

# E = mc<sup>2</sup> AND MASS - ENERGY EQUIVALENCE WRONG

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## ABSTRACT

The 9<sup>th</sup> edition, 2011, of Resnick and Halliday PHYSICS, states on page 1043 “..In 1905, (Dr.) Einstein showed that as a consequence of his theory of Special Relativity, mass can be considered to be another form of energy...An object’s mass  $m$  and the equivalent energy  $E_0$  are related by  $E_0 = mc^2$  which, without the subscript  $0$ , is the best known science equation of all time....If you continue your study of physics beyond this book, you will see more refined discussions of the relation between mass and energy. You might even encounter disagreements about just what that relation is and what it means...” The book’s current “author,” Dr. Jearl Walker, had been sent my paper disagreeing with  $E = mc^2$  in 2008, three years before the 9<sup>th</sup> edition’s first 2011 publication. See [www.k1man.com/b](http://www.k1man.com/b) This current paper discusses that disagreement and shows newly organized experimental proof that  $E = mc^2$  and mass – energy equivalence, the corner stone of 21<sup>st</sup> century Main Stream physics dogma, is wrong.

## ARGUMENT

### RESNICK AND HALLIDAY PHYSICS, 2<sup>nd</sup> edition, DATA IN KILOGRAMS

The author[5] is using measured mass in units of 10 to the minus 27 kilograms or K, where the proton = 1.67239, the neutron = 1.67470, and the electron = 0.00091083.[8] Thus hydrogen has a mass of  $1.67239K + 0.00091083K = 1.67330083K$

The proton, neutron, electron masses of four hydrogen atoms using Resnick Halliday data add to 6.68965K where one helium atom adds to 7.0948K which is larger than the sum for four hydrogen atoms by 0.40515K. The fusion reaction has a mass GAIN.  $0.40515K/6.68965K = 6.0563706\%$  GAIN in mass during fusion.

### CHEMIST’S COMMON AMU DATA

Any chemistry book table of the elements[6] lists hydrogen with an atomic number of 1 and an AMU = 1.0080; helium an atomic number of 2 and an AMU of 4.003 Uranium is listed with atomic number of 92 and an AMU = 238.07; Krypton is listed with an atomic number of 36 and an AMU of 83.8; barium is listed with an atomic number of 56 and an AMU of 137.36.

The proton, neutron, electron masses of barium plus krypton add to 370.164132K, where the sum for uranium 235 is 393.01165 K, which is 22.847518K larger.  $22.847518K/393.01165K = 5.8134526\%$  LOSS in mass during fission.

So, fission of uranium loses mass of  $22.847518/1.67470 =$  the equivalent of 13.87220279 neutron masses, and the fusion of four hydrogen atoms into helium gains mass of  $0.40515K/1.67470 = 0.241923926$  equivalent neutron masses. The fission reaction has a mass loss. The fusion reaction has a mass gain.

One Beryllium atom changes to two helium atoms. Beryllium has a total mass of 15.08835442K and two helium have a mass of 13.40205152K, for mass loss of  $1.6863029K/1.67470K =$  the equivalent of 1.00692345 neutron masses. This fission reaction has a mass loss.  $1.68638442K/15.08835442K = 11.1767284\%$  mass loss.

#### TABLE 1

Uranium fission (atomic number 92) 5.81% mass loss

Beryllium fission (atomic number 4) 11.18% mass loss

Hydrogen fusion (atomic number 1) 6.05% mass gain

So fission reactions might all have a mass loss where the hydrogen fusion reaction has a mass gain, which might be true for all and fusion reactions.

The fusion reaction is probably much more complicated than four hydrogen changing into one helium and involves unclear properties of the enigmatic neutron and beta decay along with the reverse of beta decay.

Assuming that mass does not convert into energy, we reason that in uranium fission, neutrons and other things are lost in the shuffle, and with hydrogen fusion we are perplexed to explain the mass gain of helium. Something else must be going on.

The enigma of neutrons becomes even more of an enigma. Using  $E = mc^2$  mass equivalents in describing the above just white washes the above reactions to a degree and thus masks the neutron enigma and thus makes the enigma appear to go away, so to speak.

## NUCLEAR FUSION

Assume for the moment that four hydrogen atoms combine in fusion to form helium. Look at the periodic table of elements in ANY chemistry book. Hydrogen is listed as atomic number = 1 and atomic mass = 1.008.  $(4)(1.008) = 4.032$ . Helium is listed as atomic number = 2 and atomic mass = 4.003, a loss of mass consistent with Special Relativity  $E = mc^2$ .  $0.029/4.032 = .00792\%$  loss of mass.

But, as shown above with Rasnick Halliday data, the mass actually increases by 6.05%.  
Ooooooops.

All those chemistry book tables of the periodic elements have been, de facto fudged to agree with Dr. Einstein's incorrectly derived  $E = mc^2$ . All that is needed is one person at the national bureau of standards selecting from the statistical range of numbers found by experiment being used.

Looking at Wikipedia under fusion reads:

“Fusion of [deuterium](#) with [tritium](#) creating [helium-4](#), freeing a [neutron](#), and releasing 17.59 [MeV](#) of energy, as an appropriate amount of mass changing forms to appear as the kinetic energy of the products, in agreement with *kinetic*  $E = \Delta mc^2$ , where  $\Delta m$  is the change in rest mass of particles.<sup>[1]</sup>”

It appears clear that the Main Stream scientists of the world built their explanation of hydrogen fusion and their entire standard model to confirm with Dr. Einstein's incorrect Special Relativity.

## CALCULATED ENERGY FROM COULOMB FORCES

URANIUM ATOM ENERGY FROM COULOMB FORCES

1965 Physics Nobel Laureate, Dr. Richard Feynman, stated in a 1962 Cal Tech lecture that all the energy in a fission bomb comes from coulomb forces pushing the two positive chunks of a uranium atom apart.

Listen eight minutes into [www.k1man.com/Feynman620927.mp3](http://www.k1man.com/Feynman620927.mp3)

During World War II (1939-1945) Feynman worked at what would become Los Alamos National Laboratory in central New Mexico, where the first nuclear weapons were being designed and tested. Feynman was in charge of a group responsible for problems involving large-scale computations (carried out by hand or with rudimentary calculators) to predict the behavior of neutrons in atomic explosions.

Integrating the energy released from single positive krypton and barium chunks flying apart from a distance of  $(2)(10^{-10})$  meters to infinity gives:

$$[(1.6)(36/92)(10^{-19})(1.6)(56/92)(10^{-19})(6.02)(10^{23})(8.9876) \cdot (10^9)](2)(10^{-10}) = 3,299,096,851 \text{ Newton – meters per mole}$$

## A URANIUM ATOM ENERGY FROM $E = mc^2$ ALLEGED MASS-ENERGY CONVERSION

calculates:

$$(0.092)(300,000)^2 = 8,280,000,000 \text{ Newton – meters per mole}$$

Pretty close.

When Dr. Hahn Otto submitted chemistry data to physicist, Dr. Lise Meitner, suggesting that the uranium atom had split, she used chemistry book table of the elements figures for showing so called missing mass of the krypton and barium, she incorrectly assumed  $E = mc^2$ , got a huge number, freaked out, and sent the calculation to Dr. Niels Bohr, who then sent it to newly inducted Nobel Laureate Enrico Fermi, now at Columbia University in New York City. The neutrons also flying out could start a chain reaction. A huge amount of energy either way it is calculated.

This led to the fission atom bombs used in World War II.

## RATIO CALCULATION

They used incorrect  $E = mc^2$  and got 8,280,000,000 Newton meters per mole rather than the correct value of 3,299,096,951 Newton meters per mole.  $8,280,000,000/3,299,096,951 =$  ratio of 2.098 No wonder they had so much trouble calculating the yield of the world war II fission bombs.

#### FORMING A NEUTRON

proton = 1.67239K, the neutron = 1.67470K, and the electron = 0.00091083K

Where K is 10 to the minus 27 kilograms

$1.67239K + 0.00091083K = 1.67330083K$   $1.67470K$  minus  $1.67330083K = 0.00139917K$  That divided by  $0.00091083K = 1.536148348$  equivalent electron masses

So, forming a neutron from a proton and an electron ends up with a neutron mass with the equivalent of 1.536148348 electrons more mass than the component parts. An increase of  $0.00139917/1.67239 = 0.08369459277\%$  increase. Compare that with hydrogen to helium fusion having a 6.05% mass gain.

#### NIST DATA

Deuterium 2.014 101 778 12 +- 12

Hydrogen 1.007 825 032 23 +- 9

Neutron 1.006 276 745 89 (Deuterium mass minus hydrogen mass values)

Helium 4.002 602 +- 2

$(4)(1.007 825 032 23) = 4.031 300 128 92$  minus  $4.002 603 354 13 = 0.028 796 874 79$  mass loss = 0.71945361199 % mass loss but using amu numbers:

$1.008 +- .011$   $1.008$  minus  $.011 = 0.997$  Times 4 = 3.988 Helium at 4.002 602 shows a mass GAIN of 0.3661484453% GAIN

#### TABLE 2

`Uranium fission (atomic number 92) 5.81% mass loss

Beryllium fission (atomic number 4) 11.18% mass loss

**Hydrogen fusion (atomic number 1) 6.05% mass gain**

**NIST data; Hydrogen fusion to helium: .36% gain**

**Proton combining with an electron to form a neutron: 0.08% mass gain**

## **AN EXPLANATION**

The inertia of a neutron with the electron not orbiting is greater than that with a proton where the electron is orbiting, making the mass appear to be greater.[1]

## **DISCUSSION**

Generally, nature starts with hydrogen (on a star such as the sun) where an electron drops out of orbit to “mate” with the proton in the nucleus and form a neutron. There is a measured gain of mass of 0.08%. As part of this process, such as on a very hot star, two neutrons and two hydrogen atoms combine to form a helium atom which has an apparent mass gain of 6.05%. Much energy is released in various forms, one being heat. This is called fusion.

This fusion continues to form more neutrons, and beta decay (neutrons emitting electrons and becoming protons) transmutes lower atomic number elements up the line (beyond iron 56, via fission), forming all the elements and isotopes on the periodic table.

Many of the elements and isotopes on the periodic table are unstable and are therefore radioactive. Left “on their own,” those elements “want” to return to being hydrogen. Uranium 92 will “absorb” electrons in the nucleus, changing protons to neutrons, and will slowly transmute into lead 82. Uranium will also fission into lower atomic number element pieces.

Most of the other elements will do likewise. Perhaps elements such as gold will never, or hardly ever, transmute down.

So there is a huge cycle going on here. Hydrogen turns into all the elements on the periodic chart in a star, the star eventually explodes, and the elements go “out on their own,” so to speak, and then reverse transmute all the way back down to hydrogen.

Nature is pretty clever! What “drives” this huge cycle is a mystery. Without this huge cycle there would be no carbon, hydrogen, oxygen, nitrogen, etc. and thus no life. What “spark” drives life? Another mystery

## E = mc<sup>2</sup> DISPROOF

Dr. Roger Rydin always insisting that “there is no such thing as a relative velocity of light  $c$ ” is why he does not understand Dr. Einstein’s Special Relativity. Neither he or Dr. Einstein understand/understood the difference/distinction between  $c$ , the constant speed of light, and  $c'$ , the observed (red or blue shifted) relative speed of light observed from a second frame which has relative motion  $v$  with respect to the first frame.  $c$  and  $c'$  are different animals with similar sounding names, both names containing the words “speed of light.” But “speed of light” and “relative speed of light” are completely different animals, which Dr. Einstein did not realize, and he equated them as a starting postulate for logically deriving all of his Special Relativity formulas through  $E = mc^2$ . I show the mathematical equivalent of how he did this in my original 2008 paper which some scientists are just beginning to actually read for understanding.[7] Dr. Einstein improperly set up a single light distance triangle with legs simultaneously in two different frames moving with uniform velocity  $v$  with respect to each other. Solving this triangle with the Pythagorean theorem comes up with Dr. Einstein’s famous time dilation. Then he improperly set up another single MOMENTUM triangle with legs simultaneously in two different frames moving with uniform velocity  $v$  with respect to each other. Solving this second triangle with the Pythagorean theorem comes up with his famous mass increase formula. Taking his mass increase formula and expanding it with the binomial theorem, dropping the kinetic energy terms leaves  $E = mc^2$ . He then incorrectly concludes from this in 1905 that energy is inherent in mass. Wrong, since the starting postulate that  $c = c'$  was wrong.

$E = mc^2$  can be derived with electron – positron annihilation, but this uses questionable assumptions. Bottom line is that mass energy equivalence, the corner stone of 21<sup>st</sup> century physics, is wrong. [7]

### BETA DECAY

See [www.k1man.com/c71.pdf](http://www.k1man.com/c71.pdf)

### SUMMARY

Special Relativity and its last equation,  $E = mc^2$  mass energy equivalence, is the very corner stone of 21<sup>st</sup> century Main Stream physics dogma and is wrong. This needs to be rooted out from just about everywhere to get physics out of the rut it has been in since 1905. Every text

in the world would need changing, so what are you getting excited about? The error found by a mere engineer.

[1] GRAVITRONS AND ELECTRONS [www.k1man.com/c50.pdf](http://www.k1man.com/c50.pdf)  
UNIFIED FIELD THEORY FOUND [www.k1man.com/c55.pdf](http://www.k1man.com/c55.pdf)  
A CORRECT DEFINITION OF MASS [www.k1man.com/c58.pdf](http://www.k1man.com/c58.pdf)  
FISSION AND FUSION ENERGY SOURCES [www.k1man.com/c59.pdf](http://www.k1man.com/c59.pdf)  
MACH'S PRINCIPLE AND GRAVITRON RADIATION [www.k1man.com/c60.pdf](http://www.k1man.com/c60.pdf)

[2] Scientific American, April, 2016, Page 40

[3] Dr. Geoffrey L Greene, Oakridge Laboratory's Spallation Neutron Source. He has been studying the properties of neutrons for more than 40 years.

[4] Dr. Perer Geltenbort, Staff scientist at the Institute Laue-Langevin in Grenoble France.

[5] Glenn A. Baxter, P.E., has a degree in Industrial Engineering from the University of Rhode Island and is a Licensed Professional Engineer in Illinois and Maine.

[6] *General Chemistry, Third Edition, P.W. Selwood, Holt, Rinehart, and Winston*

[7] [www.k1man.com/b](http://www.k1man.com/b)

[8] Resnick and Halliday, Physics For Students of Science and Engineering, Second Edition, 1962, Wiley, Page, 563, Table 26-1.

[9] [www.k1man.com/NIST160405.pdf](http://www.k1man.com/NIST160405.pdf)

*"To kill an error is as good a service, and sometimes even better than, establishing a new truth or fact."*

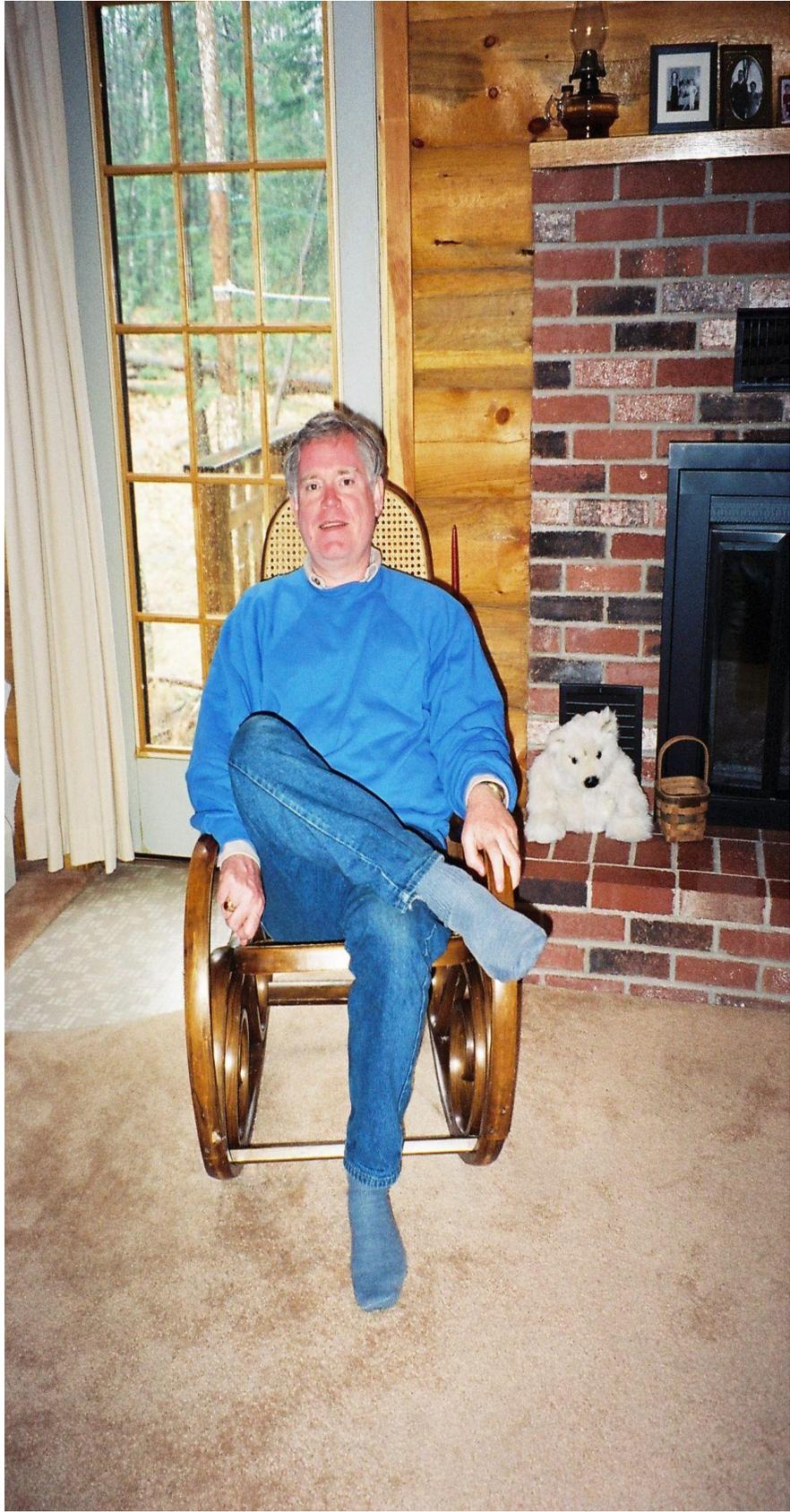
– *Charles Darwin*

**Mr. Baxter has a degree in Industrial Engineering from the University of Rhode Island and is a Licensed Professional Engineer in Illinois and Maine. He is a graduate of Vermont Academy, which honored him in 1993 as a Distinguished Alumnus with the Dr. Florence R. Sabin Award. It was at Vermont Academy as a student where Mr. Baxter attended a talk and met the very popular relativity author James A. Coleman. Mr. Baxter has been doing research in relativity and physics ever since and is currently Executive Director of the Institute for Advanced Research. See [www.k1man.com](http://www.k1man.com) His current interests include physics, philosophy, and theology.**

## SIXTH ANNUAL PHYSICS COLLOQUIUM IN PORTLAND, MAINE - 20 August 2016

The 20 August 2016 Physics Colloquium will be held at a hotel in the immediate Portland, Maine airport area and will feature two speakers in the morning and two in the afternoon. The Colloquium fee is \$95, and the pdf proceedings and the video of all presentations and discussions recorded on a thumb drive will be free for all attendees, and will be \$95 postpaid anywhere in the world for everyone else. We are now extending invitations for world class speakers.

The presentation paper pdf files will be e-mailed to all those registered well before the Physics Colloquium so that the papers can be studied ahead of time, which will greatly improve the effectiveness and efficiency of the Physics Colloquium itself. Attendees are cordially invited to dinner in Portland, Maine on Friday evening, August 19, 2016 at 7:00 p.m., to informally meet and to also discuss physics. Please register for the Physics Colloquium by sending an E-mail to [Institute@K1MAN.com](mailto:Institute@K1MAN.com). All meals (and drinks) are separate at the hotel (off the menu) or wherever else is desired. [www.k1man.com](http://www.k1man.com) Telephone 207 242 2143 See you there?



**Glenn A. Baxter, P.E., at his home in Belgrade Lakes, Maine U.S.A.**



**Glenn A. Baxter, P.E., age 4, with his dad, Frank H. Baxter (Bachelor of Science Degree, Mechanical Engineering, 1914, Rhode Island State College), and President of Frank H. Baxter Associates, 370 Lexington Avenue, New York City. See [www.k1man.com/fhb](http://www.k1man.com/fhb) and also [www.k1man.com/w10](http://www.k1man.com/w10) and [www.k1man.com/Loons](http://www.k1man.com/Loons)**













































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































































