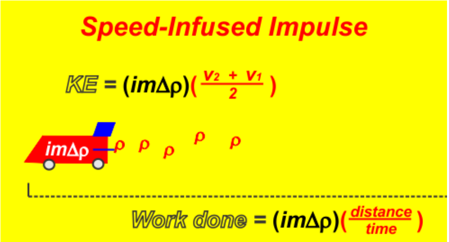

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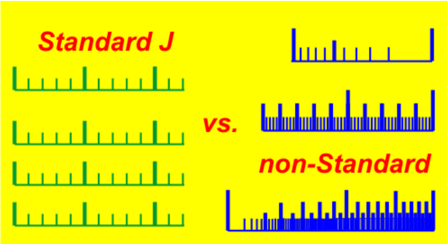
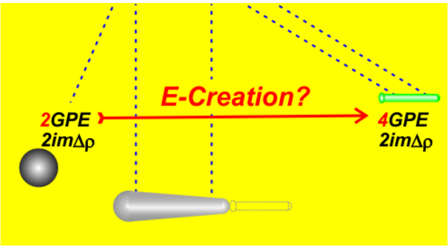


Article 4: Fourth Duality Law of Situational Energy Creation



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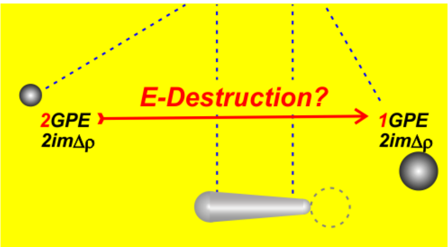

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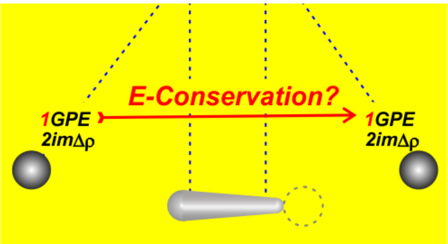

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