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According to Kant, mass conservation is a *synthetic a priori judgement*
If mass is not conserved as Einstein means, the involved mass values are false.
Present different masse values of isomers refute mass spectrometry.
There is no mass defect, Einstein misled physics.
To identify energy and mass is a category mistake.

Abstract

Kant reasoned that **the principle of mass conservation is a *synthetic a priori judgement*** that we can obtain independently of experience. So it cannot be falsified by experiments.
Kant: *During all transformations of the physical reality the quantity of matter remains unaltered*.
Einstein argued that mass conservation is not a necessary norm that physics has to obey but an empirical result that can be falsified *a posteriori*.
Einstein's alleged falsification of mass conservation exhibits his assertion:
Atomic parts together possess a mass that is greater than the mass of the atom as wholeness. Or the parts are heavier than the whole thing.
This mass difference is the famous ***mass defect* $\Delta\mathbf{m}$**.

According to Kant this is an error. Not an empirical principle of mass conservation is violated but the odd mass values that Einstein makes use of are faulty. The principle of mass conservation reobtains its glory! If there is no mass defect, then one cannot calculate the atomic binding energy according to $E_B = \Delta mc^2$

It can be showed why Mass Spectrometry fails to determine real mass values.
Unambiguous direct proof of falsity of MS-mass values:
Isomers that consist by definition of the same atoms show different mass values.

In the 19th century chemists came to the conclusion that mass values are integer numbers: 1.00 for hydrogen, 2.00 for deuterium, 4.00 for helium etc. Therefore mass is quantized. Atoms consist of hydrogen's.

Concerning mass physics shows a mess

To say it straight away the unbelievable result is that present physics does not know one unique, univocal mass value for hydrogen neutrons but numerous different values that are all false!
Hydrogen mass is not an odd value but is 1.00. Neutrons don't exist inside of an atom but only hydrogen's (Prout). Neutrons are in reality damaged hydrogen's that decay.
Einstein claims that the masses of the constituents of an atom are greater than the mass of the atom as a wholeness. Therefore a mass defect $\Delta\mathbf{m}$ appears.

True mass values provided there is no mass defect. Of course then the atomic binding energy cannot be calculated according to $E = mc^2$.

Einstein argued that instead of speaking of a mass defect Δm one can say that there is a real mass that corresponds to the atomic binding energy because binding energy can be converted into mass according to $m = E/c^2$
Recall that Max Jammer presumed to the dictum that mass and energy are identical...
Einstein made an unbelievable category mistake. Atomic binding energy cannot be identified with an „energy-mass" according to the formula $m = E/c^2$ in order to balance masses of the whole atom with masses of its constituents.
Mass and energy conservation are not empirical laws but quasi book keeping rules. Mass and energy cannot be created or annihilated…
Categorical diversity of mass and energy:
Energy is relation by definition: $E \equiv \int F \times ds$, energy is not a "thing".
Mass means amount of matter. In atomic physics mass refers to the number of hydrogen atoms that comprises a specific atom (William Prout).
Therefore mass is quantized:
Hydrogen H: mass = 1.00; helium: mass = 4.00; carbon: mass is 12.00.

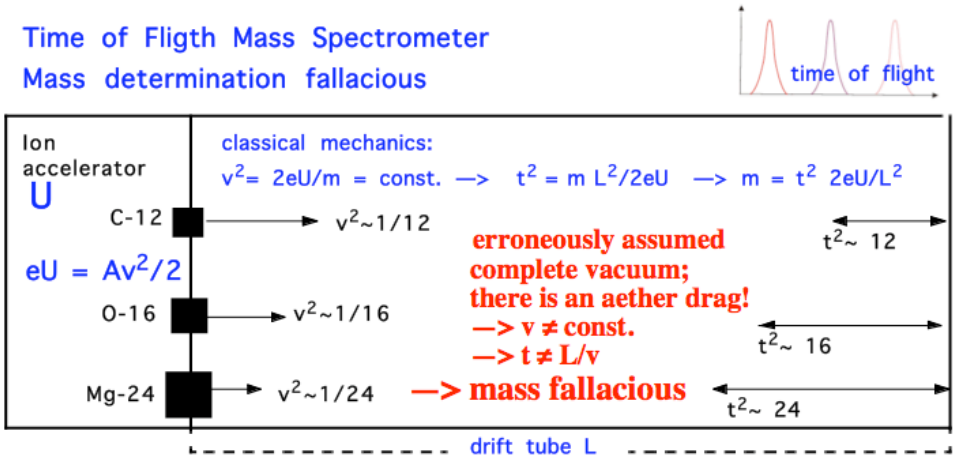
Mass spectrometry does not measure mass directly
Flawed theory serves to calculate mass from measured data
Mass spectrometry is theory-laden

First realization: Mass spectrometry is a misnomer. There is no direct measurement of mass! What does a time of flight mass spectrometer (TOFMS) measure technically?
It does not measure mass values but the time of flights $\boldsymbol{t}$ for ions X^+ in the tube.
Mass values for neutral atoms X are calculated ones: mass for ion X^+ plus electron mass. Mass is an additive property.
Calculation of mass due to times of flight $\boldsymbol{t}$ is due to classical mechanics that does not hold in microphysics.
If mass values are false, then classical mechanics is not applicable!

Classical mechanics theories involved in MS are:
Is there a total void or a dielectric medium („aether")?
Do forces on ions depend not only on mass and acceleration but also on velocity and spatial structure?
It is erroneously assumed that times of flight $\boldsymbol{t}$ of ions depend linearly on the amount of mass, which is not the case! Times of flight $\boldsymbol{t}$ depend also on the structure of the atom that is different even for isobars.
So to calculate mass from the times of flight delivers wrong mass values .
In microphysics we must take resisting forces of a dielectric aether into account that depend on acceleration, on velocity and on the shape of the atom

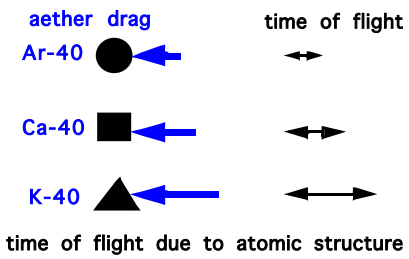
What does a time of flight mass spectrometer (TOFMS) measure technically?

It does not measure mass values but the time of flights for ions X^+ in the tube. Mass values for neutral atoms X are calculated ones: mass for ion X^+ + electron mass.
http://alevelnotes.com/Mass-Spectrometry declares unambiguously:
A Time-of-Flight Mass Spectrometer works by accelerating an ionized sample and calculating mass per charge based on how long each 'object' is in flight. Newtonian mechanics is not applicable in this case. Ions possess velocities in the range of $v \approx 10^{-4}$ c. Due to the relatively small velocity in the range of $v \approx 10^{-4}$ c = $3 \cdot 10^4$ m/s the velocity dependent effect may be minute – but it is detectable.



Now it must be considered that flights don't happen *in vacuo* but in a dielectric medium. An aether drag must be considered that depends on acceleration, on velocity and on atomic or molecular structure. Isobars and isomers possess the same mass. But the collocations (formations) of hydrogen's that constitute atoms are different.

But due to different architectonic structures of isobars and isomers they exhibit different times of flight. But mass is not dependent on time of flight according to the untenable formula **"m" = t^2 2eU/L^2** that is inferred according to classical mechanics. But classical mechanics is inapplicable in high-velocity microphysics.



The correct mass is 40 Da.
The longest time of flight has ^{40}K, according to the untenable formula ^{40}K allegedly possesses the greatest mass.

That the atomic architectures of the three isobars are different show
1: the different ionization energies for them: Ca: 6.11 eV; Ar: 15.8 eV; K: 4.4 eV.
2: The three isobars possess three different quadrupole moments Q.
Single goal for MS mass values is the determinations of molecule constituents and the abundance of isotopes. But for this goal rounded mass values suffice. Therefore to determine mass values, MS is not only erroneous but it is superfluous because mass values are known: The atomic number A is identical with the mass value.

Contemporary physics uses mass values due to mass spectrometry (MS) that are yet false because **calibration is missing**. In order to calibrate the mass function it is necessary to know some, „true" masses. Physicists should recall that for early chemistry masses are whole numbers:
H =1.00, He= 4.00, C=12.00...

The mass of hydrogen

Official value according to mass spectrometry **M [H] = 1.007 825 032**
The mass of H due to mass differences differs from that value. Startling outcome: There are many different experimental values.
The masses are calculated from times of flight not with the appropriate theory
Regarding mass spectrometry values, if mass of C = 12.00 an odd and faulty MS mass value for hydrogen follows: H = 1.007825!
On top of that this is not the unique and univocal mass value for H because we get a lot of different mass values from the following subtractions. Mass difference for example $^{14}N - ^{13}C$ delivers for H the mass value 0.99972 whereas the MS value for H = 1.007825! (Because M[H] = M[P] + M[e]).
That present physics ascribes to hydrogen many different mass values is intolerable

Mass difference	**= mass of hydrogen H**
$^{14}N - ^{13}C$	0.99972
$^{16}O - ^{15}N$	0.993835
$^{19}F - ^{18}O$	0.999245

Reason for mass difference:
$^{14}N - ^{13}C$ is exactly the mass of hydrogen, etc.
$^{14}N = 7p + 7e + 7n$
minus $^{13}C = 6p + 6e + 7n$
$= p + e = H$ (p = proton, e is electron, n is neutron)

The disaster with neutron mass

Neutron mass due to MS difference values contradicts present calculated neutron mass M[N]= 1.008664916 due to the nuclear reaction $n + {}^1H = {}^2H + \gamma$ (2.2 MeV)
Calculated neutron mass due to nuclear reactions presumes validity of $E = mc^2$
Different nuclear reactions deliver different neutron mass values. Neutron mass according to MS differs from the calculated one.
To calculate binding energy, neutron mass is a prerequisite. But depending on different reaction processes, different neutron mass values are possible.

No justification exists for the choice of the present neutron mass value.
There are at least 10 known reactions that produce neutrons, for example:

$^{24}Mg + \alpha \Rightarrow {}^{27}Si + n + Q$;
$^{8}B + \alpha \Rightarrow {}^{11}C + n + Q$
$n + {}^{1}H = {}^{2}H + \gamma$ (2.2 MeV) etc.

According to $E = mc^2$ the energy Q (for example gamma rays) is converted into mass.
One obtains the present value of neutron mass from the arbitrarily chosen process that we have to consider next: **$n + {}^{1}H = {}^{2}H + \gamma$ (2.2 MeV)**

Recipe:
Convert the γ-ray produced in the reaction
$n + {}^{1}H = {}^{2}H + \gamma$ (2.2 MeV) into mass.
The known ($^{2}H - {}^{1}H$) mass difference combined with the mass equivalence m_γ of 2.2 MeV yields the "official" mass for the neutron:
= 1.006 276 746 30(71) Da + 0.002 388 170 07(42) Da = 1.008 664 916 37(82) Da

For no reason physicists selected this neutron mass
Consequences: Since each of the mentioned nuclear reactions yields different calculated neutron masses, something must be wrong. As mentioned, the used mass values of the elements are wrong. The conversion of γ-radiation energy into mass can also be false.
Calculating the mass of the neutron due to nuclear reactions presumes the mass equivalent of the γ- radiation. This value is determined with the mass/energy equivalence formula $m = E_\gamma/c^2$.
In order to test the binding energy formula $\boldsymbol{E = \Delta mc^2}$, the current neutron mass value cannot be applied because the formula is a premise to derive the neutron mas.
To avoid circularity, we must use a measured neutron mass

Mass difference	= Neutron mass
$^{2}H - {}^{1}H$	1.00 6277
$^{18}O - {}^{17}O$	1.00 003
$^{100}Ru - {}^{99}Ru$	0.998 28
	Present neutron mass = 1.008664912

Like for hydrogen, there is no unique mass for the neutron! There are different values due to MS-values and different values according to different nuclear reactions. These contradictions show that this part of physics is not a theory.

"Official" calculation of neutron mass according to nuclear reaction
$n + {}^{1}H = {}^{2}D + \gamma$ (2.2 MeV) yields an inequation.
γ-radiation is converted into mass M[γ] according to $E = mc^2$, $^{2}D - {}^{1}H = n$:

$n + = {}^{2}D - {}^{1}H + M[\gamma]$
—> inequation: $n \neq n + M[\gamma]$!

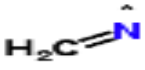
Inference: Neutron mass can only be determined when $^{2}D - {}^{1}H \neq n$,
i. e with wrong mass values of ^{2}D and ^{1}H

The calculated official present value for the mass of a neutron differs significantly from the values that can be reached by subtractions of MS values of isotopes.
Conclusion:
When both, hydrogen mass and neutron mass, have the value 1.00, then the mass defect for atoms is zero. The formula for the binding energy cannot be applied.
The present author argues that there are no neutrons inside of atoms.
Free „neutrons“ are defected hydrogen atoms that decay: **H* → p + e**
See the article on neutron.

Unambiguous direct proof of falsity of MS-mass values:
Isomers that consist by definition of the same atoms show different mass values.
Reason: isomers differ by spatial layout of their constituent atoms

Example:
Isomers of CH_2N: Methyleneamino and Methylidyneammonium

A = 28	Isomers	Mass (Da)
$H_2C{=}N$	Methyleneamino	28.018724
$HC{\equiv}NH^+$	Methylidyneammonium	28.018175
C_2H_4	Ethene	28.031300



Erroneous Wikipedia:
The molecular mass can be calculated as the sum of the individual isotopic masses... of all the atoms in any molecule. This is possible because molecules are created by chemical reactions which, unlike nuclear reactions, have very small binding energies compared to the rest mass of the atoms (10^{-9}) and therefore create a negligible mass defect.

No! Isotopic masses are wrong. True mass of CH_2N: 12+2+14=28

Second proof for the untenability of present „exact masses“.

Further evidence for the untenability of present mass values are these mass values themselves! For this purpose we regard the following isobars ^{40}Ca, ^{40}K ^{40}, ^{40}Ar . But attention, they have been isobars for chemistry a long time.
Physicists “revolutionized” the meaning of isobars:
According to the Bohr atomic model the so-called isobars are not isobars.
Isobars ^{40}Ca, ^{40}K ^{40}, ^{40}Ar for example possess different numbers of electrons, protons and neutrons, therefore their masses are different. We add masses of proton and electron to mass of H for the calculation only:
Present value M[H]= M[N]+ M[e]
Difference (M[N] – M[H]) = **Δm*= mass increment (** = 0.00084 amu)

	Present mass of atom	Present mass as summation of the masses of atomic constituents (protons, neutrons, electrons) Constant mass increase due to changing neutron/positron ratio	Mass of atomic parts
^{40}**Ca**	39.96259	M[^{40}Ca] = 20M[H] + 20M[N]	40.3298
^{40}**K**	39.96399	M[^{40}K]= 19M[H]+21M[N]=M[^{40}Ca]+(M[N]-M[H])=M[^{40}Ca]+**Δm***	40.3306
^{40}**Ar**	39.96238	M[^{40}Ar]=18M[H]+22M[N]=M[^{40}K]+ (M[N]-M[H])= M[^{40}K]+**Δm***	40.3315

Comment: Einstein claims that the mass of the atomic parts altogether is greater than the mass of the entire atom. Example ^{40}Ca: mass of constituents = 40.3298 but mass of the entire atom is 39.96259. The difference is the famous mass defect $\Delta m_{(Einstein)} = 0.3672$ which is allegedly due to the binding energy of the atom.

Regarding the mass of the parts of ^{40}Ca, ^{40}K ^{40}, ^{40}Ar, there should be an increase. The constant increment is +**Δm***. For the atoms as entity, a constant increment regarding mass should exist, too, irrelevant of its exact numerical value.
The table shows that from ^{40}Ca to ^{40}K there is an increase, but from ^{40}K to ^{40}Ar there is a mass decrease! This is the proof for the untenability of present mass values and their production... Furthermore the Bohr atomic model is discredited. Then regarding again the masses of the atomic parts the atom with the greatest mass is **^{40}Ar,** but according to today´s accepted mass values of the atoms **^{40}Ar** possesses the lowest mass value.
^{40}K possesses the greatest MS-mass. The reverse conclusion is that **^{40}K** has the greatest time of flight which is caused by the greatest resistance coefficient of the **^{40}K** atom in the resisting dielectric medium. In a vacuum times of flight and therefore masses of the three isobars should be equal, but this not the case. The following isobars show the same features ^{50}Ti, ^{50}V , ^{50}Cr ;^{138}Ba,^{138}La ,^{138}Ce .

Conclusio:
In terms of the Bohr atomic model with its nucleus that comprises protons and neutrons and electron shells around the nucleus, the masses of the isobars mentioned disagree with theoretical inferences.

Lavoisier and Kant versus Einstein

Einstein: Conservation of mass is violated, example ^{2}D Atom.
Mass of the atomic parts greater than mass oft the entire atom.

Legend: n= neutron; p = proton; e = electron. MS = Mass spectrometry.

MS-mass of ^{2}D		^{2}D-parts: n + p + e = n + ^{1}H ^{2}D: mass of parts 1.008 664 916 + 1.007825 =
2.014102	<	2.016489
Mass of the whole	<	Mass of parts
2.016489 – 2.014102	=	Mass defect Δm = 0.002387
2.014102 + **Δm**	=	2.016489

Einstein: According to $m = E/c^2$ the binding energy of the atom can be expressed as the missing mass in order to balance a generated novel "mass-energy" equation. If the binding energy of ^2D can be transformed into mass **Δm ,** the equation holds:

2.014102 + **Δm**	=	2.016489

Here Einstein made a category mistake: Mass and energy are not identical and are therefore not arbitrarily convertible.

There is no rationale for binding energy that is based on mass defects of pseudo-masses

The alleged binding energy for ^2D is $E_B = \Delta m/c^2$ is 2.2234905 MeV. (For the basis O = 16.00 binding energy is 2.226285. (Source Finkelburg, Atompjysik 1956)
Experiments missing!
Binding energy is definable when the nature of nuclear forces is identified.
At present strong attractive nuclear forces that outperform the repelling electrostatic forces between protons are *ad hoc* freely invented…

These strong nuclear forces cannot explain for example the non-existence of stable atoms with mass numbers 5 and 8. A Proutian atom with mass number 5 would comprise 5 hydrogen atoms. If we assume magnetic coupling as cohesive force, it is conceivable that 5 or 8 hydrogen's cannot be coupled magnetically in a stable formation. Masses have nothing to do with magnetic coupling.

Paradoxon of the mass defect Δm : Δm cannot be a stopgap
Suppose **$^2D - ^1H = n$**, then mass difference $M[^2D] - M[^1H]$ yields mass of a neutron M[N]

$M[^2D] + \Delta m$	=	**$M[N] + M[^1H]$**
$M[^2D] - M[^1H] + \Delta m$	=	**M[N]**
$M[N] + \Delta m$	=	**M[N]**
Δm	=	0

There is no mass defect!
The mass defect exists only for wrong masses $M(^2D)$; $M(^1H)$; M(N)

Characterization of the Proutian atom

The Bohr model is untenable. The alternative is the Proutian atom that consists of hydrogen atoms. Proutian atoms are compact, they don't possess electron shells.
Compare some isobars: Legend:
$\mathcal{M}$ = magnetic dipole moment according to the Stern-Gerlach experiment
Q = quadrupole moments https://www-nds.iaea.org/nuclearmoments/

Isob.	$\mathcal{M}$	$\mathcal{Q}$	Isob.	$\mathcal{M}$	$\mathcal{Q}$	Isob.	$\mathcal{M}$	$\mathcal{Q}$	Isob.	$\mathcal{M}$	$\mathcal{Q}$
^{87}Rb	1	+0,134	^{113}Cd	1	- 0,7	^{40}Ca	0	0	^{11}Li	1	- 0,035
^{87}Sr	1	+0,33	^{113}In	1	+0,8	^{40}Ar	0	0,01	^{11}B	1	0,0406
^{50}V	0	0.21	^{54}Fe	0	-0 05	^{40}K	0	- 0,06			
^{50}Cr	0	- 0,36	^{54}Cr	0	-0,22						

Therefore the isobars can be distinguished through different quadrupole moments. Characterization of the Proutian atomic model:
1: Number of hydrogen constituents. Mass number A = number of H's
2: Magnetic dipole moment according to the Stern- Gerlach experiment
3: Electric and magnetic quadrupole-, hexapole- and octopole- moments that depend on spatial construction of the atom

The Bohr-Moseley atomic model with extra nuclear electron shells is untenable. You may mention that I neglect the disparity of protons and neutrons in the nuclei, yes, my atomic model is an aggregate of H-atoms.
The Proutian atom does not contain neutrons. A neutron is a decaying hydrogen:
$H^* \rightarrow p + e$
The Proutian atom is not subdivided into nucleus and electron shells.
There are no experiments to verify the Bohr-Moseley atomic model with its Z (= atomic number) electrons and protons and with A - Z neutrons

So, of what is H made of?
Take atoms, we observe ß$^-$ (electron) and ß$^+$ (positron) decays (ratio 50%).
The decay fragments of neutrons are protons and electrons. The neutron is nothing but a decaying hydrogen.
So the atom contains hydrogen building blocks only. Proton-proton collisions show also positrons as fragments. Therefore one can argue that the positively charged proton is made up of a positron and an unknown number of neutral ($\mathbf{e^+ e^-}$) pairs (positronium Ps).

The Anderson effect: evidence for mass-energy commutation? No!
See the article on the Anderson effect.

References

Lavoisier (1743–1794) had expressed these ideas in 1774 (wikipedia)

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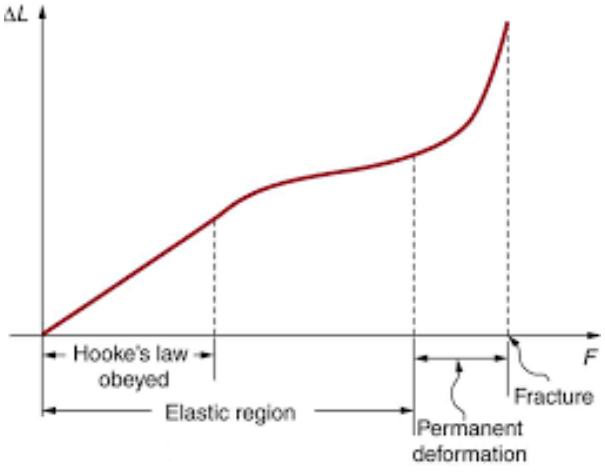
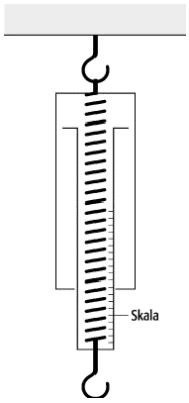
Appendix:

Missing of MS calibration. Comparison: calibration of a spring scale

Assumption:
The elongation of the spring concerns the entire elastic region and not only the region where Hooke' law is obeyed. Supposed that until 5 kg Hooke's law is obeyed but the scale should range until 10 kg. i.e. for the entire elastic region. Then calibration based on experiments is necessary.

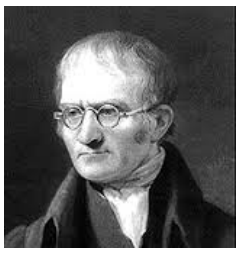
Picture: http://hookeslawexperimentkf4g14.blogspot.co.at/





Appendix

History of quantum chemistry


Since Proust, Dalton, Prout and the advent of stoichiometry mass values of the elements have been well known. Mass means quantity of matter *(quantitas materiae),* quantities are:
for hydrogen: mass = 1; for D: mass = 2; for T: mass is 3 and so forth.
According to Prout, hydrogen is the building block of all atoms.
In this factual situation it remains a mystery why contemporary physics attempts to measure masses of elements and their isotopes. Moreover, one is amazed about the fact that nobody justifies the fact that measured (odd) mass values differ only marginally from integer mass values of stoichiometry. So the measured mass of ^{4}He is allegedly 4,0026 Da and not 4.00 Da as before. The value 4.0026 holds for the ^{12}C = 12.00 scale. For scale ^{16}O = 16.00 in turn another value must be considered!

Odd MS mass values are almost whole numbers but did not perplex physicists. Chemistry showed that mass in microphysics is not a stepless amount of matter but quantized: hydrogen is the basic constituent of all atoms and therefore the unit of mass…