

ZERO-POINT ENERGY DOES NOT EXIST

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1. OPENING:

The origin of zero-point energy all started with the discovery of Max Planck in 1900 from his works on black body radiation. The end result was his equation $E = h\nu$ that gave the energy for a specific pure frequency. The h is called Planck's Constant and it was shown that it only occurs in whole number multiples, never a fractional value. This by definition, is a **quantum**. Multiple h 's are a quanta. It was then spoken of as the unit of action or energy. That is, the energy in h can result in some action. Simply, it takes one h to create one single cycle of radiation (electromagnetic radiation) or one single cycle of said radiation can impart one h of potential energy when the radiation is absorbed by a mass etc. The major result is that the action or energy can only go up in whole numbers or *jumps*, never in fractional values.

Black body radiation is that which is from a heated mass that has not reached the temperature that would result in the atoms becoming ionized. This radiation is **continuous** in nature until the ionization point is reached. All the radiation from any mass has the same frequency distribution (visual color) for a given temperature. Therefore, when viewed like through a prism, the spectrum is a solid band of color. Therefore, it is frequency modulated and there is no known spectrograph that can separate two adjacent frequencies. From h being a quantum, then each adjoining cycle must be or have one h of energy difference or the frequency goes up and down by one cycle/sec between adjacent cycles. This was Planck's original discovery. This has long been removed from textbooks so no longer taught or are in references.

What Planck did was to consider the radiation source an oscillator. In his original works, this oscillator (source) emitted discrete (read quantum) cycles. Later he thought it might be *continuous for absorption* while discrete for emission and regulated by some probabilistic law, **a very bad postulate**.

The end result was that the energy of an oscillator did not vanish at zero temperature. When $T = 0$ the equation became $E = hv/2$ and was given the name of zero-point energy. From that point on it was deduced from quantum mechanics, throwing in the Heisenberg Uncertainty Principle (that probabilities), electrons oscillating at c across a nucleus, virtual (look that word up) particles that come into and disappeared in a vacuum (= space), the permeability and permittivity of vacuum that were created when the old cgs system was changed to the MKSA system etc.

Apparently no one, including Planck, actually thought this out in the first place.

#1. Temperature is a mass with a speed. No mass no temperature, no speed, no temperature. So, if a mass went to absolute zero, it had no speed and could not oscillate (emit energy) in the first place. It is fairly well acknowledged that no mass can go to absolute rest in the first place.

#2. There was never any experiment that showed any h less than itself. Just the opposite, only in full jumps. Therefore, there could be no half-cycle of radiation oscillated.

#3. A mass having one h of energy to radiate would be going at the slowest speed it could reach. If it radiated that one h of energy, its speed would go to zero resulting in #1.

#4. It was never explained how or why if the oscillation was discrete, that it changed to a continuous (whatever that meant) form. This was probably the confusion that the continuous spectrum had no breaks or could not be resolved into the individual cycles composing it. But, frequency modulation of radiation was unknown then so that problem should have been resolved when it was shown that radiation could be frequency modulated. The problem is/was however, that line spectra have never been frequency modulated. But, still no excuse for this not to have been resolved.

#5. Later when the equations were formulated to account for the spectral distribution curves for a black body radiation, then there should have been the following question and answer. What is the smallest frequency of the oscillator that it can go to and at what temperature does this occur? The answer is and was obvious; when it is one single cycle/sec having one h of energy. There is no frequency distribution curve, and it cannot oscillate and emit its last h of energy. The mass is moving at its slowest (quantum) of speed and must increase its speed one speed jump up (one quantum of length) to have 2 h 's so that one can then be emitted and its speed drops back to the slowest.

2. THE PROOFS:

The proofs of the arguments set forth are easy and should have been found long ago. The reason they have not been is because the present current scientific establishment denies and refutes any quantization of the physical constants nor are they related to one another.

Following is a very brief proof.

It is fully accepted that h is a quantum. Then it is accepted and so set forth in writing in the BIPM (CODATA) values for the physical constants that h can be given in or converted into electron volts (eV). This value to its known digits in accuracy is 4.135667×10^{-15} eV. Therefore this is and must also be a quantum (from a quantum comes a quantum).

eV can be converted into temperature. This conversion must then be both the theoretical start to measurable temperature and the lowest temperature than can be reached above absolute zero. Doing this conversion then gives: 4.79904×10^{-11} K. This can be double checked by dividing the eV by Boltzman's Constant that gives the same answer to digits of accuracy. The temperature of any radiation is its frequency $\times 4.79904 \times 10^{-11}$ K etc. *And ALL of these values can only go up or down (to lowest limit) in these quantum jumps.*

It is then easily shown that this temperature is identical to an electron moving at one of its diameters per second or the proton moving one of its diameters per second. Then as their speeds increases, the temperatures diverge (electron lower) until the have reached to a speed near c where they would have their highest temperature, proton sets maximum. However, no mass can go to c so the maximum attainable temperature is impossible or cannot be reached. Neither can the lowest be measured, only that of one jump higher, at least in theory.

3. FURTHER THEORIES:

Further postulates that further supported the creation of Zero-point Energy (ZPE) came from the work of Werner Heisenberg (1901-1976) who set forth certain results from his doctoral theses on the operation of a **spectroscope**. Essentially he showed that it depended on probabilities. He was wrong. But prior to that Max Planck (1858-1947) had set forth that light (radiation) from hot but not ionized masses named black bodies, was of a quantum nature. From this he set forth the energy for a specific frequency using his discovered Planck's Constant, symbol h , the quantum of energy or action.

The units of measurement used by most prior scientists was the gram-centimeter-second system (gcs now as cgs). The unit of energy was the erg. The unit of force (static) was a dyne. This system had only one constant of proportionality in it, the Gravitational Constant, symbol G . In 1937 the rationalized meter-kilogram-second system was adopted a.k.a. MKSA or the same as absolute, that it was not and impossible besides. The centimeter was multiplied by 100 and became a meter, the gram was multiplied by 1000 and became the kilogram, the second remained 1. This system created two new constants of proportionality called the permeability and permittivity of vacuum. This came about because the singular charge of the electron was made multiple charges or the Coulomb or the number of electrons flowing past a given point in one second called the Ampere.

Then to add insult to injury, these two new constants, *just a number*, were illegally assigned actual physical dimensions and gave space properties. In all fairness, a few scientists know this is totally false, but their voices are ignored.

This comedy of errors was further compounded to total absurdities and is/are promulgated by the current physics establishment as facts when in fact it is all science fiction.

It will require a set of proofs that each alone shows no ZPE is possible and altogether triple proofs of its nonexistence.

PART 1

SPACE and the Permeability and Permittivity of Vacuum:

First off, what is space is not known and probably never will be. It cannot be defined in the first place. What can be done is to DESCRIBE space. Space is what is left if anything and everything except itself is removed. It has no parameters (numbers assigned or scalar values) and only some properties. It occupies a volume. It is cold as there is nothing in itself (NOT what is IN space) to create a temperature. It is dark or radiates no radiation so can't be seen. And lastly, it extends out to some infinite volume that might never end in the first place. It is beyond human comprehension.

Therefore, to make any speculations that it can be compressed, expand, flow, warped etc. is pure nonsense. Why not carry this out to the extreme (*reductio ad absurdum*) and claim it has a smell, taste, modulus of elasticity, coefficient of expansion, brittle, rigid, some color (black would be appropriate), flexible ad nauseam?

Extremely few, if any, textbooks inform the students to where the (now P&P of V) came from or even what it actually is. Excluding the time of one second, it was a result of changing the units of measurement from the cgs SINGULAR values to the MKSA *multiple* values. The old equation for the force of charges no longer worked. The new unit of energy was the Joule. The force in the MKSA was named a Newton. G only had its powers changed.

Here is the true definition of the P&P of V: From Lemer & Trigg, Encyclopedia of Physics:
After defining a linear response to a dielectric where epsilon is the dielectric function and sigma is the conductivity of the dielectric the article states: "Analogously one can define a complex magnetic permeability (μ) related to **B** and **H**." Under Ferromagnetism the authors state: The magnetic field strength is **said to** polarize the vacuum and **create** a magnetic flux density the magnitude $\mathbf{B} = \mu_0 \mathbf{H}$, where μ_0 is the permeability of the vacuum, **a concept of convenience** is establishing the SI units of **B** and **H**. The dictionary definition of permittivity is **a ratio**: "the ability of a dielectric to store electrical potential energy under the influence of an electric field measured by the ratio of the capacitance of a condenser with the material as dielectric to its capacitance with vacuum as dielectric" - - therefore **just a number without dimensions**. (bold is my added)

Therefore, they are just numbers (ALL ratios are just numbers) and you cannot add any physical dimensions to them to create entities any more than you can to any other numbers. Hence, giving space those nonexistent **parameters and properties**.

Though it takes yet more proofs, space is not a dielectric. That came about from comparing dielectrics to space rather to some actual physical matter. The experiments assumed that space held some charge or energy, when in fact it did not and could not. For brevity, a capacitor consisting of two plates in a vacuum can hold so many charges UP to the "breakdown voltage". This is when the field is so strong, electrons are pulled out of the plates and shorts out the capacitor. When another non-conducting material is inserted between the plates called a dielectric, the capacitor can hold more charges *before breakdown*. Therefore, this material when COMPARED to the vacuum defined its dielectric properties. That was the mistake. NO charges per se are stored on or **in** the intervening dielectric material. Scientists are very confused on that matter. It **is impossible** to put a real positive charge on any normal surface.

Therefore, there is nothing in this space = vacuum that can create or store energy in the first place.

Now even IF there was this P&P of V, any equation it can appear in can be dispensed with or eliminated.

ALL physical equations have a constant of proportionality that is normally shown as "k". However, since the k is normally 1, it is usually not shown in the equation(s) as a matter of convenience.

Now we have to go back a bit. In the cgs system the singular charge is called the electro static unit (e.s.u.) that is the numerical value of the singular charge and the magnetic equivalent is called the electro magnetic unit (e.m.u.) and again, are parts of a ratio. In 1856 Weber and Kohlrausch performed an experiment to measure this ratio. The ratio of the e.m.u. to the e.s.u. was found to be the identical numerical value for the speed of light. It was NOT THE SPEED OF LIGHT that has the L/T after it or cm/sec or whatever. Simply its numerical value was ALSO the LENGTH that light went during one second of travel, or, was ALSO the wavelength for a one cyc/sec frequency of radiation, or it was some fraction of the length from the Earth to the Moon.

Therefore, the scientists had no cause or reason or fundamental fact to ADD physical dimensions to this value and CLAIM it WAS the speed of light. That is their arrogance and infallibility at work.

Now jumping ahead to after the adoption of the mks system, there was then applied this P&P of V to another claim that an equation gave the speed of light. You know this as Maxwell's Equation that is an outright lie. Maxwell never worked in mks, but in cgs and who created this absurdity is unknown, but it was not Maxwell.

$c = \sqrt{\frac{1}{\mu_0 \epsilon_0}}$ meters/sec. It is now obviously impossible as the denominator is JUST A NUMBER as the P&P of V are just numbers so that the result is 2.99792458×10^8 just a number and like that of 1856 had ADDED to it m/sec or gave it the speed of light illegally.

The author discovered how to dispense with and eliminate any constant of proportionality, including G. Therefore, the mks multiple unit system can be converted BACK to a singular system. The equivalent ratio of the e.m.u. to the e.s.u. is then: (> means digits continue)

$$\frac{4.553687899 > \times 10^{-6}}{1.518946784 > \times 10^{-14}} = 2.99792458 \text{ exact } \times 10^8$$

The force for charges where r is in meters in the mks is $F = \left(\frac{1}{4\pi\epsilon_0}\right) \frac{Q_1 \times Q_2}{r^2}$

The force for charges where r is in meters under its singular value is:

$$F_T = \frac{(n)1.518946784 > \times 10^{-14} \times (n)1.518946784 > \times 10^{-14}}{r^2} \text{ Newtons, where (n) is the number of}$$

charges. The preceding constant of proportionality in its original equation is gone, dispensed with and no longer is needed or exists.

The P&P of V have been eliminated. Therefore, NO ZPE once again or **double proof** in this PART 1.

For information purposes ONLY, the singular force for gravity where (n) is the quantity in grams is: for cgs and does not have or use the Gravitational Constant as it has likewise been eliminated or dispensed with:

$$F_T = \frac{(n) 2.857 > \times 10^{-4} \times (n).2.587 > \times 10^{-4}}{r^2} \text{ dynes For mks or MKSA it is:}$$

$$F_T = \frac{(n) 8.158 > \times 10^{-6} \times (n) 8.158 > \times 10^{-6}}{r^2} \text{ Newtons where (n) is in kg and r is in meters.}$$

PART 2

The next is where did the Heisenberg Uncertainty Principle (HUP) come from in the first place? Here is a problem of what is to be set forth first or the old chicken and egg paradox. I believe the readers will understand the HUP better if I set forth the chicken (me) first. It will follow from my book. For clarity the symbols I use are slightly different from normal. L is length, T is time, and $c_v =$ is the old c or the speed of light. RE is short for radiation energy or the old generic word light. | means division or the current / symbol. \neg means reciprocal 1/ whatever

From the author's book. RE is electromagnetic radiation or "light" or just plain radiation energy generically.

CHAPTER 64

A NEW CONCEPT OF PHYSICS

"The longest journey begins with but one step." Old Chinese proverb.

PART 1

Any theory is a good theory if it satisfies two requirements: It must accurately describe a large class of observations on the basis of a model that contains only a few arbitrary elements, and it must make definite predictions about the results of future observations, or to reinforce, or to disapprove, hence correct, previous observations.

In the **INTRODUCTION** {old, not in this manuscript} was that the primary physical constants have some number(s) and that these numbers are related. From this point onward, it is the purpose of this work to determine, show, and prove that these numbers are not just some "accident" or some probability that they have said values. Heinz Pagels (deceased) in his book *PERFECT SYMMETRY* by Bantam Books, set forth that there might be some natural values to the primary physical constants and this viewpoint is embraced by others. However, there was also brought out that they might be arbitrary and forever beyond our reach. Which is the correct one will be proved in this work. Now to start.

RE has a finite measurable speed through space, c_v , and some of its properties or parameters, which are called Energy, frequency, wavelength, and Emission (creation) Time.

My one postulate is that: "RE is unidirectional", and that is not a real postulate, because it has been known for over a hundred years, that line spectra have a *finite* Wavetrain Length. That is the Length RE frequency has when being given off by the jumping electron. It *varies with each frequency* and even two widely varying frequencies can have very close Wavetrain Lengths.

It can and was measured over 100 years ago by means of an interferometer because *it marks the limit that the interferometer will work at that specific Wavetrain Length*. This has been deliberately ignored, **censored out**, in modern textbooks. The Emission Times of light in line spectra are of very short duration ($\infty \times 10^{-8}$ sec.) is glossed over likewise. It raises too many questions, best ignored, because it might conflict with present concepts and theories. This Wavetrain and the relations of the parameters are shown in the following illustrations.

Units of Measurement understood unless specifically noted. From (62-4):

$$c_v = L / T$$

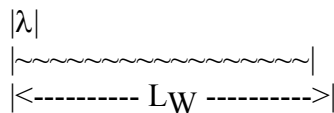


FIG. (64-1)

$$c_v = v\lambda \quad (64-1)$$

$$\text{Now } n_{\sim} = \frac{LW}{l} \text{ and likewise} \quad (64-2)$$

$$n_{\sim} = Tv \quad (64-3)$$

When all of the Energy is equally divided up among all the cycles, then:

$$E_{\sim} = \frac{E}{T\nu} \quad (64-4)$$

It therefore follows that if E changes, then n changes; but $E_{\sim}T$ must **remain constant**.

When $E = 2$ and $\nu = 2$

$$2 = E_{\sim}T2 \text{ therefore } E_{\sim}T = 1$$

$$4 = E_{\sim}T4 \text{ therefore } E_{\sim}T = 1$$

Obviously doubling the frequency doubled the Energy, but the total of $E_{\sim}T$ does **not change**.

This was first postulated by M. Planck and fitted into theory and experimental results and is called h or Planck's Constant. I intend to continue to call it a Unit of Energy. *It is the smallest bit of Energy that can be measured.* Some scientists call it a Unit of Action which is correct, because that smallest bit of Energy can cause some action like accelerating an electron by some value, which is a clue to the previous statement that there are going to be some startling revelations concerning same. Unfortunately they never connected that action with anything specifically, like an electron.

Therefore, $E_{\sim}T = h$ and so:

$$E = h\nu \quad (64-5)$$

But this means that:

THE EMISSION TIME t_e , MULTIPLIED BY THE ENERGY IN ONE CYCLE
IS A CONSTANT = h, WHEN $T = 1$ second.

BOX 33

PART 3 contains further proof.

Now E for a specific n of a RE Is not (64-6).

$$E = n_{\sim}h \quad (64-6)$$

Attempts to use (64-6) to explain the Photoelectric Effect resulted in too low a value for E and gave rise to the old corpuscular concept or under its new name, the "Photon", and that was the first big mistake. (64-6) is only true when T is one whole second, which means L_W is the Length RE travels in that one second, L_C , or extended out to a standard Length of L_C . The scientists had two choices and invariably they chose the wrong one, (Ben Franklin Quandary or his two choices on the flow of electricity and choose the wrong one.).

First, they knew that the Wavetrain Length was finite and hence they knew just how many cycles composed such a Wavetrain and the Emission Time. What disturbed them was each cycle had more than one h in it, but they could not account for the effects of said **frequency**.

Had they but given it a bit of thought they could have reduced the Wavetrain Length and put all of the Energy into one cycle and that would then be the "Photon". It failed in the equation $E = h\nu$ because that was the frequency for one whole second if the cycles had been actually counted for one whole second, but there were too few cycles actually counted (measured). Therefore, they created a "Frankenstein" by creating a nonexistent entity having all the Energy that had no Mass that is an "impossibility".

With time it led to all sorts of reductio ad absurdum "scientific" experiments and totally illogical conclusions which, compounded in the end, gave rise to such "proof" that one Photon knew what another Photon was doing somewhere in the Universe, etc., i.e., it was given "intelligence".

What they did not understand was, *exactly what is frequency?* As a result they went in the opposite direction and that was a disaster, because the Photon concept (which was originally a simple mathematical shortcut) became a reality.

They cannot be faulted, because they had Continuous Radiation to account for. Essentially, by extending out the Wavetrain Length, then *each and every single cycle* for the frequency for one whole second had only one h in it.

From one of the forgotten experiments performed nearly 100 years ago, the Wavetrain Length of the sodium line whose (λ) wavelength was 5890×10^{-8} cm, gave the L_W as 480 cm. Rounded off values used. T_e is actual emission time.

$$\lambda = 5890 \times 10^{-8} \text{ cm} \quad L_W = 480 \text{ cm} \quad \nu = 5.093 \times 10^{14} \text{ cyc/sec}$$

$$E = 33.371 \times 10^{-13} \text{ erg} \quad T_e = 1.6 \times 10^{-8} \text{ sec}$$

$$L_W = 1.6 \times 10^{-8} \times 3 \times 10^{10} = 480 \text{ cm}$$

$$n_{\sim} = 1.6 \times 10^{-8} \times 5.093 \times 10^{14} = 8.149 \times 10^6 \text{ cyc}$$

$$E_{\sim} = 33.371 \times 10^{-13} / 8.149 \times 10^6 \text{ cyc.}$$

$$E_{\sim} = 4.14 \times 10^{-19} \text{ erg/cyc}$$

That shows why it did not work in (64-6). From BOX 33 then,

$$h = 1.6 \times 10^{-8} \times 4.14 \times 10^{-19} = 6.62 \times 10^{-27} \text{ erg-sec}^{-1}$$

Had we started out with our 480 cm long L_W and extended (stretched) it out until it was

3×10^{10} cm by adding additional cycles and then divide the total E among all the cycles in this Wavetrain now 3×10^{10} cm long, we should come out with but one h per cycle. This Wavetrain would be a STANDARDIZED WAVETRIN. That IS (64-5) or Planck's Equation

That means it is a **mathematical shortcut** and nothing more or nothing less.

$$\mu = \text{EXTENSION FACTOR} = 1/T_e = 1/1.6 \times 10^{-8} = 6.25 \times 10^7 \text{ times}$$

$$h = E_{\sim} \mu \tag{64-7}$$

$$h = 4.14 \times 10^{-19} / 6.25 \times 10^7$$

$$h = 6.62 \times 10^{-27} \text{ erg-sec}^{-1} \text{ per cycle (gm-cm}^2\text{-sec}^{-1}\text{/cyc)}$$

{See PART 3 the significance of that /cyc which is *left out* in all references.}

From this point on T will be designated as T_e = Emission Time, which of course, can be one second or less, not more. If T_e is greater than one second, then c_V would be greater than 3×10^{10} cm/sec, then *it would not be a second any longer*. Do not confuse with extended time like 60 seconds make a minute, etc.

$$T_e = L_W / c_V \tag{64-8}$$

Substituting (64-1) in (64-5) gives:

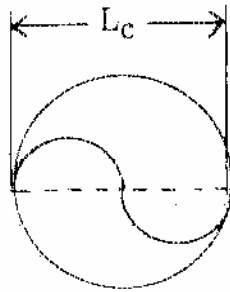
$$E = E_{\sim} T_e c_V / \lambda \tag{64-9}$$

$$\lambda E = E_{\sim} T_e c_V \tag{64-10}$$

$$\lambda E = h c_V \tag{64-11}$$

(64-11) can be written as: $h = E \lambda \times 1/c_V = E(\text{in one cycle}) \times T_e [= \lambda/c_V]$ The significance of this will be shown later when Photons are discussed.

What will now happen if one goes from $T_e = 1$ second to a lesser T_e ?



$$L_W = L_c$$

$$v = 1 \text{ cyc/sec}$$

$$n = 1$$

$$h = 1 (h)$$

FIG. (64-2)

A frequency of 1 cyc/sec can only have a T_e of one second and one h in it. We will conduct a Thought Experiment by compressing this one cycle.

When it is squeezed to half of its original wavelength, the frequency will double and the Energy will double, but there will be only one cycle; so, the Energy in that one cycle doubles and this is in agreement with accepted physics. Now the question: How far can this cycle be compressed? Since this is a special case and will give the same answer, let's consider a general case by using the sodium line.

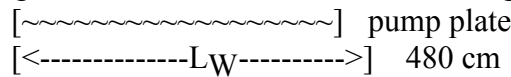


FIG. (64-3)

The pump plate will now be moved one cycle inward. That cycle disappears and the remaining cycles shrink. The wavelength decreases and the frequency increases. The Energy that was in that one cycle must be distributed among all the remaining cycles. That is because it took Energy to push it out of that one cycle and may be compared to compressing a spring or the work E required to do so. Readers, think this one out!

According to theoretical mathematics, this relationship is called a series and $= 1 - n^2$, which when calculated shows that v goes to *infinity*. If the mathematicians and the physicists who all believe the same theory accept this, then λ goes to zero, not to mention that c_v and L_W disappears!

This means that $E_\infty = h \times 0$ or $h = \infty|0$; but h is a constant, so according to the mathematicians, anything times zero is zero and they do a quick sidestep when it comes to something divided by zero, like, you can't do it, we do not know the answer. Don't try to figure this one out, as it is a perfect example of Infallibility.

As the pumping continues, a point will be reached when there are only two cycles remaining.

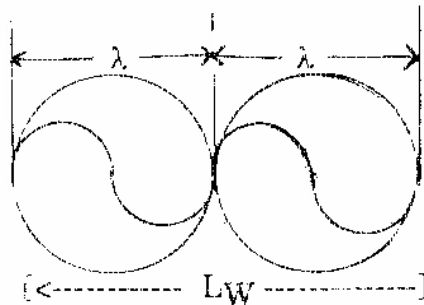
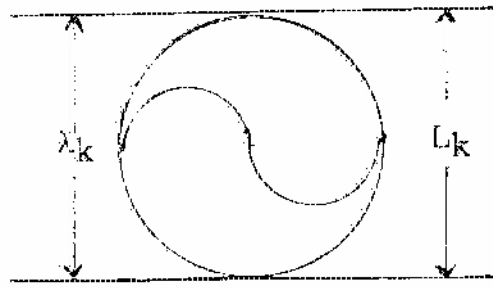


FIG. (64-4)

All of the Energy in these two cycles, is all the Energy that was in the original Wavetrain, and each one contains one-half of the original $E +$ work E .



$E = \text{Maximum}$
 $v = \text{Maximum}$
 $L_k = \text{Minimum}$

FIG. (64-5)

Then the final push and one is down to one cycle.

All of the Energy is in this last remaining cycle and there is simply no way to compress it further because $n_{\sim}h_{\sim}$ of original L_{\sim} cannot increase, λ cannot decrease, and v cannot increase. In other words, **one has reached the end of the line** (limit). So much for mathematical calculations and proof.

NO RE CAN EXIST HAVING LESS THAN ONE CYCLE AND ALL THE MINIMUM ENERGY IS IN THAT ONE CYCLE, NOR IN MORE THAN ONE CYCLE HAVING ALL THE TOTAL ENERGY.

BOX 34

That is FIG.(64-2) for the first part and FIG.(64-5) for the second part. Simply, at $v = 1 \text{ cyc/sec}$, $L_c = 3 \times 10^{10} \text{ cm}$, which is the minimum frequency and the maximum wavelength, $L_{\sim} = L_c$, and ends at one cycle having the maximum frequency and the minimum wavelength (v_{\sim} and $L_k = \lambda_k$). (The dots signify MAXIMUM value)

This now permits a real or true Photon to be defined as: A single cycle of RE having all of the Energy allowed.

Replacing T with T_e in (64-5) then becomes:

$$\boxed{T_e E_{\sim} = h} \quad (64-12)$$

This is Planck's Constant, but is immaterial at this point. Reasoning follows: What is the significance of (64-12)?

1. If one is interested in only results = answers, like in the equation $E = hv$, nothing.
2. If one is curious enough, two things occur. {t is original and remains so}
 - A. It looks very similar to one of the Heisenberg Equations on probabilities $\Delta t \times \Delta E \approx h$ (64-13).
 - B. That h is composed of two variable components (parts) which when multiplied, yield a constant value. Those two components cannot be of an infinite number of digits (fractional point values), but **each must be of some finite value** (quantum).

(1) **Therefore, this particular "Time" is not continuous, but discrete.**

Therefore, assuming h is a constant, then the two parts cannot be either *zero or infinity, but have limits so imposed thereon*, and, *it too must be some limit*.

These two parts can be separated into the component parts by means of a KEY (K) to cut them apart so if such is done:

$$E_{\sim} (K_{\sim}) T_e = T_e E_{\sim} \text{ but}$$

h disappears and no longer exists. To recombine, simply use the key (K^+) to lock them back again. T_e (K^+) $E_{\sim} = T_e E_{\sim} = h$

The use of $T_e E_{\sim}$ can be used in any L_W from the beginning to the end. Therefore: h is not bits of h and cannot be less than or greater than itself. The two component parts can be separated and used as individual units each by themselves. 3 LIMITS: h , T_e , and E_{\sim} .

But do these limits really exist? Are there other physical limits and if so, can they be found (discovered) and specific mathematical values assigned to them?

PART 3

Here is the egg part that will end up on Heisenberg's face. It is the prior part continued.

The "original" and up-to-current beliefs concerning Heisenberg's Uncertainty Principle can be found in any decent reference or textbook. It was expanded upon to absurdities using "probabilities", etc. It was also supposed to be directly related to Planck's Constant and had a bearing on HUP. The truth of the matter now follows.

The following is adapted from Paul Marmet's book, "*Absurdities in Modern Physics: A Solution.*" It has been shortened to result in the end results he so obtained.

The normal Heisenberg Uncertainty Principle (limit to resolution using RE frequencies and especially that *only of a spectroscope* [book illustrations incorrectly show a microscope which results in same conclusions by him] that Heisenberg used) is normally written as: $\Delta t \cdot \Delta E = h/2\pi$ (64-13) for which ΔE = resolution in Energy, Δt = resolution in time and h is Planck's Constant.

Essentially, Marmet then showed that the HUP was a fallacy based on that the HUP was only true for one particular wavelength being used. When the phase relationship was used (phase and other instruments now available, not in Heisenberg's time), the limits were vastly smaller than that set by the wavelength used. I have left Marmet's usage as relationship vs. Principle, but it is essentially the same thing. See historical note at end of this chapter.

Consider we are counting the number of cycles in a wave packet starting at Time t_1 . Assume that the phase is zero when the count starts. When the observing time Δt has elapsed, x cycles have been counted. A fraction of a cycle cannot be counted. However, after counting the last cycle, an unknown fraction of another cycle has started before the end of the time integral Δt . Therefore, the exact number of cycles is a fraction between x and $x + 1$. The maximum frequency is then:

$$n_{\max} = \frac{x+1}{\Delta t} \quad \text{cyc/sec} \quad (64-14)$$

The minimum frequency is:

$$n_{\min} = \frac{x}{\Delta t} \quad \text{cyc/sec} \quad (64-15)$$

The error in frequency due to the random phase at cutting time t_2 is:

$$\Delta n = n_{\max} - n_{\min} = \frac{(x+1) - x}{\Delta t} = \frac{1}{\Delta t} \quad \text{cyc/sec} \quad (64-16)$$

Therefore:

$$\Delta v \cdot \Delta t = 1 \quad \text{cycles} \quad (64-17)$$

Multiplying both sides by h and using the Planck relation $E = hv$, it is found that:

$$\Delta t \cdot \Delta E = h \quad \text{cycles} \cdot h \quad (64-18)$$

where $\text{cycles} \cdot h$ means the unit *cycle*, multiplied by the units of h . (64-17) is a form of uncertainty when cycles are counted.

Now going back to the sodium line calculations if when the *resolution* of Energy/Time is 100% (no uncertainty encountered or a perfect count), then the Emission Time \times the Energy in one cycle is a constant = h or the results in BOX 33. By extension, when the Emission Time is shorter than one second, the Energy in each cycle comprising same increases so it still gives the same results.

Simply, starting with the one cycle per second at maximum t_e its $t_e = 1$ so that $1 \times h = 1 h$ and for the minimum Emission Time $4.4 > \times 10^{-24} \times 2.25 < \times 10^{23} = 1 h$ and hence, for any jumps in between those two limits.

Heisenberg used the word probability in place of resolution that is essentially the same thing. However, that “probability” was extended into reductio ad absurdum conclusions. It made no difference in the end results by Marmet and myself. When the count was exact, the probability of error was zero (perfect count [and unfortunately could be 100% right or no error]) and resulted in the conclusions so given. 100% resolution = probability (%).

Instead of counting cycles, the detector could monitor the phase of the incoming wave, counting an integer number of radians. The radians are recorded and counted until the time Δt elapsed. It is found that y radians are counted at the end of the time interval Δt . Again, after the last radian has been counted, an unknown fraction of a radian has started before the end of Δt . Therefore, the number of radians in the wave packet is between the number y and $y + 1$. Since one cycle equals 2π radians, the maximum possible frequency is:

$$n_{\max} = \frac{y + 1}{2\pi\Delta t} \quad \text{cycles/sec} \quad (64-19)$$

The minimum frequency is:

$$n_{\min} = \frac{y}{2\pi\Delta t} \quad \text{cycles/sec} \quad (64-20)$$

The error in frequency due to the random phase at the cutting time t_2 is:

$$\Delta n = n_{\max} - n_{\min} = \frac{(y + 1) - y}{2\pi\Delta t} = \frac{1}{2\pi\Delta t} \text{ cycles/sec} \quad (64-21)$$

Therefore:

$$\Delta t \cdot \Delta E = h \quad \text{cycles} \cdot h \quad (64-22)$$

Multiplying both sides by h and using the Planck relation $E = hv$, it is found that:

$$\Delta t \cdot \Delta E = \frac{h}{2\pi} \quad \text{cycles} \cdot h \quad (64-23)$$

Finally, what happens in the case of counting individual degrees? Using the same previous methods, the maximum possible frequency when counting z degrees during the time interval Δt :

$$n_{\max} = \frac{z + 1}{360 \Delta t} \quad \text{cycles/sec} \quad (64-24)$$

The minimum frequency is:

$$n_{\min} = \frac{z}{360 \Delta t} \quad \text{cycles/sec} \quad (64-25)$$

The error in frequency due to the random phase at the cutting time t_2 is:

$$\Delta n = n_{\max} - n_{\min} = \frac{(z+1) - z}{360 \Delta t} = \frac{1}{360 \Delta t} \text{ cycles/sec} \quad (64-26)$$

Therefore:

$$\Delta n \cdot \Delta t = \frac{1}{360} \text{ cycles} \quad (64-27)$$

Multiplying both sides by h and using Planck relation $E = hv$, it is found that:

$$\Delta t \cdot \Delta E = \frac{h}{360} \text{ cycles} \cdot h \quad (64-28)$$

Three different equations have been obtained from that method. They are, (64-18), (64-23) and (64-28). How can they be different? In all cases, the units of $\Delta t \cdot \Delta E$ are the same (cycle \cdot h). Since the equations are different, one must search for a hidden parameter. The difference between these three equations comes from that there has been *arbitrarily* set up, an experimental error of respectfully one cycle, one radian, and one degree when measuring the wave.

With respect to the resolution, the method of counting an integer number of radians is equivalent to the Fourier transform. The Fourier transform, however, gives supplementary information because one can get the shape of the distribution while the method of counting the integer number of radians (or any determined angle) gives the average value of ΔE .

Other instruments, such as the lock-in amplifier, can show the frequency distribution experimentally. Of course, the mathematical distribution given by the Fourier transform has an absolute shape. It is the absolute shape of the resolution given by a spectroscope.

Since Heisenberg's resolution is mathematically identical to the result obtained when counting an integer number of radians (64-23), there is concluded that the resolution of one radian corresponds to the Heisenberg's criteria of resolution. This resolution of one radian is exactly equal the loss of information that is intrinsic to the use of the Fourier transform when the *phase is neglected*.

In other words, the Heisenberg's criteria of resolution has been set to be mathematically equal to the loss of information when a spectroscope is used. It is certainly *arbitrary* in physics to decide that the exact amount of information loss, due to the use of a particular instrument (a spectroscope), should become a *fundamental principle*. Furthermore, it is known that such an information loss *does not exist* when there is used a different detecting method like the phase-lock detector.

The angle of 1 radian, $1/2\pi$ cycle or 57.3 degrees, used by Heisenberg is certainly not an absolute or physical criterion. He could have decided to count cycles (or any other unit). In that case, the so-called fundamental uncertainty relationship would be different as shown in (64-18) and (64-28). In fact, it was neither rational nor coherent for Heisenberg to use the unit *radian* since in the same equation, he uses $E = hv$ in which v is expressed in cycles and not radians.

Whatever the interpretation is, the relation should be written:

$$\Delta t \cdot \Delta E = k \cdot h \quad (64-29)$$

where k is any arbitrary criterion of resolution corresponding to many cycles, one cycle, or a fraction of a cycle that the detector can resolve. The units of k are *cycles*. Heisenberg (consciously or not) assumed that $k = 1/2\pi$ to fit the resolution of a spectroscope. The units of k are compatible with the dimensional analysis of $E = hv$ that shows that the units of h are equals to Joules \backslash ergs \cdot sec/cycle.

Using a phase-sensitive detector, the coefficient k can be experimentally as small as permitted by technology (state-of-the-art). In fact, there is no fundamental limit.

The uncertainty relationship claimed is *uncertain* from another point of view. Some scientists like L. Schiff state that relation is good "*within an order of magnitude.*" Furthermore, Schiff writes the equation as an approximation using the symbol \sim giving:

$$\Delta t \cdot \Delta E = \gtrsim \frac{h}{2\pi} \quad (64-30)$$

The irrelevance of the Planck Constant h , to radiation Energy:

It is believed that following (64-23), the Planck Constant determines the amount of uncertainty of Energy of RE. On the contrary, it can be shown that the uncertainty is not a function of the Planck Constant. Divide both sides of (1) by h , then substitute for E by its value $h\nu$. Doing this does not change the nature of the equation. This gives:

$$\Delta h\nu \Delta t \left\{ \frac{1}{h} \right\} = \frac{h}{2\pi} \left\{ \frac{1}{h} \right\} \quad (64-31)$$

or

$$\Delta \nu \Delta t = \frac{1}{2\pi} \quad (64-32)$$

Equations (64-31) and (64-32) show that the uncertainty relationship does not change at all, even if the Planck Constant h has a different value. It *must be concluded* from those that the Planck Constant is fundamentally irrelevant to the uncertainty relationship, even if those in the past are accustomed to believing that h appears to determine the amount of uncertainty.

Another observation is related to *hidden units*. In practice, the unit *cycle* is overlooked. The absence of the unit *cycle* is confusing because, unfortunately, as seen in the case of Heisenberg's uncertainty relationship, it makes it impossible to detect mixed units, such as cycles and radians, when they are used in the same equation.

Finally, from (64-23) it can be seen that the units of $\Delta t \cdot \Delta E = h/2\pi$ are:

"cycle · Joule/erg · sec" and not simply "Joule/erg · sec." To avoid confusion, it is essential to indicate clearly that the units are "cycle · Joule/erg · sec."

So, there is a hidden and arbitrary criterion of resolution in Heisenberg's uncertainty relationship that means **that there is no fundamental physical principle involved.**

Heisenberg's relationship (64-22) which corresponds to a criterion of one radian, is just as arbitrary as (64-26) which corresponds to a criterion of one degree (or 57.3 radian), as (64-18) which corresponds to a criterion of one cycle. Since the Heisenberg uncertainty relationship is an arbitrary criterion that is one of the most important aspects of the Copenhagen Interpretation, it must be realized that it is necessary to reevaluate the significance of Quantum Mechanics.

HISTORICAL NOTE: When Heisenberg was undergoing his oral examination for this doctorate, he was asked to derive the resolving power (resolution) of a microscope. He could not do it and almost failed his exam, but they relented since he knew a lot more than that. Later when he came up with his finalized Heisenberg Uncertainty Principle, he had to use it; but by that time, knew what it was.

For the record it is $\Delta q = \lambda |\sin u$ (64-33) where the u is the half-angle between the lens and object or the angle of the line from the center of the object to center of lens, and the line from the center of the object to the edge of the lens. This is the theoretical equation and not its actual practical equation in reality, which has to take in more factors.

The usage of the microscope in textbooks, etc., is for convenience and simplicity, but do not forget; it was a spectroscopy upon which he based his principle originally.

As to Copenhagen, that, the reader can find out about in just about any type of historical book on the beginnings of Quantum physics or, where a lot of confusion all started.

Under current theory, it is impossible to generate any pure frequency of one singular value RE. That is, the production of RE always has side bands. It is for this reason that some scientists believe that h does not exist since it is only applicable to such a monochromatic frequency or wavelength. This viewpoint was shown to be both incorrect and correctable as shown in **PART 4** on page 63.

END

This part has been changed from the original and updated.

1. THE FALLACY OF THE HUP:

One of the claims from the HUP was that it is impossible to measure (detect) the position of an electron (that microscope example) and its momentum simultaneously. That is absurd to start with. Momentum is a mass with a speed and so to measure the speed requires TWO observations some time apart to start with. Never the less it further resulted in the electrons being in clouds surrounding the nucleus or just some probability position. But that means there is no Sommerfeld Fine Structure Constant etc. It also meant, that the production of line spectra would be extremely erratic.

There was some years ago (was in *SCIENTIFIC AMERICAN*) a very clever experiment done which used some partial examination of a whole wavelength in order to extract information. This, again, was in violation of the HUP that requires a whole wavelength. The end result, is the original HUP was a gross distortion at the start, misapplied to absurdities and as Marmet showed, has only to do with what property/parameter of the wavelength being measured or examined. It has nothing to do with h directly, but h does mark the absolute limit to measurement, i.e., nothing below quantum Length permissible or possible to use.

CONCLUSION:

ZPE came into existence on the invalid interpretation of the $\Delta t \times \Delta e = h$ falsity being a probability function whereas it was 100% predictable. Simply, some particles came into existence and disappeared in space and those particles had energy ad nauseam. There are other claimed sources of ZPE such as an electron oscillating at the speed of light across a nucleus. That is in direct violation of the fact that all agree on that no mass can go to the speed of light in the first place.

THEREFORE: ZPE was and is based on nonexistent theory and **DOES NOT EXIST.**

EPILOG:

But Heisenberg himself did not know what he created and as far as that goes, no others to date. A few persons have put it as I will, but not directly as applicable to the HUP. From my book in **CHAPTER 63:**

Throughout all of this discussion so far, and throughout all of recorded history, all we were doing was subject to the HUP and he himself was subject to the same limitations he discovered or per Shakespeare, "Hoist with his own petar," which I now call the, "Yet so close, yet so far," or the HUP which is recognizable in the next figure.

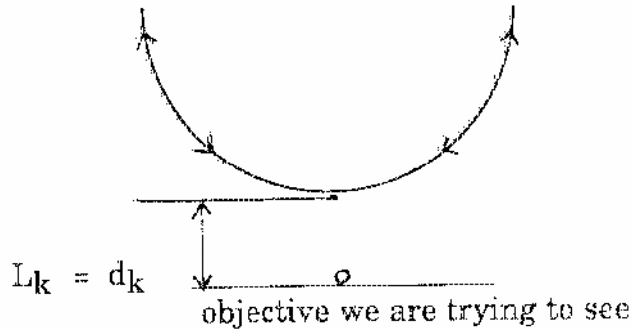


FIG. (63-1) shows the Length from the observer to the object (objective). L_k is the wavelength being used, in this case the smallest or limit to wavelength. Hence, the limit to seeing or measuring anything. See NOTE.

FIG (63-1) is what Heisenberg was actually trying to achieve. How close can you see something? Using a microscope shows this quite well. As the microscope's objective lens is moved inward, the object we are trying to see in its greatest detail, then comes into view (focused). Then moving the objective lens even closer, results in the object we are trying to see becomes blurred again.

There is a *limit of approach*.

This is easily shown by a simple experiment. Take a metal coin, say, a silver dollar. Hold it between your thumb and forefinger vertically in line with one of your eyes at arms length. Can you see whatever face in fine detail facing you? Yes, but you also see what is surrounding it in the background. Now start moving it closer and closer until only the coin itself can be seen. You have reached the optimum point (Length of approach) of observation. Moving it closer you can no longer see the entire coin and it probably becomes blurred besides. The when it is just a fraction of Length from your eyeball, you cannot see the coin, nor the background or any fine details of the side facing you.

You also cannot see the opposite side (at any time) or determine its thickness simultaneously. But, using another "eye", i.e., use a mirror, you can see the facing side and the thickness and/or the reverse side with no problems. Simply the **arbitrary rules** originally set for the HUP permitted only one observation, not two or more simultaneously. That was another fatal flaw in the reasoning behind the nonexistent "probability" that came into existence after Heisenberg's original work and results.

NOTE: Can't be done anyway. This is beyond the limit to frequency, so that the shortest wavelength even if it could be created is $2.666 > \times 10^{-13}$ cm. It would simply pass through any object being observed for all practical purposes. The probability of it being reflected or even bent is too small to even estimate.

Or to put it another way, to see a proton would require using the "impossible" wavelength that is equal to its diameter, OR Lord Kelvin's Rule on limits to measurement.

All of the physical constants are ARBITRARY and have no natural values. Furthermore, what numbers are used to so designate them are presently ONLY in the Roman Decimal System or the BASE 10 system. The full proofs are in other parts of my works.

HISTORICAL NOTE: $h \div 2\pi$ the angular momentum of the electron was not discovered by Bohr. It was the work of John Nicholson in 1911. He sent this to Bohr and it was all Bohr needed to complete his works on the hydrogen atom. He never gave Nicholson any credit and took all of the credit, including the Nobel Prize, for himself.

FINAL COMMENT:

Heisenberg was not the only one to use a piece of physical apparatus to derive some theory that turned out to be false, from its operation. This is not science. The apparatus (experiment) is used to verify one's theory. Likewise, IF one uses some piece of apparatus and does not account for ALL the possibilities, that experiment is useless and proves nothing. I am specifically referring to the infamous Michelson-Morley Aether Drift Experiment that is another long sad story, not for here.

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