FAKING SCIENCE FOR PUPILS – PART IV

Motto:

The conformal geometry and the derived infinity concept amazed and amused me....
It demonstrates that an infinite imbecile mind can be hosted by a finite skull.
I wonder only about the excessive and exquisite numbers of such lucky combinations...

This is one of the most complex newsletters published so far! The consequences of some information published here are so important and diverse, that other entire newsletters are necessary only to expand this content.

It is not only about gravitation and black holes, but it presents a large variety of topics, i.e. fluid mechanics, kinetic molecular theory, black body radiation, magnetism, nuclear technology and safety, electrolytic theory, etc.

The first two sections are related to nuclear safety procedures. It came serendipitously into my attention the fact that Fukushima accident was not solved yet, and the amount of contaminated water stored is going to reach a limit bigger than available tanks. The first section describes a simple procedure to transform those damaged nuclear reactors in some distillation units with an internal re-circulation of the cooling fluid and only the heat is recovered outside the reactor. In fact those damaged reactors can still be used to produce electricity instead of throwing the heat away in environment. By using this new idea, the radiation is confined inside the reactor and there is no need to have other storage facilities for contaminated water.

The second section expand the same idea and proposes that any nuclear reactor, already in use or in design, has to be equipped with a second loop of evaporation condensation, just in case. This secondary safety loop is not costly to be implemented and make avoidable accidents similar to

Fukushima.

I suppose that anyone have already observed that I am not suffering of nuclearo-phobia. There have been more articles where this technology was drastically improved and there are going to be further articles about nuclear physics in the future. Yet, it has to be a moral duty of a scientist to show also the downsides of this technology in order to have a clear picture for those who are interested to keep this technology alive.

For decades, the development of nuclear power has sparked debates among scientists, politicians, activists, etc.

Some have even changed the camp along time and here I would like to remind that environmentalists were initially against nuclear energy, but lately, most of them have become supporters of this technology.

The supporters of the nuclear energy claim that this is the most effective way to combat climate change while still meeting the world's growing demand for energy.

The Fukushima accident demonstrated that nuclear technology has still safety issues and it is not so simple to sleep in tranquillity with a ticking bomb near the house. The subsequent decision of Japan and Germany to phase out their nuclear program was, in my opinion, a wise one!

It is important for humanity to understand the real danger of the nuclear technology and the fact that such technology is not a convenient solution to be extended at larger scale.

Anyone has to be aware that nuclear technology is dangerous, costly, and ill-advised.

There is no information published so far about the real danger of the new pattern of radioactivity generated by the nuclear industry. All of the information one find in the literature is assuring you that most of the produced radioactivity is confined and what is released into the surroundings (water, soil or atmosphere) is insignificant as value. This is deceivingly true, but in the same time is outrageously false. It is true because in comparison with the natural amount of radioactivity, the releases from a nuclear power plant does not increase the natural amount in a significant manner. Yet, the pattern (i.e. the species released) is completely different from the existent natural radioactivity pattern; these new released species have a different circuit in the environment and arrives to be concentrated in biosphere. Some exemplifications are made for strontium nuclide or for radioactive debris from uranium exploitation, but the same thing is valid for quite any other nuclide generated by nuclear technology.

A comparison between the faked statistics from nuclear industry and corona virus is also made. It was found curios that nuclear industry statistics assumes that nuclear industry is even safer as the wind turbine technology! On the other hand media and some ,,official statistics" show how

dangerous corona virus is!

One has to take with a pinch of salt the ,,official statistics" which shows how Bangladesh had a rate or corona virus deaths of 1,32 % and a country like France a rate of 16,29% (up to August 2020).

Anyway, for Romania, but for a lot of developed countries too, it has become more dangerous to be hospitalized than staying home and taking some remedies in case of flu or corona virus infection.

In Romania, you have a big probability to be falsely declared as infected with corona virus when you go to hospital and if, by any chance, you are going to survive to the treatment, then someone is going to look after your real illness. The indolence and malpractice is the status quo for the sanitary system, because they are asked to report as many deaths by coronavirus as possible.

There are some outrageous cases which have to be reminded:

A declared dead person, wakes up in the coffin …..

A person who died in car accident, but in the documents he was declared died by coronavirus.

A person had appointment for a corona virus test, but he missed the appointment. After several days, he receives the documents that he is infected with coronavirus.

But of course, Romania is a country where everything is possible. In this XXI century, for a few thousand $, young girls are kidnapped from street and sold to prostitution networks, with the authorities complicity. In the most extreme case, when a girl was able to make an emergency call and indicate the complete address where she was detained after kidnapping, the police did nothing until the warrant mandate was not approved. And as anyone can imagine, in a corrupt democracy as Romania, the warrant mandate arrived when the location was already empty....

The case become known only because that poor girl had by chance an uncle who was in the parliament and he was in contact with some men in power; otherwise, the case would have been pushed under the carpet by authorities and by mass media too. In fact the authorities did the best job ever to cover any possible trace to the hierarchy of the band of criminals....

And what can a simple person do in this situation if not accepting the ,,Romanian reality"?

Coming back to the nuclear industry, the ,,official statistics" are faked from various reasons and most of the actors involved in this activity were interested to fake the data.

Here is a ,,political correct" text from a French material found on internet which describes the situation:

Though, in this field much more as in other fields, the scientific truth is not an inert

material; it is the result of symbolic fights for the quest of the monopoly to say the truth. The consensus are continuously adjusted by the games of power and economical interests linked to the commercial nuclear technology promoted by the global electricity chain actors organized as a lobby.

There is more information presented there and some important conclusions:

- ***Nuclear power is only a temporary solution for producing electricity and this come with a very high price tag.***
- ***Nuclear energy is not a clean energy source and new rules for produced radioactivity confinement have to be established for those who still want to use this technology.***
- ***The extension of this technology would bring more problems than the solved ones.***

The forth section presents a completely new technology: how to switch from a gas gradient pressure to a liquid gradient pressure. The idea behind this technology has a much larger field of applications, but there only the use of this idea for electricity production is described. The idea behind this technology has a simple purpose: the cost of a present day steam turbine has a high impact on each unit of electricity produced by that item. Why not replace that costly item with a new one having a lower cost and a bigger yield?

A variation of this technology, ***using compressed air and water,*** is also presented and exemplified for the Germany. As anyone probably know, Germany has a strong component of renewable energies, and from the information found in internet, there are periods when these renewable sources, working at full capacity, are producing more instantaneous power than the necessary consume.

As consequence this excess of energy is offered for free during this peak of production period, because there is no simple possibility to store it. By using this gas to liquid gradient transfer technology, it is possible to envisage a simple way to store the excess of electricity during peak production period and use it later, when the demand of energy is greater and/or the Sun or wind are not available.

The fifth section presents a new effect in science, which was falsely labelled as Venturi effect.

The sixth section demonstrates how a simple Laval nozzle demolishes the entire Kinetic Molecular Theory. A new postulate is formulated and exemplified here:

Postulate: Kinetic molecular theory predictions cannot accelerate a gas through a

nozzle, irrespective of its geometrical form.

In order to consistently explain the nozzle effect, in the frame of KMT, it is necessary to activate an old idea: the Maxwell daemon. What a pity, that for more than a century, no one has observed that a Laval nozzle is doing what an imbecile thermodynamic theory thought it is impossible!

The seventh section is about the quantum theory of gravitation. In order to stop the long list of imbecilities published so far in this field, a series of postulates are formulated and analysed.

Postulate: The process of creation-extinction of virtual particles in vacuum rules out the conservation laws.

Postulate: In absence of a specific interaction, a photon, irrespective of its energy, is indefinitely stable in time.

Postulate: The existence of quantum fluctuations make impossible a linear trajectory for photons and even for elementary particles in vacuum.

Corollary: An observer can perceive only distorted astronomical phenomena, and up to a certain „distance". Above that threshold, the universe has to be completely invisible to him.

Postulate: Quantum fluctuations changes the expected comportment of normal matter.

The eight section analysis the imbecilities advanced when an hypothetical black hole evaporates. There is no consensus how this process take place and one by one all these ideas are exhausted.

A new postulate is exemplified here too.

Postulate: It is impossible to convert a high energy photon in a thermal spectrum in absence of photon-matter interaction.

The ninths section is about optical illusions and galactic centre. Before discussion about a possible black hole there, this section analyses how accurately the present or future technology can pierce the galactic bar and locate the galactic centre.

The infrared technology, although quite well developed, reveals at least two paradoxes which are analysed in this section.

In astronomy, it is already a common sense idea that near infrared emission is dominated by cool stars. Since these are typically either old or long-lived stars, this is our best view of the Galaxy with the hot, bright young stars removed.

Yet, this accepted idea enters into flagrant contradiction with the black body theory, which assume that at higher temperatures a body has to emit more energy at all possible frequencies.

This is „the great infrared paradox", but there is also a „small infrared paradox"

When pictures at near and mid infrared are compared, the galactic bulge disappears completely at mid infrared.

Both situations are only shortly presented here...

Further on, based on euclidean geometry, it is demonstrated that galactic centre location is not established with ,,necessary" accuracy. It is a pity that an entire army of astronomers have not understood some simple concepts of astronomy like apparent location and real location. Further on, to ask about the implication of confusing apparent with real location is something to complicate for their minds.

For simple laymen, confusing apparent with real location is like considering that Sun is rotating around the Earth.

The modern astronomy has fallen in the same trap again and again they have confused the appearance with the reality.

If geometry is not on your taste, let us go further with a much simpler case: imagine you are on a plain and there is a forest in front of you. Somewhere in the forest, at about 3 km distance I am going to mark a certain tree with a sign. You are equipped with the finest optical technology ever, but you have to locate the marked tree from your position, outside the forest.

What do you think? Could you find the marked tree using your billions expensive telescope?

The explanation for the negative result of this endeavour is very simple; it can be grasped even by pupils and it was translated in a proverb: ***one cannot see the forest because of the trees***.

It is obvious that when you consider your line of sight, you can see only a layer from the forest for a certain distance and nothing more further....

In case of our galaxy, it is possible that our powerful telescopes in infrared have arrived to see the central bar in a similar manner with a person seeing a forest at horizon. In the most fortunate case, the images published to this moment about galactic centre are presenting the first few parsecs in the depth of galactic bar.

Well, some are going to say: your approach seems nice, but I saw stars rotating around a point where nothing can be seen....

How the heck such rotation is possible?

My question is: Are you sure that those stars really rotates in the manner you ,,see"?

It would be advisable that present day astronomers take some elementary lessons in GR and after understanding how imbecile this theory is, they can further polish the author's shoes.

I suppose that anyone has read about Eddington's eclipse experiment and the deviation of

light in gravitational field.

What is the deviation of light if the observer is situated at about 8000 parsecs distance and not on Earth?

If a similar Solar system exist at that distance, the telescope from the third planet (Earth) has to be moved close to the level of Uranus orbit in order to observe the same phenomena. I suppose that experimental optics is a quite mature branch of science and it is not the case to explain why the image moves up to the that position.

Now, in the study Andrea Ghez and Reinhard Genzel teams made, the observer is looking to some far away phenomenons which are subjects of optical illusions; apparent twists and deviations would appear out of thin air....

Of course, behind this apparent optical illusions, those stars have a real motion too, but their real motion cannot be studied yet!

The topic is going to be reloaded in a future newsletter and completed with the effects of a black hole on the ,,apparent" orbits of S stars around it.

Most of the S star elliptical orbits are too perfect for GR and in fact they rule out the entire GR.

For any common sense mind, the argument of a black hole in the galactic centre is a dead one.....

Last scientific section, but not the least is coming with a confirmation which demolishes the entire foundations of chemistry. This is a second experiment in the list of ,,most representative experiments in the XXI century science" and the experiment was performed entirely by a friend, Finn S. Nielsen.

The experiment was proposed years ago, and practically rules out the entire electrolytic dissociation theory. The idea of the experiment is simple: according to dissociation theory, around an electrolytic conductor the magnetic field (and flux) has to be double as for a metallic conductor.

The reason is simple: in the electrolytic conductor there are positive and negative charge carriers, but in the metallic conductor only negative carriers.

The performed experiment confirms that around an electrolyte, the magnetic field has the same intensity as around a metallic conductor.

For those who want to replicate this experiment, and change opinions about this topic, you can write directly to the author, because he was kind enough to provide an email for being contacted.

The result of this paramount experiment is a surprise even for me, because my earlier

guesses were a slight difference between these values, with a solution having a smaller value as a metallic conductor.

The last section is a copy carbon from the previous newsletter (Old game, same scene, new actors and figureheads….), because it is important for people to get in touch with the expected unexpected...

There was not much time to discuss thoroughly about the intellectual snobbery of 2020 prizes for physics, but there is going to be time in the future...

SECTION I VAPOURS CONDENSATION EFFECT AND NUCLEAR ACCIDENTS

I suppose that anyone knows about Fukushima nuclear power plant accident and the unpleasant consequences for the closely located people and for Japan in general.

The procedure described in a previous article and in this one came into my mind a few weeks ago (End of October 2020) after reading a shocking article about Fukushima.

Here is the main title and an excerpt:

Japan plans to dump a million tonnes of radioactive water into the Pacific. But Australia has nuclear waste problems, too

The Japanese government recently announced plans to release into the sea more than 1 million tonnes of radioactive water from the severely damaged Fukushima Daiichi nuclear plant.

The move has sparked global outrage, including from UN Special Rapporteur Baskut Tuncak who recently wrote,

,,I urge the Japanese government to think twice about its legacy: as a true champion of human rights and the environment, or not."

The link to the article:
https://theconversation.com/japan-plans-to-dump-a-million-tonnes-of-radioactive-water-into-the-pacific-but-australia-has-nuclear-waste-problems-too-148337

Lately, they retracted the decision and I suppose they are going to store and reprocess the entire amount of water used for cooling.

In my analysis, I am using some data found here:
https://en.wikipedia.org/wiki/Fukushima_Daiichi_Nuclear_Power_Plant

April 12, 2016

Melted reactors were being cooled down with 300 tonnes of water each day.

September 10, 2019

Since the plant was crippled by the earthquake and tsunami in 2011, TEPCO has collected in tanks at the wrecked sites more than 1 million tons of contaminated water from the cooling pipes used to keep fuel cores from melting. The utility says it will run out of space by 2022, and then they will have to dump radioactive water directly into the Pacific Ocean. It is not known yet how much water would need to be put into the ocean.

Dismantling of reactors

The reactors will take 30–40 years to be decommissioned. On August 1, 2013, the Japanese Industry Minister Toshimitsu Motegi approved the creation of a structure to develop the technologies and processes necessary to dismantle the four reactors damaged in the Fukushima accident.

To reduce the flow of contaminated water into the Pacific Ocean, TEPCO spent ¥34.5 billion (approx. $324 million) to build a 1.5 kilometer-long underground wall of frozen soil around the plant, constructed by Kajima Corporation. 1,500 hundred-foot long, supercooled pipes were inserted into the ground in order to freeze the surrounding groundwater and soil. The wall ultimately failed to significantly decrease the groundwater flowing into the site.

A schematic of a typical reactor similar to those used in Fukushima power plant is presented in fig. 1.

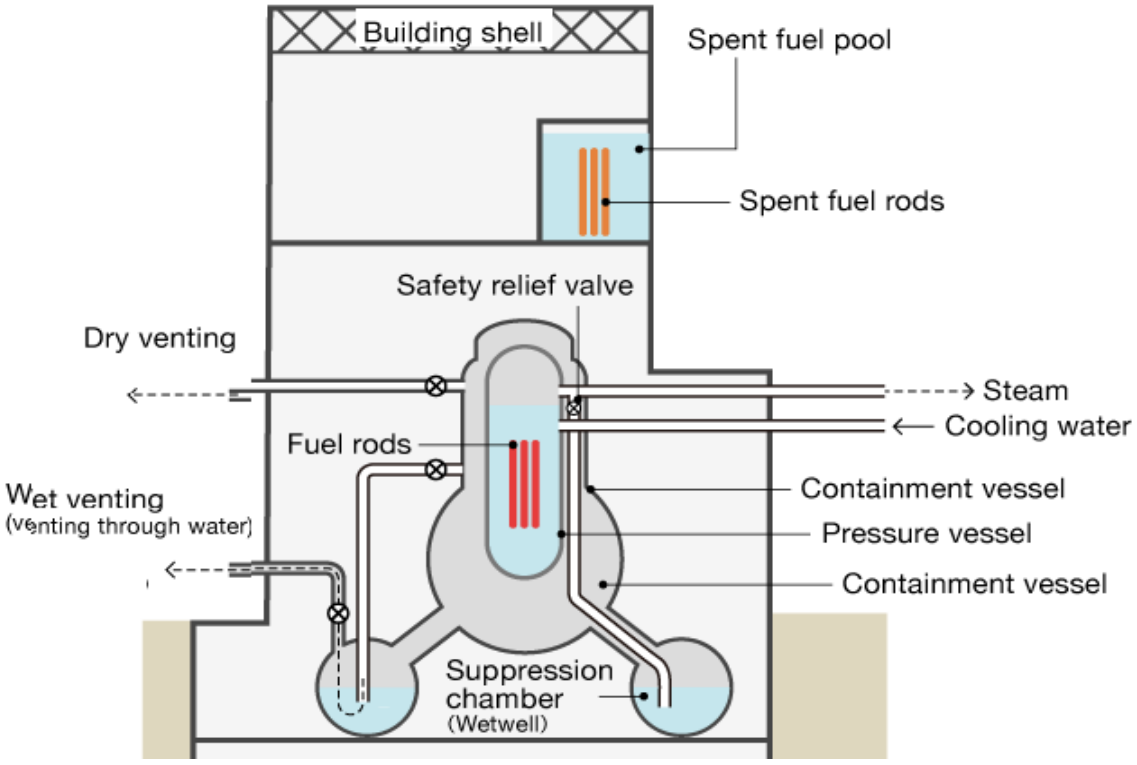


Figure 1 Cross-section of a typical BWR (from internet)

I haven't work in the nuclear field up to this moment, but for me as scientist either something is missing in the entire succession of events after the accident or something is wrong in the present cooling procedure if in this moment there are more than one million tons of contaminated water; and by 2022 there is going to be no place for contaminate water storage at all!

The following material from IAEA makes a detailed description of the accident.

https://www-pub.iaea.org/MTCD/Publications/PDF/AdditionalVolumes/P1710/Pub1710-TV1-Web.pdf

In fewer words, the tsunami was the hammer struck which flooded practically the entire power plant up to the spent fuel pool – fig 2. It engulfed all structures and equipment located at the seafront, as well as the main buildings including the reactor, turbine, service buildings. fuel storage building, common spent and diesel generator building. It damaged the buildings and the electrical and mechanical equipment inside at ground level and on the lower floors.

The entire procedure to be followed in case of nuclear accident was quite useless and people had to deal with an unexpected situation.

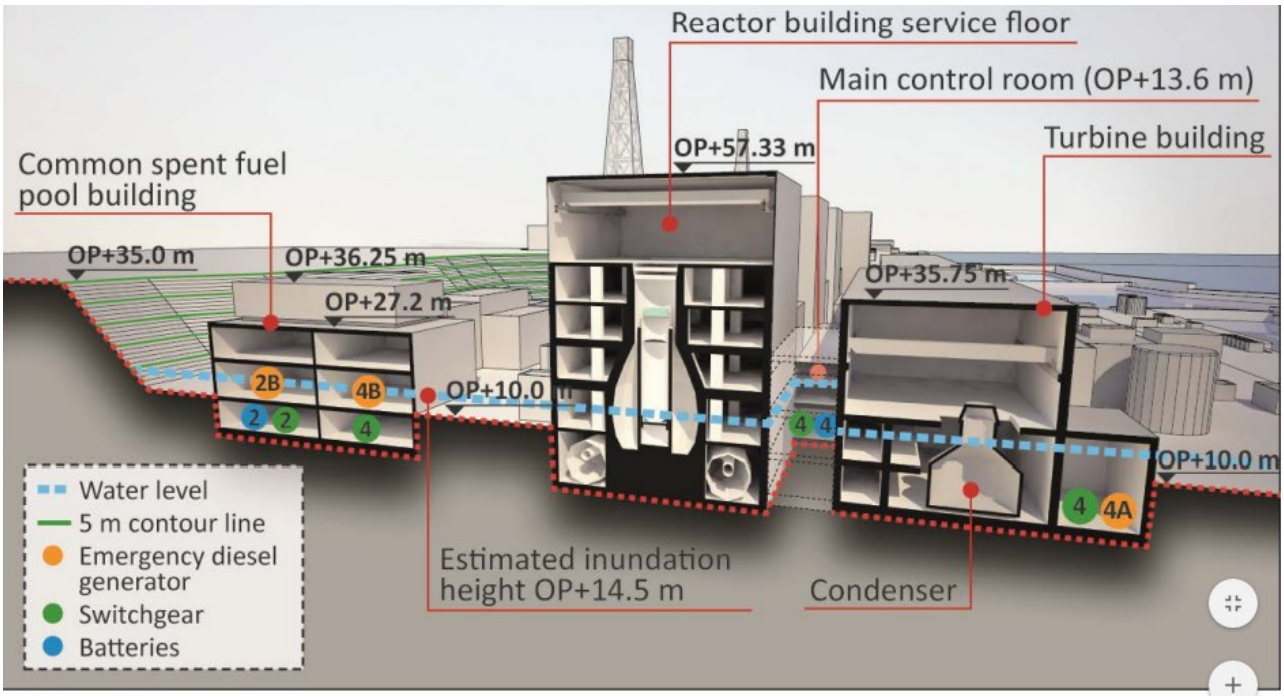


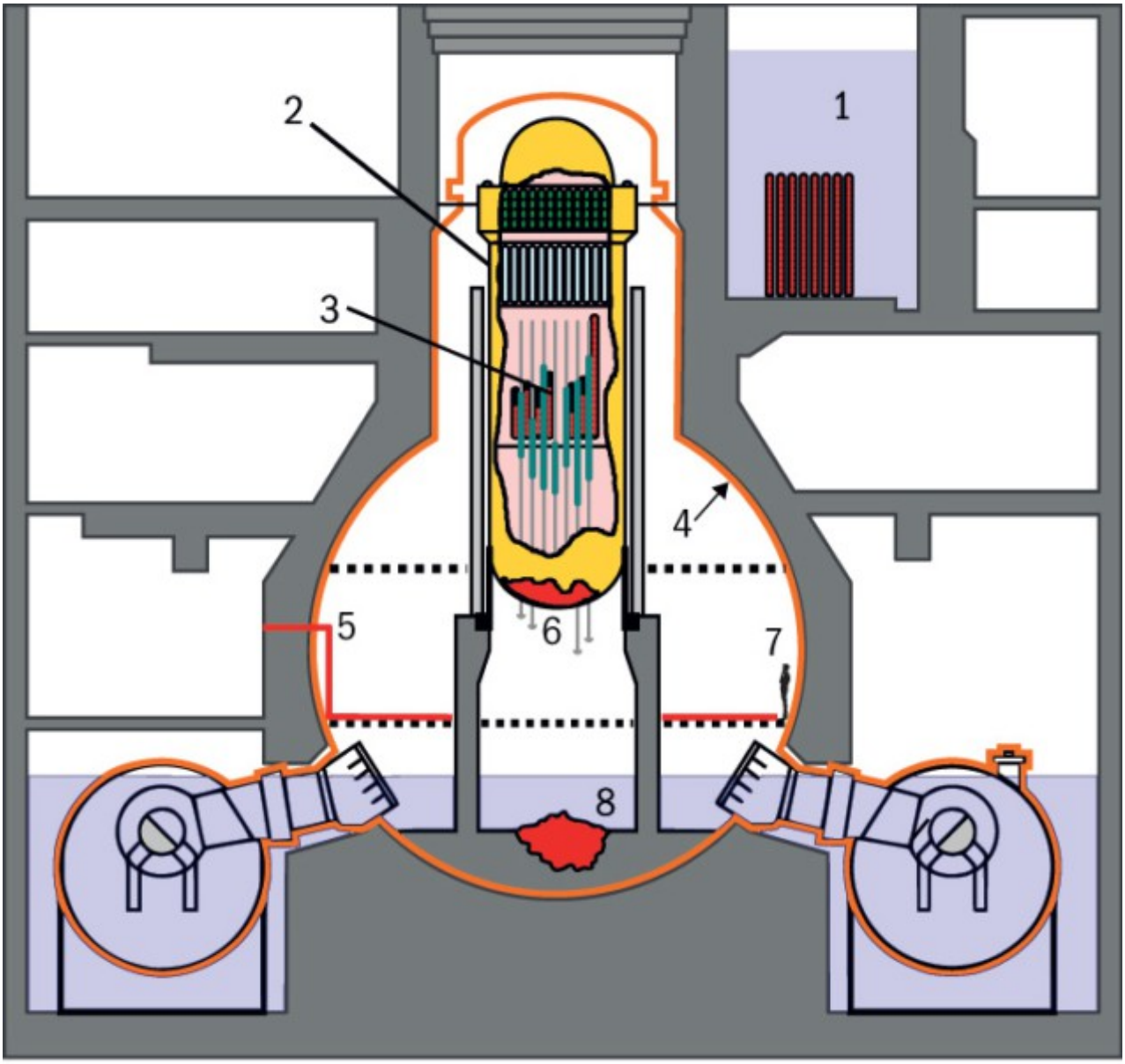
Figure 2

The fuel overheating and melting was followed by the damage of the pressure reaction vessel for the Units 1, 2 and 3. The radioactive material confined in the primary containment vessels (PCVs) was further released directly to the environment either in a controlled manner, i.e. by venting, or in an uncontrolled manner upon damage and failure of the confinement structures.

The escape of rod material from reaction vessel, which fell down on the basement floor – fig 3, created a new dangerous situation and water had to be pumped and sprayed from the top of the reactor in order to keep under control both the damaged reactor and the material which fell down.

The subsequent explosions of hydrogen destroyed the upper part of the containment vessel, but for the moment it is assumed that the inferior part of containment vessel made of a 7 m

concrete resisted.



1: Spent fuel pool
2: Reactor pressure vessel (RPV)
3: Damaged core assembly
4: Primary containment vessel (PCV)
5: Path of Hitachi shape-changing robot
6: Damaged control rod drives
7: Person for scale
8: Fuel debris/corium on basement floor

Figure 3 Melting down of a Fukushima nuclear reactor (from internet)

It is difficult to judge and analyze the immediate measures taken after the accident, having in mind the gravity and the exceptional character of the situation.

Ok, for about a couple of months this exceptional situation can be justified, but from my point of view, after that, things should have been thoroughly analysed and some sound scientific

corrective measures taken.

To pump water over the reactor, and after that store it, is not a scientific solution to the problem. Maybe it seems the simplest solution, but in the long term is the most expensive one. Of course, this analysis supposes that this water is further processed and purified before being released in environment.

Why not advance another solution which may seem counter intuitive, but is again a very handy one?

The procedure I am going to present is simple, cost effective and and offers a lot of advantages: it confines and concentrates the radioactivity and keeps the reactors under control, i.e, under a certain temperature.

A first step which is absolutely necessary in order to implement this solution is to create another loop of evaporation-condensation with the damaged nuclear reactor delivering the heat to this process.

There is still necessary to add a supplementary condensation space for the vapours, by using a powerful battery of heat exchangers. As it is observed in fig. 2, the room above the reactor, i.e. the reactor building service floor, has to be sealed and transformed into a condensation space for vapours. The adjacent rooms to the reactor situated at a level higher than nuclear material can also be used for this purpose. If the space is not enough, a light supplementary level can be easily constructed in order to fit the needs.

In the upper part of the primary containment vessel and the floor upside it, a hole must be created in order to have free access for vapors to enter into the condensation room and for liquid to return to the reactor room– fig. 4.

The sealing of the new created condensation room is not a big problem and I suppose it is possible to go further by completely skipping this step. In principle, chloroform vapours or steam cannot penetrate a wall of concrete (I suppose that walls are at least 20 cm thick). In order to be safer, it is possible to seal the new created space from outside and it is not the case to insist on this step.

Once this condensation space has been created, it is necessary to seal also the reactor at the base too.

As far the boiling process is going to be controlled at atmospheric pressure it is not necessary to have a tight seal of the reactor. The reactor in this new configuration is going to work as a distillation unit so there is no „high pressure” in the installation. The sealing is necessary to be done in order to keep confined the radioactivity material, especially iodine which can escape in the

environment.

I suppose that control of the reactor leakage at the base and the sealing was already performed in order to limit the leakage of radioactive material in the environment. In fig. 4, I considered a supplementary sealing, but this is not necessary if the lower PCV part is intact and the vents are closed.

Once the reactor has been prepared, there is the choice to go further with water or with an organic freon like chloroform.

The results are going to be identical but there are some differences in the working procedure.

In case of water, once the reactor is sealed, water is pumped in the reactor until all the nuclear fuel is submersed in water. Then the pumping of water is stopped.

In fig. 4, I supposed that some of the nuclear fuel is still in its position (inside high pressure reactor vessel) and some has fallen on the basement floor. As consequence the level of liquid has to cover all the nuclear fuel. If all the nuclear fuel has already fallen on the basement, the situation is simpler and the amount of liquid has to be diminished.

The heat released by the nuclear reactions is going to heat the water until boiling. Once the boiling starts, the water gets evaporated and steam arrive to the heat exchangers in the upper room.

There steam enters into contact with the heat exchanger and is condensed back to fluid and drips back into the reactor.

Of course after condensation, it is not possible to cool the water at room temperature, so this cycle works mainly based mainly on evaporation – condensation at a temperature of 100 C.

Nuclear reaction boils the entire water from the reactor and evaporates a part of it. By condensation of steam, the condensation heat is transferred to the surroundings and hot water is returned to the reactor.

The rest is a simple problem of engineering to match the energy released by the nuclear reaction with the surface of heat exchangers and the flow of refrigerants in the heat exchangers.

The procedure is a bit more complicated in case of a freon use like chloroform. From my point of view this procedure has to be followed because in this case the boiling takes place at a lower temperature, i.e. a theoretical value of 61 C. It is safer to keep the reactor at a lower temperature, in order to avoid any unpleasant situations.

After the reactor and the condensation space is prepared, the reactor is full of water and it is necessary to switch from water to chloroform.

Chloroform has a certain solubility in water so to switch from a water filled reactor to a chloroform filled reactor, and simultaneously keep the nuclear fuel under control, is going to be a

difficult, but not impossible task. Chloroform has a density of 1,5 g/cm3 and a solubility of about 10 g/L in water. When added to water, after reaching the limit of solubility, most of the chloroform should form an inferior layer under the layer of water.

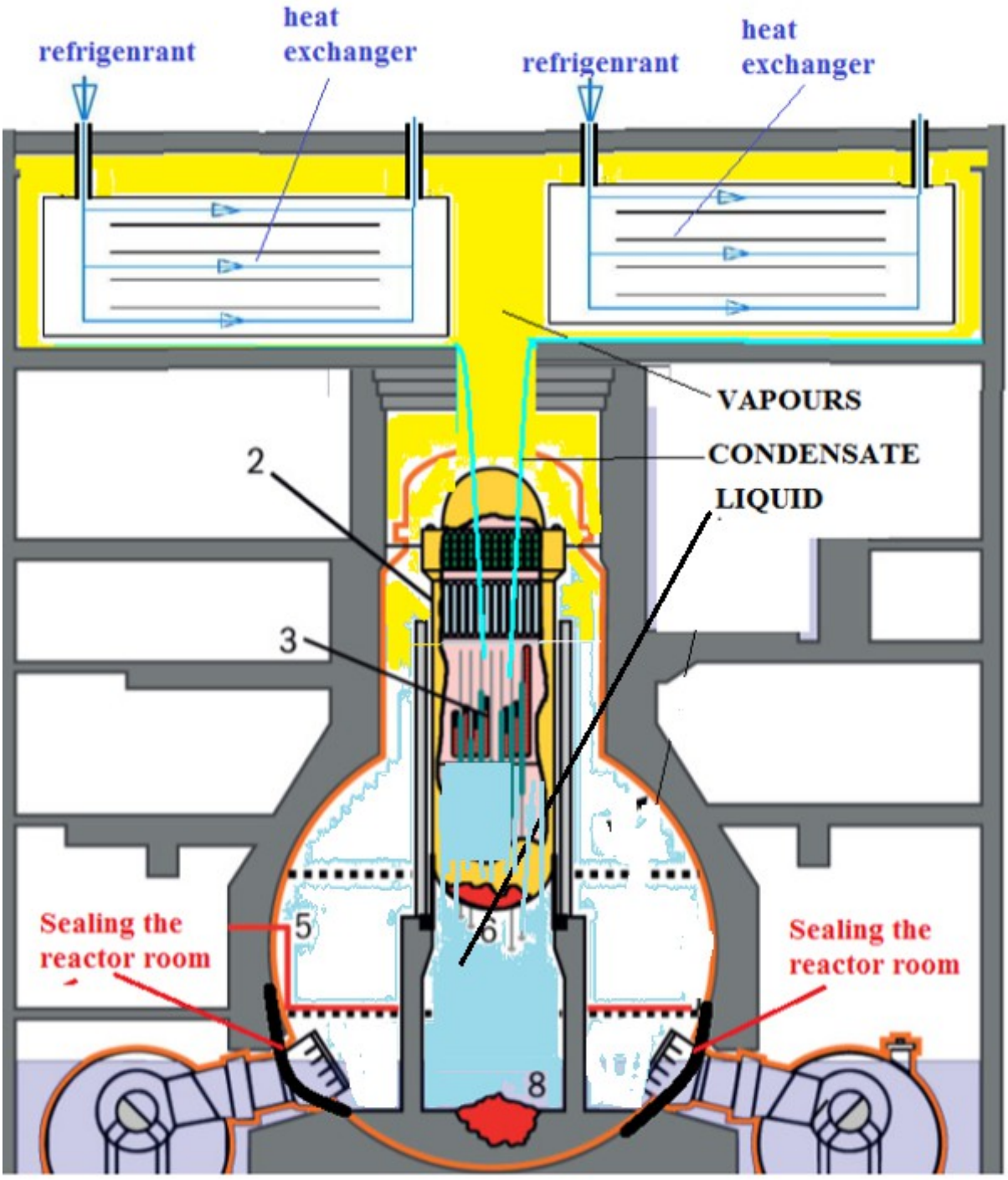


Figure 4

The problem is, with the heat generated by the nuclear reaction, such separation does not take place and therefore it is not possible to pump the layer of water and remain with the

chloroform inside reactor.

But, I do not think it is necessary to switch from water to pure chloroform because water and chloroform forms an azeotrope and the characteristics of this azeotrope are more convenient than pure chloroform.

Here is what chemistry has to say:

If equal volumes of chloroform (water solubility 0,8 g/100 ml at 20°C) and water are shaken together and then left to stand, the liquid will separate into two layers. Analysis of the layers shows that the top layer is mostly water with a small amount of chloroform dissolved in it, and the bottom layer is mostly chloroform with a small amount of water dissolved in it. If the two layers are heated together, the system of layers will boil at 53,3 °C, which is lower than either the boiling point of chloroform (61,2°C) or the boiling point of water (100°C). The vapour will consist of 97,0% chloroform and 3,0% water regardless of how much of each liquid layer is present provided both layers are indeed present. If the vapour is re-condensed, the layers will reform in the condensate, and will do so in a fixed ratio, which in this case is 4.4% of the volume in the top layer and 95,6% in the bottom layer.

The use of this azeotrope properties, is by far the most recommended way to be followed....

If the dismantling of the reactors is going to take 30 or 40 years, it is also possible to use these damaged reactors to produce electricity. I know it sounds strange, but all that heat has to be released in environment so why can't it be used to do something useful for society?

A new article is in progress and shows how the existent or future nuclear reactors have to designed with such reserve loop, in order to avoid other nuclear incidents like Fukushima.

I am not a supporter of fission atomic energy, but as scientist, I have to provide the best solution for a problem.

Here is other interesting information about Fukushima accident, but I found this material after finishing the article:
https://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-daiichi-accident.aspx

SECTION II DESIGNING A SAFER NUCLEAR REACTOR

Any nuclear reactor is in fact a bomb where someone is setting the explosion time in the near future. Of course, the nuclear technology have matured enough in the last decades and supporters of this technology assured that it is impossible to have other large scale incidents like Chernobyl.

The Fukushima accident was like a wake up call and it proved that any technology, irrespective of its level of sophistication, is prone to failures.

In order to make these nuclear facilities safer, a secondary independent loop of evaporation condensation has to be created.

For the existing nuclear facilities, it is possible to build this secondary loop with some structural adjustments; for the new planned facilities, this secondary loop has to be implemented during the plant design.

Figure 5 presents a schematic of a presently working nuclear power plant.

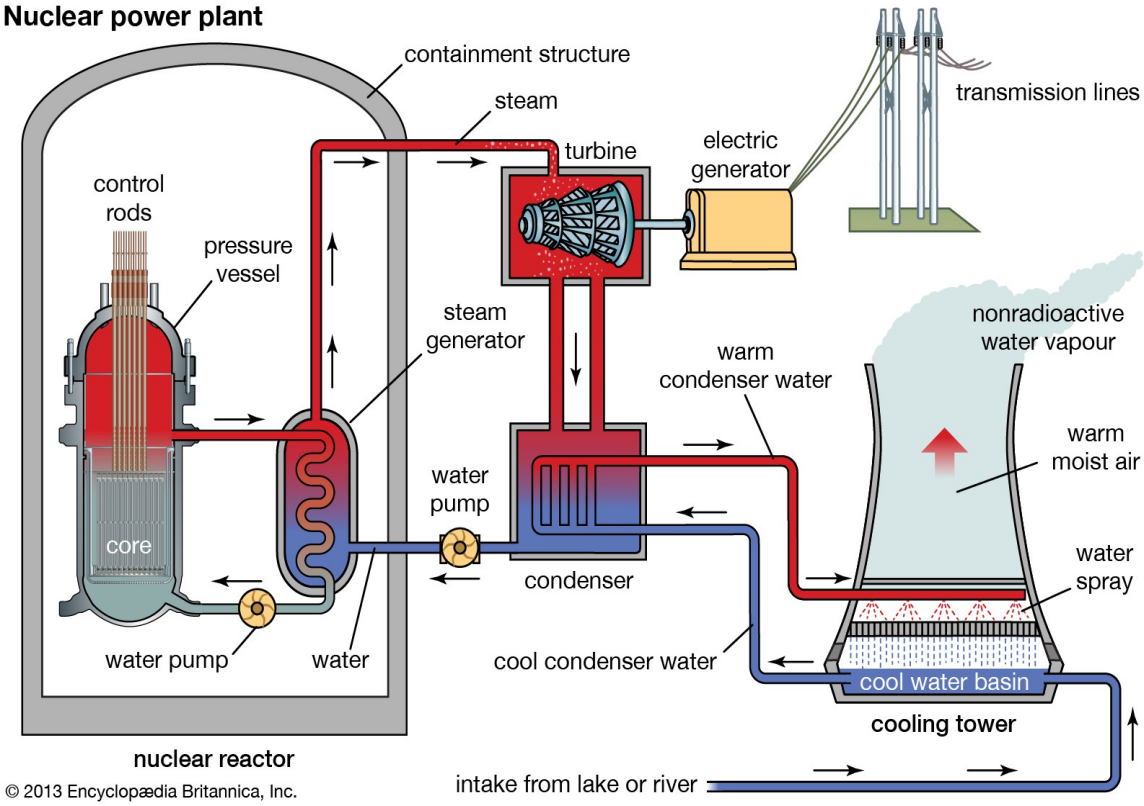


Figure 5

In order to have a secondary loop for evaporation-condensation, the pressure vessel with nuclear fuel has to be embedded into a secondary confinement pool, which can be filled with a

liquid in case of necessity. In the upper part of the nuclear reactor, a space has to be designed for the heat exchangers and these has to be placed there, just in case.

These updates are presented in fig. 6.

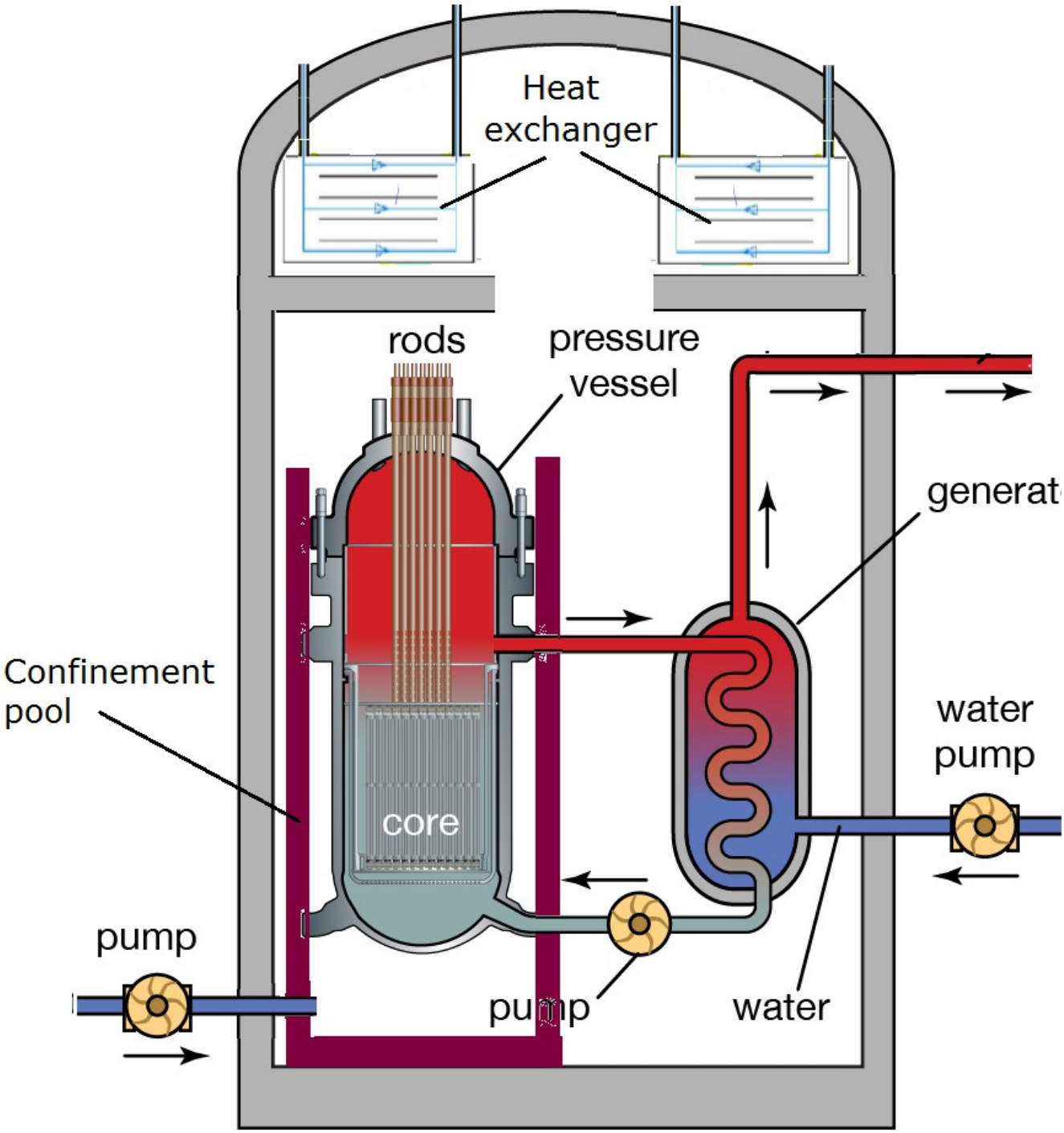


Figure 6. Updates necessary to a nuclear reactor

In case of a nuclear accident, during the meltdown, the pressure vessel is damaged and the fuel is going to fall partially or totally in the secondary confinement pool. The confinement pool is

going to be flooded with water or another fluid (see the proposal for other freon use in the electricity production), and of course due to the heat of nuclear reactions, the fluid is going to boil – fig. 7.

The vapors are going to diffuse in the entire nuclear reactor space. By activating the heat exchangers battery, these vapors are going to be condensed back to liquid. The condensate is going to be returned to the confinement pool either by direct dripping or by using a pump.

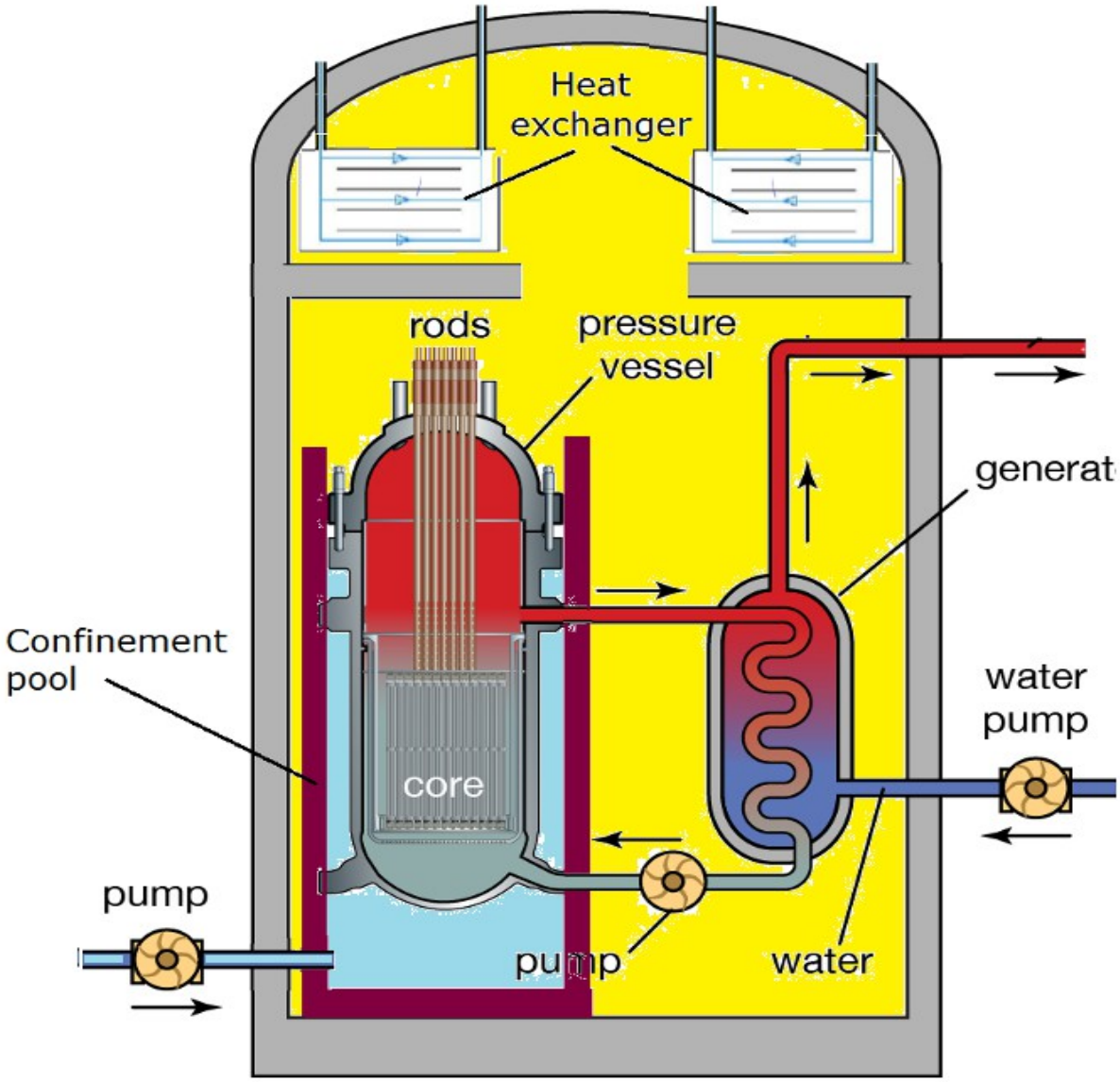


Figure 7

By having this secondary and basic evaporation-condensation loop, the safety of the reactor is greatly enhanced. This loop, although working at normal atmospheric pressure is enough to confine the radioactive material and avoid environmental contamination.

This secondary loop of control should become the standard in the nuclear industry.

Imagine that an accident similar to Fukushima happens somewhere in the middle of Europe. As high official Japanese recognized, with other wind pattern the situation would have been catastrophically for their entire nation.

A similar incident with an unfavourable wind pattern can wipe out an entire country.

By switching from water as working agent to a freon, other safety measures are coming implicitly. Normally, the freon does not generate secondary reactions which releases hydrogen, and this is already a step further in improving the nuclear safety.

By choosing to work at lower temperatures as the present one, the safety is increased either.

The confinement pool can have other configurations too. Here bellow are some variations.

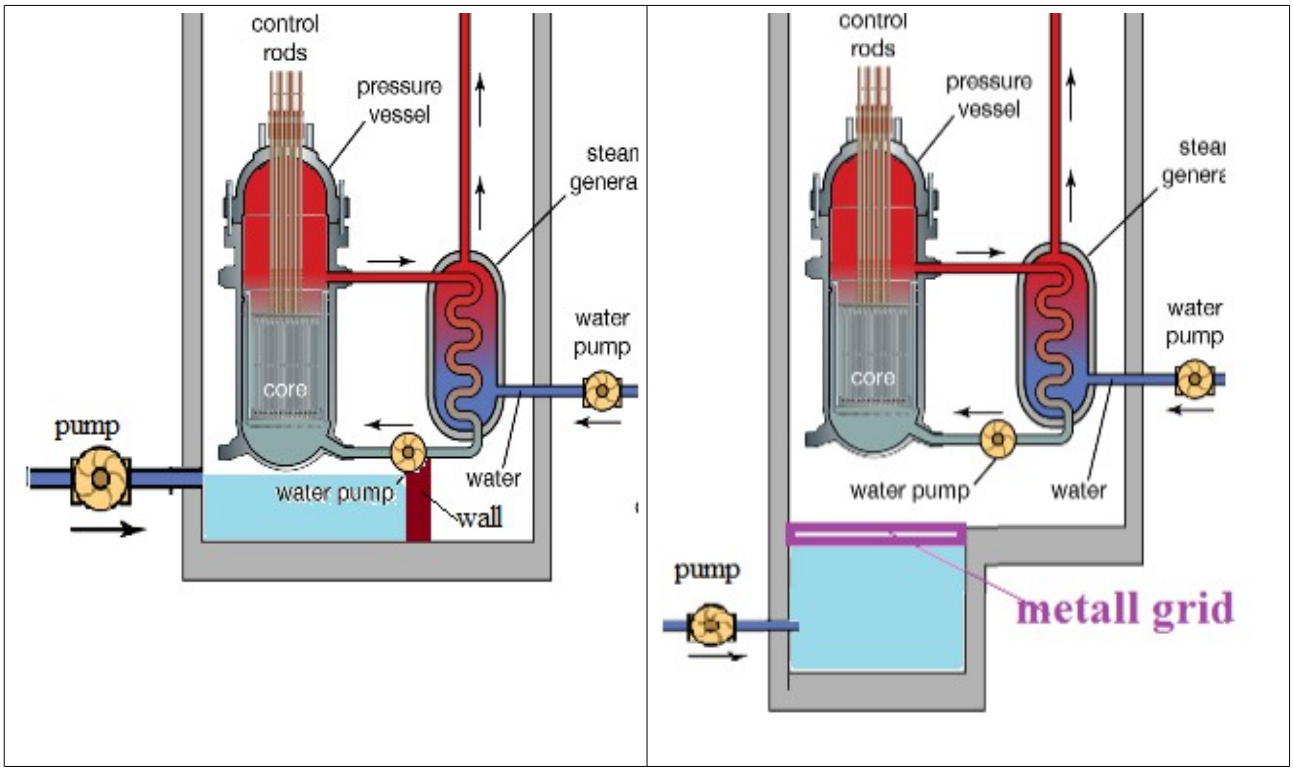


Figure 7a

SECTION III HOW CHEAP AND CLEAN THE NUCLEAR ENERGY IS?

I suppose that anyone have already observed that I am not suffering of nuclearo-phobia. There have been many articles where this technology has been drastically improved and there are going to be further articles about nuclear physics in the future. Yet, it has to be a moral duty of a scientist to show also the downsides of this technology in order to have a clear picture for those who are interested to keep this technology alive.

For decades, the development of nuclear power has sparked debates among scientists, politicians, activists, etc.

Some have even changed the camp along time and here I would like to remind that environmentalists, who were initially against nuclear energy, but lately most of them have become supporters of this technology.

The supporters of the nuclear energy claim that this is the most effective way to combat climate change while still meeting the world's growing demand for energy.

The Fukushima accident demonstrated that nuclear technology has still safety issues and it is not so simple to sleep in tranquillity with a ticking bomb near the house. The subsequent decision of Japan and Germany to phase out their nuclear program was, in my opinion, a wise one!

It is important for humanity to understand the real danger of the nuclear technology and the fact that such technology is not a convenient solution to be extended at larger scale.

Anyone has to be aware that nuclear technology is dangerous, costly, and ill-advised.

For those countries which have already nuclear power plants, it is of utmost importance to update any nuclear reactor with a secondary safety loop of evaporation-condensation in order to make them safer and avoid accidents as Fukushima; the necessary information was provided in the previous sections.

The international legislation regarding the ,,controlled release" of radioactivity in environment has to be modified in order to confine all the new produced radioactivity inside the border of the nation which uses this technology.

The actual procedure of damping nuclear waste into the oceans, flowing bodies of water or atmosphere, has to be forbidden. The present justification that the amount released is small, the dilution is huge, without danger to the environment or to the humanity, is a quackery.

Do spray and dilute this generated radioactivity over your land or over the properties of those who support this technology!

There are already clear proofs that oceans do not act as infinite and passive containers for this radioactivity and the chemistry of these released nuclear species has to be reconsidered. It is already demonstrated that these radioactive nuclear species are becoming active part in the biosphere and they are practically affecting the living organisms at a larger scale, not only at the dumping place. It is only a question of time until the propagation of these effects arrive to the supreme predator, the human specie.

Some of the nuclear technology supporters are going to argue that nuclear technology does not increase the level of natural radioactivity in a significant manner and there is some true in this affirmation. The level of ,,natural" radioactivity is not a fixed value and there are natural variation from place to place.

What they don't want to recognize or are not able to see is the fact that natural radioactivity pattern is completely different from the pattern created by the nuclear technology. At the present stage, it is not a problem of ,,amount", it is a problem of pattern and how this pattern change affects the biosphere.

If the nuclear technology would be scaled up, then it is going to become also a problem of baseline change, but for the moment, I suppose, this is not the case. Of course I assume that most of the barrels with radioactive material damped into oceans in the period from 1946 to 1993 are still intact and the material is confined there.

The terrifying aspect of nuclear technology in these days is the ,,new induced nuclear radioactivity pattern" and how this affect the biosphere.

A simple example is edifying: Some advertisements about nuclear technology inform you that by eating a banana one person incorporate more radioactivity in a day than living near a nuclear power plant and this is probably true.

With a Geiger detector, by sure there is a comparable signal coming from banana and the measured signal outside of a nuclear power plant (assuming that one makes the measurements when no controlled releases are in progress).

The human organism adapted to live in equilibrium with a natural radioactivity which comes from rocks, food, cosmic rays. It is hard to say how the molecular processes inside a human body would take place in absence of this natural radioactivity. It is a difficult idea to be tested, but at molecular level, there are some mechanisms which take into account the damages produced by this natural radioactivity and there is a ,,repairing program" in place.

Speaking of potassium: along geological epochs, the concentration in radioactive potassium in environment (the radioactive specie in a banana) was higher in the past and therefore, as far we

are still here, it seems that damages generated by this nuclide are not relevant for the human specie as a whole.

By comparison, when a nuclear power plant releases some radioactive strontium in the nearby water, a person living near the power plant is not going to drink that water. So, during the everyday regular functioning, the negative effects of a nuclear power plant are insignificant for the nearby living people.

Yet, one has to imagine what happen with this radioactive strontium downstream when, for example, that water is pumped by a irrigation system and is concentrated into a living tissue from a plant. The plant is harvested and distributed to another location. Maybe the plant is processed, exported and consumed far away from the initial location, where the plant was harvested. One can make even a test to check that the total radioactivity of the final or intermediate plant product is in the limits admitted by the standards and the test is passed.

As far there is a „background" of radioactivity everywhere and in everything, it is very easy to mask a small amount of strontium in this background.

Yet, when the things are analysed at their face value, the human body was not expecting to get that amount of radioactive strontium into organism and of course this strontium is incorporated into the human bones. A decade later, someone is going to have cancer at a completely different location from the location where the radioactive strontium was released and it is impossible to make at least a correlation with the real cause of this cancer.

For the human specie, at this moment, the new pattern of radioactive nuclides generated by the nuclear technology is more dangerous than the amount, because there has been no long term adaptation to this kind of pattern and the effects are not predictable. Medicine is not working as physics and for low doses of radiations from this new radioactive pattern, the effects can be seen after decades or only in weaker individuals.

Another example: have you ever seen a documentary which shows how the uranium is extracted and what is left behind?

Most reserves have uranium with a concentration of between 0,1 bis 0,2 %. Depending on the depth in the ground, the deposit is either mined using surface or underground mining. The uranium ore is extracted through mechanical means such as blasting, drilling, pneumatic drilling, picks and shovels, and then transported to the surface. After mining, the ore is ground to a fine powder in a uranium mill. Due to the very low concentration of uranium in the rock, immense amounts of rock have to be moved and processed in order to get a certain amount of natural uranium. This results in enormous heaps of sterile. For instance, with a concentration of 0,1% of

uranium, 1000 tonnes of radioactive sterile have to be dumped onto heaps to get just one tonne of natural uranium.

The results is simple to be imagined: millions of tons of material accumulated in heaps and still radioactive were brought to the surface and left to be eroded by the earth climate.

So water is continuously carrying this radioactive powder at large distances and affect other locations. Winds also is carrying this powder at other locations and even at large distances, depending on the wind pattern. If due to the natural pattern of winds, sand is carried from Sahara up to South America, the same thing is possible with these radioactive powders.

When such radioactive powders get finally localized into the lung of a person at thousands km from distance from the initial location, this simple radioactive powder can produce a lung cancer. The lung tissue is not expecting to have such internal contamination and of course it tries to repair the damages. There are a lot of collateral factors which can corroborate to have an increased probability of cancer development in an organism and things are not straightforward. Who can establish a correlation between these events, taking into consideration the different locations and the time difference between cause and effect?

Have you ever heard about in-situ-leaching method of uranium extraction?

This method is much different from the conventional method in that it uses a toxic chemical solution to separate the uranium in the Earth's crust from the surrounding rock. The chemical solution is injected into a drilled hole at the periphery of the uranium deposit. This liquid loosens the uranium from the rock and binds it; in other words, the uranium is „flushed" out of the rock. The final solution, now supplemented with uranium, is then brought up to the surface through another borehole.

The method, apparently is more convenient than the classical method because no mining of huge amount of material is necessary. Also, apparently, it has lower environmental and health impact and supplementary it is cheaper.

Though, as anyone can imagine, not all the pumped solution can be recovered into the process. Some of this toxic solution remains in the underground. The groundwater movement cannot be estimated with accuracy and it cannot be predicted for the future too. This means that the location remains contaminated for a long time with irreparable and immeasurable consequences.

Do you think that someone is going to make a correlation between this water contamination and the intoxication of some poor people who drink water from a well at 100 km distance, where this contaminated water surfaces after some decades? Of course there is no direct correlation

between facts and the cause, because the movement of the solution in the underground is a long time process and the solution dilutes as it spreads out on larger volume.

The in-situ-leaching method is even more pervasive as someone would think, if other aspects are analysed. Although the method does not create heaps, the toxic and radioactive solution extracted from the uranium wells is collected on the surface and directed into evaporation ponds. Carcinogenic radon gas, among other substances, is emitted from these ponds into the environment.

I would like to see how a person living at 10 km distance can demonstrate that he or she got lung cancer from the radon released into environment by such an exploitation! As in case of tobacco industry, who refused for decades to accept that smoking increases the risk of lung cancer, the company exploiting this uranium is going to demonstrate that no threat to humans are possible doe to its activity. Moreover, for some skilled and well paid advocates, it is going to be a piece of cake to demonstrate that the cancer was generated by the hobby of that person who stayed too much in the cave, drinking wine! There is no possibility to demonstrate that real cause of that cancer was the exploitation of uranium or some small amount of natural radon which is also present in cave and other low ventilated underground locations.

Based on this slippery situations, the official statistics „demonstrates" how clean and convenient the nuclear energy is! Table 1 present such an official statistic from an international organization webpage, which demonstrates that fatalities in case of nuclear accident are lower than the fatalities produced by wind turbines.

https://www.oecd-nea.org/upload/docs/application/pdf/2019-12/nea-news-36-1.pdf

Unfortunately, all these statistics take into consideration only the immediate and visible cause-effect facts.

I suppose there were some incidents with wind turbines falling over people so it is not complicate to have a cause-effect relationship.

The same immediate and visible cause-effect relationship was preserved in case of an nuclear incident. Only the people who died directly into the incident or got irradiated to high doses and died immediately after, were counted.

Maybe someone would like to implement the same strategy for COVID 19 corona virus epidemic. Lately, in a lot of countries around the world, it appears that people are dying only from this cause. According to the media, there is no natural rate of mortality, there are no cancers, there are no heart infarcts, there are no other diseases or accidents.... but only corona virus.

Table 1: Summary of accidents with more than five fatalities*
(1970-2008)

Energy chain	OECD		EU27		Non-OECD	
	Accidents	Fatalities	Accidents	Fatalities	Accidents	Fatalities
Coal	87	2 259	45	989	2 394[a] 162 818 1 214	38 672 5 788 11 302 15 750
Oil	187	3 495	65	1 243	358	19 516
Natural gas	109	1 258	37	367	78	1 556
Liquefied petroleum gas	58	1 856	22	571	70	2 789
Hydroelectric	1	14	1	116	9[b] 12	3 961 26 108
Nuclear[c]	–	–	–	–	1	31
Biofuel	–	–	–	–	–	–
Biogas	–	–	–	–	2	18
Geothermal	–	–	–	–	1	21
Wind[d]	54	60	24	24	6	6

* From the Energy-related Severe Accident Database (ENSAD); a) Coal: first line non-OECD total; second line non-OECD without China; third line China 1994-1999; fourth line China 2000-2008; b) Hydro: first line non-OECD without China; second line China; c) Note: Fatalities from the Fukushima Daiichi NPP accident in 2011 are not included in this table, but it should be noted that the accident resulted in no immediate, radiation-related fatalities; d) Wind: only small accidents.

Source: Adapted from Burgherr and Hirschberg, 2014.

In Romania, the situation is even more tragicomic: for the first half of 2020, the total rate of mortality (corona virus included) was less than the correspondent value for the first half year of the precedent year 2019, when there was no epidemic at all.

How is possible to have an epidemic in a country, when the rate of mortality is lower than the expected one?

Of course there were less car incidents on the streets and this had also a contribution to mortality decrease, but an epidemic means a large scale catastrophe ...

It is obvious for a layman that this is a fake epidemic and there are only some individual cases who are not worth to be trumpeted.

Yet, some imbeciles from the government and mass media, keep the headlines each day with this fake epidemic. Of course, they are paid to proceed in such manner because other people are getting rich by exploiting the situation...

One has to look in the already published statistic from World Health Organization for the half year of 2020 and see how faked the data presented there are!

After those data, the most convenient country to live is Bangladesh, with a rate of death from corona virus of only 1,32%; in the same time countries like Italy, France, UK, have reported deaths percentages by corona virus with double digits.

Can someone compare the logistic and the sanitary system from these developed countries with the Bangladesh one?

If one further compares the reported data for US and for India, despite the huge amounts of money spent by the US government, the results were far from expected; the rate of deaths from corona virus was quite double in US as India, and even much greater as most of other underdeveloped countries.

Of course there are some developed countries who reported the data correctly. At a first glance Japan, South Korea, Australia are in the forefront of this „health state honesty report". For a population of about 125 millions in Japan to have about 50 000 infected and about 1000 deaths is credible. For about 52 millions people living in South Korea to have about 15000 infected and 300 related deaths is again credible.

One has to take with a pinch of salt though, the information that France had 185353 infected and 30201 deaths from corona virus, i.e. a percentage of 16,29% deaths.

Region	TOTAL infected	Deaths	Percentage %
Globally	19718030	728013	3,69
Africa	895696	16713	1,87
Americas	10590929	388673	3,67
Eastern Mediterranean	1644359	43433	2,64
Europe	3582911	216693	6,05
South-East Asia	2632773	53677	2,04
Western Pacific	370621	8811	2,38

Region	TOTAL infected	Deaths	Percentage %
South Africa	559859	10408	1,86
United States of America	4951851	160989	3,25
Germany	216327	9197	4,25
France	185353	30201	16,29
Italy	250566	35205	14,05
India	2215074	44386	2,00
Bangladesh	257600	3399	1,32
Japan	47990	1047	2,18
Nigeria	46577	945	2,03
China	89270	4693	5,26
Republic of Korea	14626	305	2,09
The United Kingdom	310829	46574	14,98
Spain	314362	28503	9,07
Romania	61768	2700	4,37
Pakistan	284660	6097	2,14
Iraq	150115	5392	3,59
Afghanistan	37054	1312	3,54
Australia	21084	295	1,40

Table 2,3 Reported data to WHO for corona virus up to August 2020

It seems that this virus ,,was more interested“ to spread in rich countries which were willing to spend huge amounts of money ,,for some antibiotics” and less interested to spread in poor countries which were not able to spend such money.

Have you ever seen a statistic with other types of flu for 2020?

Well, as far no such data were reported, two simple reasons are possible:

- Covid 19, being helped a bit in a laboratory and muscled up by some crazy scientists, was able to expel all the other similar viruses from our environment.
- From all the faked reported infected cases, Covid 19 represents only a slice, because a lot of people got ,,normal” flu in certain weather pattern.

Anyway, for Romania, but for a lot of developed countries too, it has become more dangerous to be hospitalized than staying home and taking some remedies in case of flu infection.

In Romania, you have a big probability to be falsely declared as infected with corona virus when you go to hospital and if by any chance you are going to survive to the treatment, then someone is going to look after your real illness. The indolence and malpractice is the status quo for the sanitary system, because they are asked to report as many deaths by coronavirus as possible.

There are some outrageous cases which have to be reminded:

- A declared dead person, wakes up in the coffin …..; she was lucky and woke up in time before being buried.
- A person who died in car accident, but in the documents he was declared died by coronavirus.
- A person had appointment for a corona virus test, but he missed the appointment. After several days, he receives the documents that he is infected with coronavirus.

But of course, Romania is a country where everything is possible. In this XXI century, for a few thousand $, young girls are kidnapped from street and sold to prostitution networks, with the authorities complicity. In the most extreme case, when a girl was able to make an emergency call and indicate the complete address where she was detained after kidnapping, the police did nothing until the warrant mandate was not approved. And as anyone can imagine, in a corrupt democracy as Romania, the warrant mandate arrived when the location was already empty....

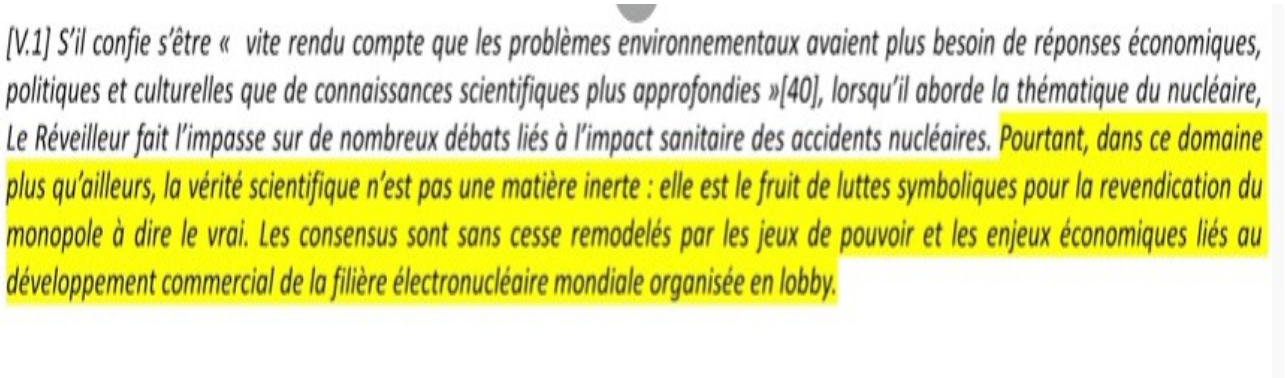
The case become known only because that poor girl had by chance an uncle who was in the parliament and he was in contact with some men in power; otherwise, the case would have been pushed under the carpet by authorities and by mass media too. In fact the authorities did the best job ever to cover any possible trace to the hierarchy of the band of criminals....

And what can a simple person do in this situation, if not accepting the ,,Romanian reality”?

Coming back to the nuclear industry, the ,,official statistics" are faked from various reasons and most of the actors involved in this activity were interested to fake the data.

Here is a ,,political correct" text from a french material found on internet which describes the situation:

Though, in this field much more as in other fields, the scientific truth is not an inert material: it is the result of symbolic fights for the quest of the monopoly to say the truth. The consensus are continuously adjusted by the games of power and economical interests linked to the commercial nuclear technology promoted by the global electricity chain actors organized as a lobby.



[V.1] S'il confie s'être « vite rendu compte que les problèmes environnementaux avaient plus besoin de réponses économiques, politiques et culturelles que de connaissances scientifiques plus approfondies »[40], lorsqu'il aborde la thématique du nucléaire, Le Réveilleur fait l'impasse sur de nombreux débats liés à l'impact sanitaire des accidents nucléaires. Pourtant, dans ce domaine plus qu'ailleurs, la vérité scientifique n'est pas une matière inerte : elle est le fruit de luttes symboliques pour la revendication du monopole à dire le vrai. Les consensus sont sans cesse remodelés par les jeux de pouvoir et les enjeux économiques liés au développement commercial de la filière électronucléaire mondiale organisée en lobby.

As far the nuclear technology works on the principle ,,What cannot be seen, does not exist", it is very difficult to establish a direct correlation between cause and effect. Of course, for high doses of radiation it is possible to have such a direct correlation; but for middle and especially for low doses, the causality relation is difficult and sometimes impossible to be established. Another independent study has to be performed in order to see the effects of each new nuclide produced by this technology and its impact on environment and biosphere.

When looking back into history, the nuclear technology has become available as an extension of the nuclear weapons program, so it is obvious that a lot of data about the real danger of this technology were minimized.

The main studies about nuclear radiation danger and doses were mainly established by studying the exposure of Japanese population to the effects of Hiroshima and Nagasaki bombs.

Again, these studies, assuming that they were correctly recorded and interpreted, can offer us an image of what happen with human body when is irradiated by an outside source.

These studies cannot give detailed information about a smaller dose of radiation which arrive to an specific tissue and persists for long time inside the organism, nor offer a information about the danger of new types of nuclides released by the nuclear technology, etc.

Even later, when the nuclear technology spread out to many other countries, the authorities were not interested to revise or complete these studies.

The companies, who owned the nuclear reactors, by sure were not interested to revise and complete these studies either!

I have seen some documentary on internet where those who support the nuclear technologies are trumpeting the fact that rate of cancer to the people working in a nuclear power plant is smaller than the average rate of cancer for the total population.

Well, they missed to present another supplementary information which is critical to conclude why there is such discrepancy between cancer rates. When the selection of personal is made, only those in good health are admitted to work in a nuclear power plant so, it is obvious that data are faked starting from the selection procedure.

I haven't seen a statistic with the people who worked in the uranium mines and the long term statistics about their health; even in this case only healthy people are selected, because working in mine is not for asthmatics or weak organisms.

If one take into consideration some ,,individual cases", I would not be surprised if some of the supporters of this technology propose to increase the ,,acceptable dose" for radiation; By sure such devil advocates have strong arguments and I would like to quote the case of plutonium contamination experiments in case of Manhattan project.

From April 1945 to July 1947, eighteen people were injected with plutonium as part of this project with doses between 0,095 to 5,9 microcuries (μCi); one of the eighteen people involved in these tests was Albert Stevens.

Unexpectedly, Stevens survived for about 20 years after this experimental dose of plutonium before succumbing from heart disease; he survived the highest known accumulated radiation dose in any human.

Updated calculations of his lifetime absorbed dose give an incredible 64 Sv (6400 rem) total.

If by large scale extension of atomic technology, and with present permissions to discharge part of the radioactive garbage in environment, there is going to be a time when the natural radioactivity is going to increase slowly and surely ...

By documenting for this newsletter, I found the most duplicitous and misinformative material ever, presented by a nuclear tech supporter:

https://www.youtube.com/watch?v=Rb7tAwNIvUs

Why is everyone afraid of Nuclear Energy? Bret Kugelmass delivers a revisionist history.

I tried to contact the author, i.e. Mr. Kugelmass, but unfortunately, he did not answer to my email.

Here are some of the ideas he conveys:

- *The reserves of uranium are enough for billions of years; of course he want to extract uranium from oceans and oceans floor;*
- *The nuclear industry is cleaner, more environmentally friendly and less dangerous than other ways of producing electricity;*
- *A nuclear meltdown, under any circumstances that one can imagine, is totally harmless.*
- *Nuclear spent fuel has to be diluted and a federal agency takes care of it (i.e. discharge it in the ocean).*
- *In case of Fukushima accident, the measures taken were disproportionately high because in reality there was no danger at all for the population.*
- *Only a spoon of radioactive iodine could be released from a reactor during meltdown and besides, this isotope is used to threat thyroid cancer so anyone could have a treatment for free...*

I spotted only some of the distorted ideas presented there, because the list is much longer ….

The most critical problem is not that such enormities and imbecilities are presented as scientific facts! The most critical problem is that such people, in a direct or indirect way, supported by capitals and lobby, arrive to convince some decision factors to implement such aberrant ideas in practice.

His presentation was made in front of an educated public at one of the top universities in US - the John Hopkins University. The most curious fact was to see, at the end of his presentation, how all spectators applauded him! What a crazy world have we created!

If one looks back in recent history, there was a time when radioactive water and radioactive products were sold to the public for different purposes. It was ,,exciting" to see radium pendants for rheumatism, all-natural radon water for vigour, uranium blankets for arthritis, thorium-laced medicine for digestion, radioactive suppositories, etc.

The craziness of that period did not stop there...

There were even some which ,,counterfeited" these radioactive products; these counterfeited products were considered fraudulent in the sense that they did not emit the high levels of radiation they claimed to!

This led to a couple of the more surreal aspects of the whole episode: advertisements that positively guaranteed that a company's products exposed you to the full dose of radiation promised, and instances of the government shutting down companies selling perfectly safe phony products instead of shutting down those companies which were selling the real deadly items.

For example, the Bailey Radium Laboratories, New Jersey, offered $1,000 to anyone who could prove that its "Certified Radioactive Water," sold under the brand name Radithor, did not contain the large amount of radium and thorium it claimed to. Alas, Radithor was the real thing! No one ever claimed the prize. At that time 1000 $ were quite a fortune....

Mr. Kugelmass, a Stanford alumni, and a real promoter of this new kind of nuclear quackery, is also offering a prize (it is 10000 $ as I remember) to those who prove that nuclear technology is dangerous and as in previous case no one claimed the prize....

No wonder that having such advisers, US former president Trump wanted to implement a regulation to save the nuclear and coal power plants, by forcing the population to buy electricity at an established fixed price.

I do not know if this regulation was further adopted, but it is important to be understood how the decisions are taken into modern democracy. Truth is only a a convenient coin and it is important to be passed to the people who can take the expected decision.

It is important to be highlighted that I found also some materials which try to convey a more realistic imagine of the danger of nuclear technology and I would like to make reference to the following articles and links:

Benjamin K. Sovacool Questioning a Nuclear Renaissance

Global Public Policy Institute, Berlin · Germany

https://www.gppi.net/media/Sovacool_2010_Questioning_a_Nuclear_Renaissance.pdf

Nuclear Power in Canada: An Examination of Risks, Impacts and Sustainability

https://www.pembina.org/reports/Nuclear_web.pdf

Unfortunately, these articles are quite unknown to the large public and in fact they are not far from complete oblivion....

Let us go further and present some other ideas and facts which have been spotted by other anti nuclear people along time too.

It is assumed that nuclear power plants produce electric energy at low cost, but this is a completely false statement. The cost of a nuclear electricity was indeed lower as other forms of energy but this was a somehow ,,artificial price". In this moment the electric energy coming from the renewable has a price lower than that ,,artificial price".

If someone checks again the old data and include in the price of nuclear electricity, other additional costs which are currently hidden, then it is simple to be deduced that the real price of nuclear electricity has always been greater as most of other ways of electricity production.

The real price of nuclear electricity does not mean the operational cost of a nuclear power plant; one has to include in this final price: the costs for nuclear research, the subsidized costs for construction, the subsidized costs for land, the costs for decommissioning, the costs for keeping the nuclear garbage under control etc.

It is notorious that nuclear power plants are incredibly expensive to build—and the cost keeps rising. From 2002 to 2008 the estimated cost to build a nuclear plant grew from $2-$4 billion to $9 billion, and power plants often surpass their cost estimates during construction. In addition to the expense of building a power plant, nuclear plants must also allocate funds to protect the waste they produce and keep it in cooled structures with security procedures in place. All of these costs make nuclear power quite expensive.

Lately, in order to avoid these high costs for nuclear facilities, there is the tendency to shift from these huge nuclear reactors to smaller units, the so called small modular reactors (SMRs), which eventually are produced in a factory and assembled at the location energy is needed.

These are going to be true ecological bombs, or maybe true bombs, because it is going to be very complicated to control their activity. When the large spread of such nuclear reactors is going to be allowed, then it is going to be a matter of time to see a change of the baseline natural radioactivity too.

Furthermore, the uranium is not a renewable source and it is considered that present reserves are enough for 50 years after some and for about 70-80 years after other estimations.

It is obvious that nuclear industry based on uranium cannot expand too much because the price of nuclear fuel is going to increase to some unrealistic values. The price for nuclear fuel has increased slowly or in jumps during last decades and if the material become scarce, the price is going to jump again. Of course it is possible to harvest uranium from sea water or from sea floor, but the cost and consequences are difficult to be estimated.

Having in mind this ,,delicate situation" other nuclear fuels has to be considered. One of the advanced solution is the use of thorium, but with this new radioactive nuclide it is necessary to start the basic research again …..

The Fukushima power plant crisis in 2011 showed that no matter how safe nuclear power plants are designed to be, accidents can and do happen. Such accident is having serious implications for a developed country as Japan. A similar accident in a small country, unable to allocate such

amount of money for the management of such disaster, can generate an economic and environmental collapse even for some neighbour countries.

Although nuclear energy production is considered a clean industry from the perspective of CO2 emission, this technology is not CO2 free as some nuclear supporters affirm. In comparison with the dirty carbon, which with some costs can be make a bit safer for environment, the radioactive waste generated by nuclear technology is incredibly dangerous. Storage of radioactive waste is a major challenge facing nuclear power plants.

The present practice of waste management is to contain the high- and intermediate-activity wastes in storage tanks on land. Low-activity wastes are discharged into the ground or, released through pipes to the sea, either directly or after treatment, or they are fixed in concrete or in packaged containers, some of which are disposed of in the sea.

Greenpeace released a report in January 2019 that detailed what it called a nuclear waste 'crisis' for which there is 'no solution on the horizon.' One such solution was a concrete nuclear waste 'coffin' on Runit Island, which has begun to crack open and potentially release radioactive material. Those who allocated this location as a nuclear coffin, without any measure to confine the radioactivity, have to be charged of crime against humanity. Imagine a small island where craters were created first by the nuclear bombs and now these craters are filled with damped radioactive material.

Anyway, the radioactive pollution in the oceans has been increasing globally - and not just since the disaster at Fukushima or from Runit Island leaks....

By browsing various materials about nuclear technology, I found an information which for me seemed unrealistically:

„The amount of heat varies from the different components used in the plant but on an average about 60 to 70% of thermal energy from the nuclear fuel is rejected out of the plant. Some plants use cooling towers while some use a large body of water, such as an artificial lake or a natural body of water such as a lake or a river."

I thought that it was a typing error and I dis-considered the information. Later on, when reading the report from pembina.org, the information was confirmed as follows:

Nuclear power plants require a large amount of cooling water for steam condensation in their cooling loop. For every kilowatt-hour of electricity they produce, nuclear power plants require between 205 and 228 litres of cooling water.

The question is: how some scientists working in the field of nuclear technology or thermodynamic think that heat can be converted into mechanical work and in the same time throw away more than half of the heat generated in a nuclear power plant?

Well, I suppose that using the technologies advanced by me, not the conservative 20% increase in yield is possible, but much more.....

There are other threats which comes with a larger implementation of nuclear technology like national security of a country. Terrorists might target nuclear power plants with the intention of creating a disaster. It would be complicated but not impossible to turn the uranium used in this power plants in nuclear weapons. More probable such radioactive material could be used to make dirty bombs and generate disasters in a collateral way.

The conclusions are from my point of view clear crystal:

- ***Nuclear power is only a temporary solution for producing electricity and this come with a very high price tag.***
- ***Nuclear energy is not a clean energy source and new rules for produced radioactivity confinement have to be established for those who still want to use this technology.***
- ***The extension of this technology would bring more problems than the solved ones.***

Here are some interesting materials for your information:

https://www.youtube.com/watch?v=YBDy2kUxOn0

Notre ami l'atome, un siècle de radioactivité | ARTE

https://www.youtube.com/watch?v=cMeoU3JUbDA

Le Nucléaire : L'Energie a Double Tranchante [Documentaire Science]

https://www.youtube.com/watch?v=gKg1l-yiEG8

Britain's Nuclear Secrets: Inside Sellafield (Nuclear Energy Documentary) | Timeline

https://www.youtube.com/watch?v=52FFQmQdIIU

Océans Les poubelles Radioactives Documentaire Français

https://www.youtube.com/watch?v=mKmgOLnvBDo

Documentaire : Nucléaire, une pollution durable

https://www.youtube.com/watch?v=CYijl2HWlPg

Clean Energy's Dirty Secrets (Nuclear Power Documentary) | Spark

SECTION IV NEW TECHNOLOGY – SWITCHING FROM A GAS TO A LIQUID PRESSURE GRADIENT

The idea behind this technology has a much larger field of applications, but this section is going to describe how this technology applies to electricity production.

Up to this moment, I haven't seen a real steam turbine, but after photos published on internet and from readings, they seem to be some jewels of technology. Engineers have improved every millimetre of the steam turbine and it is one of the most difficult items to design and build – fig. 8.

Figure 8 Large steam turbine at General Electric

There are only a few places in the world which make large steam turbines: General Electric-- US, Siemens - DE, Weir Allen Steam Turbines - BR, Elliot Group – JP.

Being such a jewel of technology, this item have a consistent impact on the cost of electricity production. Table 3, found on a governmental site about energy, shows these data.
https://www.energy.gov/sites/prod/files/2016/09/f33/CHP-Steam%20Turbine.pdf

There is quite consistent investment for a power plant at the beginning, because depending on the size of this turbine, the total cost per KW of installed power can vary between approximately 650 $ up to about 1150 $.

More relevant is also a secondary cost, indicated in the table as O&M, i.e. operation and maintenance, and this cost varies between 0,6 up to 1 cent per KW produced.

Steam Turbine Capital and O&M Costs

Description	System		
	1	2	3
Net Electric Power (kW)	500	3,000	15,000
Steam Turbine and Generator ($/kW)	$668	$401	$392
Installation and Balance of Plant ($/kW, not including boiler and steam system)[6]	$468	$281	$274
Total Installed Cost ($/kW)	$1,136	$682	$666
O&M (¢/kWh, steam turbine and generator)	1.0	0.9	0.6

The production cost for electric energy is between 4 up to maximum 8 cents per KW. From this cost, something between 8 up to 15% is coming only from the operation and maintenance of the steam turbine!

The simple question one inquiring mind should answer is simple: ***Would it be possible to switch this costly item with another one having lower costs for investments, lower costs for operation and maintenance but with equal or even greater yield?***

In my opinion this thing is possible, but there are necessary some preliminary research in this direction.

The main idea of this new technology is to transfer a gas pressure gradient to a liquid pressure gradient. This switch from a high temperature gas to a liquid brings a lot of advantages:

- fluids are easier to be handled;
- mechanics of fluids is better known and used from centuries;
- the turbines for fluids are simpler and much cheaper;
- with a simpler design fluid turbine arrives to 80% yield.
- fluid turbine are a mature technology with excellent durability and reliability
- there is no necessary to have a working regime at high temperatures;

Generally speaking, the complexity of the power plant is also reduced as far there is no necessary to adapt the high rotation of the turbine to the lower rotation of the electric generator; any complication means some energy losses and by avoiding any complicated architecture, the yield is improved indirectly.

A simplified present day configuration for producing rotational motion based on steam turbine is presented in fig. 9; the schematics presents a impulse turbine acted by steam ejected from a steam nozzle.

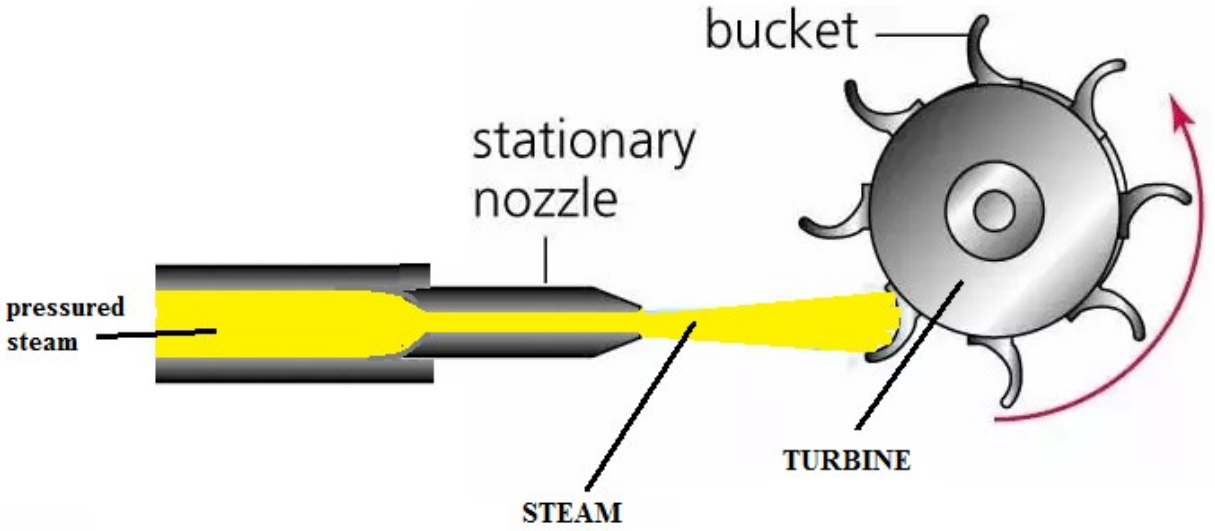


Figure 9

The switch from a gas pressure to a liquid pressure is not such a complicated thing, but some exploratory researches are necessary in order to find the optimum solution with maximum yield in electricity production.

The present turbine used for steam or for water in hydro power plants are not suitable for this new technology and a new turbine has to be designed. The present day turbines for hydro power plants have a maximum efficiency when working in a regime up to 500 rpm (rotations/minute) and the present steam turbines perform better at 30000 r.p.m.

At a first „impression" such new turbine has to present a maximum efficiency in the same range or rpm as the electrical generator in order to have a linking 1:1 between turbine and generator.

Bellow, the new technology is exemplified for the impulse turbine, but from reasons previously presented, the reaction turbines are going to be the preferred solution and the exploratory study has to be done for reaction turbines.

In order to transfer the gas pressure gradient to a liquid pressure gradient, more technical solutions are possible. Here I am going to exemplify the new effect presented in a previous section, because I suppose this effect is more than enough to support the fluid cycle.

The nozzle has to be modified and on the squeezed portion of it a pipe is attached. The pipe make the connection between the nozzle and a water pool which is harvesting the water falling from the turbine.

In case the debit of fluid is less than the optimal necessary for the turbine functioning, a small pump can be used to help the process.

The functioning of this new proposed technology is simple to be grasped – fig.10.

When a gas is constricted to flow through a constricted sections, its speed increases and locally there is a decrease in the static pressure on the constricted portion of the nozzle.

The fluid from the pool, through the pipe attached to the nozzle, moves toward this region of low pressure, and is mixed with the gas.

The mixture of fluid and gas (mostly liquid) has enough pressure (expressed as kinetic energy of the molecules) to give a kick to the turbine buckets in accordance with the energy and momentum conservation law. Once the turbine is set in rotational motion, the attached electrical generator produces electricity.

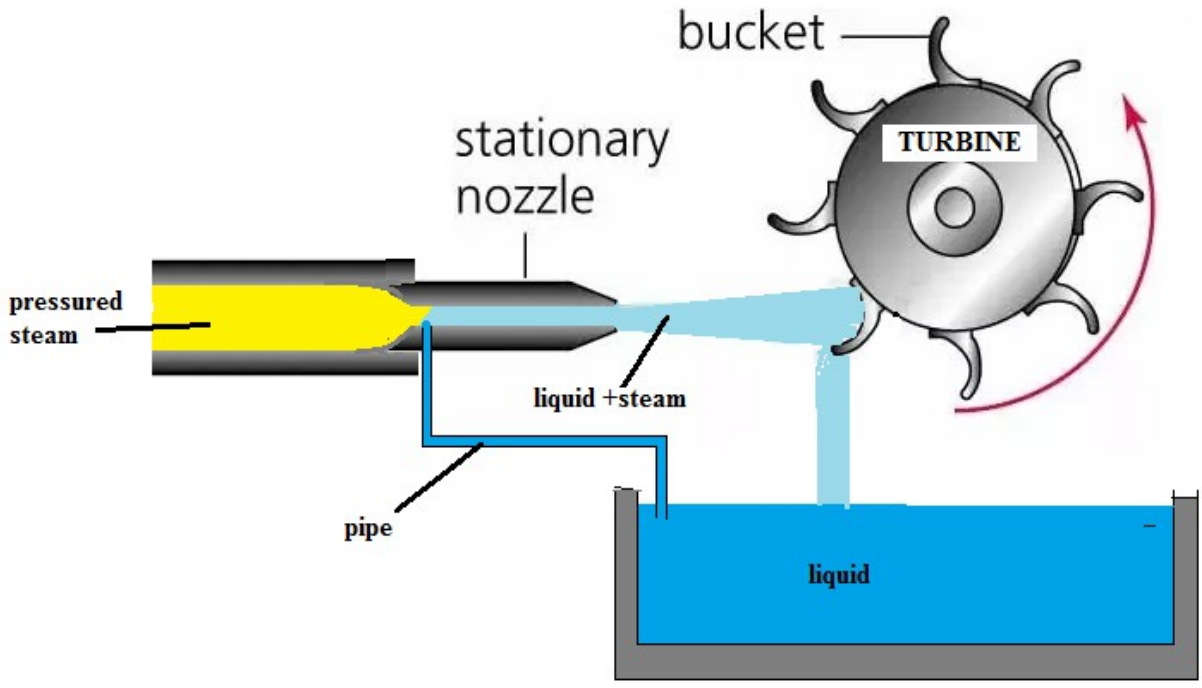


Figure 10 Power plant working with transferred pressure gradient

The use of this technology with water and steam combination under pressure is again not so convenient option because water has quite a high boiling point and a considerable heat of evaporation. Of course steam has to be produced by a boiler.

Yet, for those who want to use the technology with this configuration, it is necessary to be highlighted that initially, a part of steam is going to be condensed to liquid (the start up of the device supposes that water in the pool is at ambient temperature). Gradually during functioning, the water in the pool arrive close to the boiling point and this is the „normal regime" of working, i.e. at a temperature between 90 and 95C.

Again, as presented in some previous newsletters, the new technology arrives to a peak of productivity by using a substance like a freon with a lower boiling point and a lower latent evaporation heat. Chloroform boils at about 61 C and has a evaporation heat a third lower than water, so it is obvious the benefits of using such as substance as working fluid. In fact other freons with a boiling point of about 50 C and lower evaporation heat would be even better.

Of course, even in this case the turbine is propelled by a mixture of liquid and vapours – fig. 11, but the idea to be spotted is simple: ***working at lower temperatures brings only advantages.***

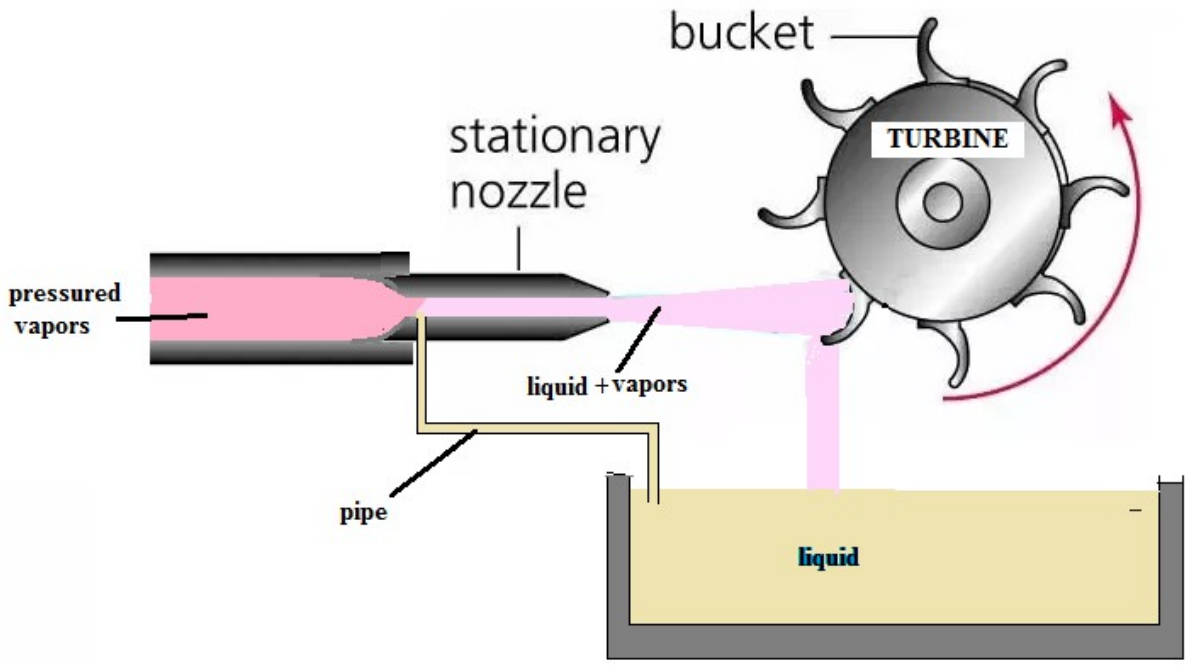


Figure 11. New technology working on freon vapours and liquid.

It is a simple idea to be grasped that more vapours are produced with a certain amount of fuel, more electricity is further produced.

There are many variation for the use of this technology and here I am going to exemplify how Germany can make a smooth and consistent transition to a larger use of renewable energy.

As anyone probably know, Germany has a strong component of renewable energies, and from the information found in internet, there are periods when these renewable sources, working at full capacity, are producing more instantaneous power than the necessary consume.

As consequence this excess of energy is offered for free during this peak of production period, because there is no simple possibility to store it. In internet, I found that for this energy, a negative price is charged, but this is a marketing approach.

By using this gas to liquid gradient transfer technology, it is possible to envisage a simple way to store the excess of electricity during peak production period and use it later, when the demand of energy is greater and/or the Sun or wind are not available.

The technology is quite simple and it supposes to use the excess of energy during the peak production period to compress air into pressures tanks – fig.12 .

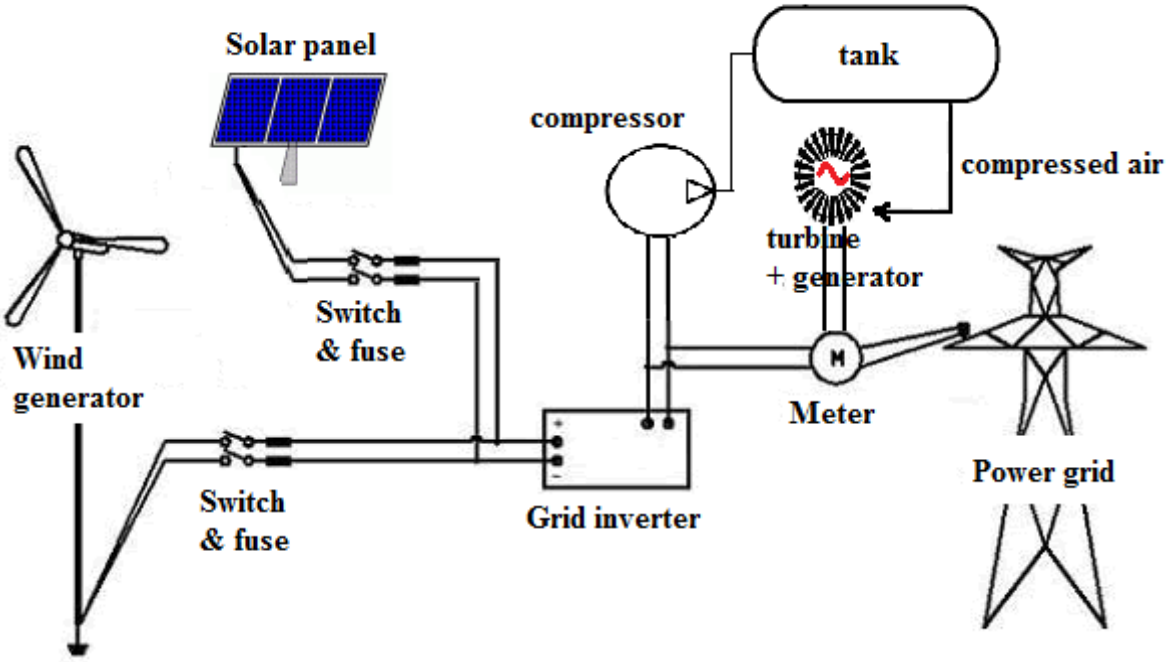


Figure 12

When the production is higher than consume, only a part of this energy is delivered to the power grid and the excess is used to power the air compressor and store the compressed air in the tank.

When the demand of energy is increasing (during the night or when wind, Sun are not available), the tank deliver the pressured air to the turbine and the electric generator is started in order to produce electricity in quite a conventional manner.

It is a matter of efficiency and commodity to have in this case a combination of compressed air and water for this variation of technology. The heat exchanged in this variation is not affecting the yield, so water would be the first option for the liquid used – fig.13.

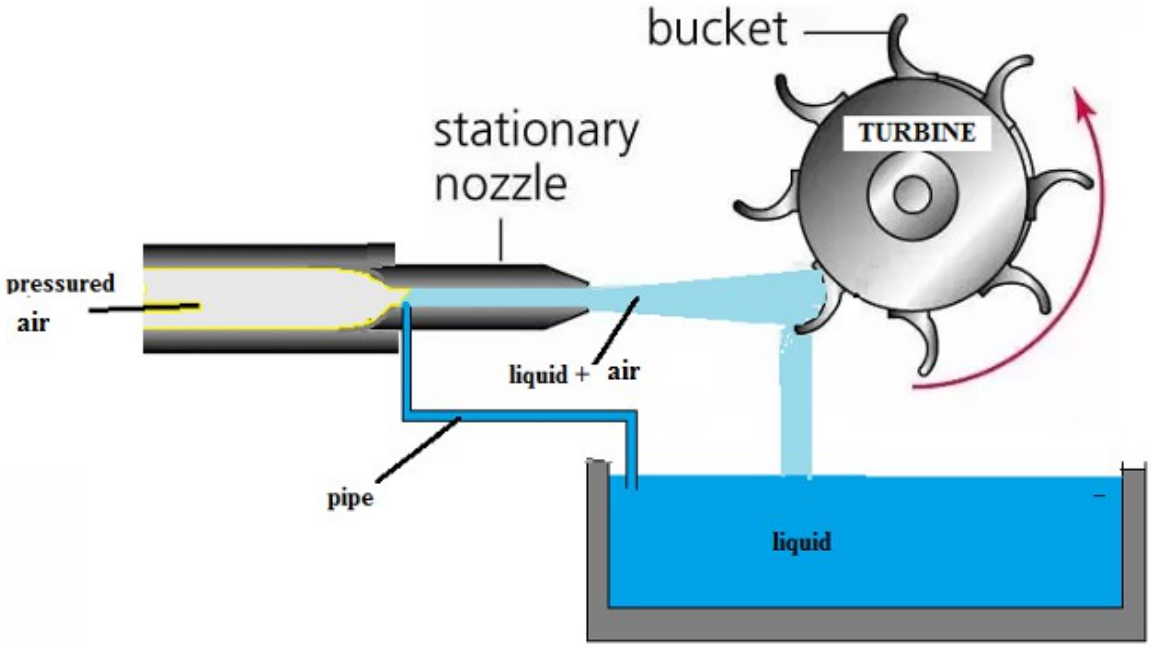


Figure 13

The use of compressed or even liquefied air for electricity production was already described years ago and this technology can be completed with a CO2 or other air contaminants sequestration during this process.

On the way from compressor to the pressured tank, air can be passed through a series of filters which sequestrate CO2 or other contaminants.

As far the CO2 and other contaminants sequestration is integrated into a larger cycle, the costs for this sequestration are negligible.

So, this technology comes with advantage over advantage.....

There are big and expensive projects to do such CO2 sequestration, and there are even start-up companies which intend to use this sequestrated CO2 for producing synthetic fuels.

The capture of CO2 molecules from air is the most problematic and energy demanding step because its concentration is small and a large volume of air has to be passed through a filter.

In order for this process to be economical sound, these start up companies are using the so called tax for carbon (subventions) and still are struggling to remains on the market.

In comparison with these companies, the advanced technology makes this CO2 sequestration fully profitable because this is only a collateral by-product.

SECTION V A NEW EFFECT IN SCIENCE

In order to grasp this new effect in science, it is necessary to present some quite old facts about fluids and gases.

The Bernoulli principle states that a region of fast flowing fluid exerts lower pressure on its surroundings than a region of slow flowing fluid. It is named after Daniel Bernoulli, a Dutch-Swiss scientist who published the principle in his book Hydrodynamica in 1738. Bernoulli derived his principle from the conservation of energy, though it can also be derived in other ways too.

Bernoulli formulated a relation between between pressure, kinetic energy, and gravitational potential energy of a fluid in a container.

$$P + 1/2\ \rho v^2 + \rho gh = \text{constant}$$

where:

P is the pressure exerted by the fluid

v is the velocity of the fluid

ρ is the density of the fluid

h is the height and g is the gravitational constant

The first term P represents the energy associated with the pressure of the fluid, and has the dimensions of force per area, or equivalently, energy per volume. The second term $1/2\rho v^2$ represents the kinetic energy of the fluid due to its average flow, and the third term ρgh represents it potential energy in the earth's gravity field.

It is not the case to demonstrate this principle again here; more important is to exemplify this principle for a simple case.

For two regions of a pipe, at the same height ($h_1=h_2$), an increase in flow velocity in one region must necessarily correspond to a decrease in pressure in order to keep the equation balanced.

According to the conservation of energy, the energy density is constant, so that for two different regions in the flow:

$$P_1 + \frac{1}{2}\rho v_1^2 + \rho g h_1 = P_2 + \frac{1}{2}\rho v_2^2 + \rho g h_2$$

As far $h_1=h_2$, kinetic energy is increased at the expense of pressure variation, while the total energy remains constant.

Bernoulli's derivation above makes two assumptions:

- Energy losses due to friction from viscous forces are negligible.

- The fluid is not compressible, i.e. ρ does not change. This condition is true for most liquids.

The Venturi effect, named after its discoverer - Giovanni Battista Venturi. is the reduction in the fluid pressure that results when a fluid flows through a constricted section (or choke) of a pipe. In fact this effect applies Bernoulli's principle to a fluid that flows through a tube with a constriction in it -fig. 14.

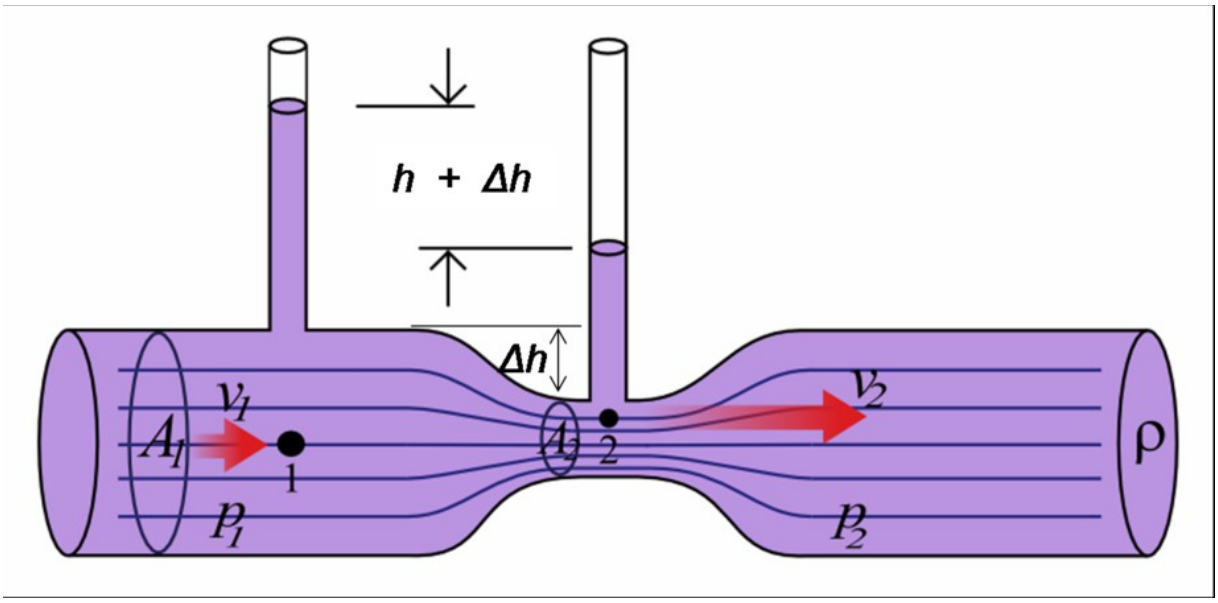


Figure 14 Venturi principle (internet picture)

As the fluid flows through the constriction, the fluid molecules speed up, in order for the total flow rate to remain the same. Since the cross section is smaller in the constriction,the molecules must move faster in order for enough molecules to get through in the specified time.

Since the molecules are flowing faster in the constriction, Bernoulli's principle indicates that the pressure in the constriction should be lower than it is outside. Indeed, in order for the molecules to speed up as they enter the constriction, and then slow down again as they leave, there must be a pressure difference at the entrance and exit of the constriction. High pressure before the constriction accelerates molecules into the low pressure region of the constriction, and high pressure after the constriction slows them down again as they exit.

It is assumed that Venturi principle provides a handy method for mixing fluids or gases, and is popular in carburettors and atomizers, which use the low pressure region generated at the constriction to pull the liquid into the gas flow.

The limiting case of the Venturi effect is when a fluid reaches the state of choked flow, where the fluid velocity approaches the local speed of sound. When a fluid system is in a state of

choked flow, a further decrease in the downstream pressure environment will not lead to an increase in velocity, unless the fluid is compressed.

The mass flow rate for a compressible fluid will increase with increased upstream pressure, which will increase the density of the fluid through the constriction (though the velocity will remain constant). This is the principle of operation of de Laval nozzle. Increasing source temperature will also increase the local sonic velocity, thus allowing for increased mass flow rate but only if the nozzle area is also increased to compensate for the resulting decrease in density.

Have you understood something from this mumble jumble of concepts and ideas?

I was not able to make heads or tails from this explanation so …. fig, 15 presents a comparative example between a Venturi effect in a fluid and a gas flowing through a Laval nozzle.

I am going to make only a visual presentation because the entire topic has to be reconsidered from scratch. As far the newsletter is for a large audience, non scientists included, it is not the case nor the time to enter into details now.

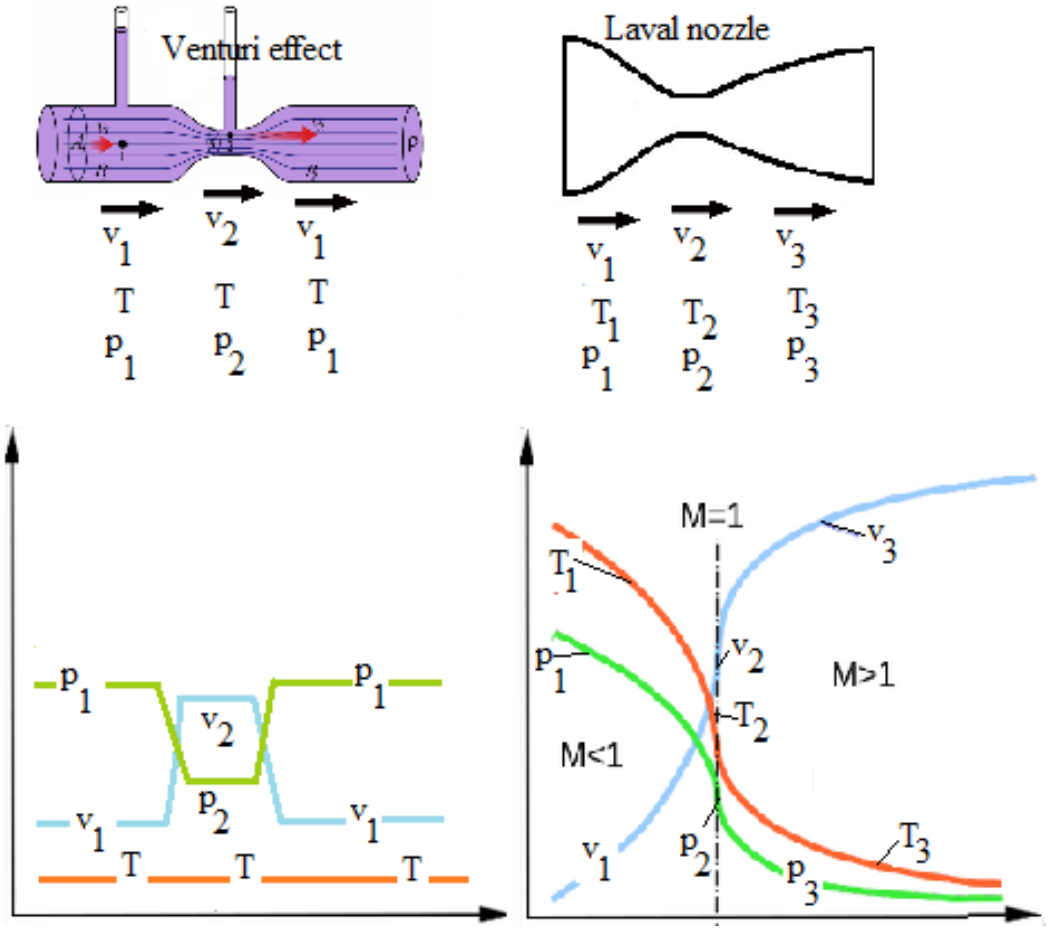


Figure 15

An amoeba, an unicellular being without brain, when analysing the graphs from fig. 15, would conclude that Venturi effect is a completely different phenomenon from what happen in a Laval nozzle.

In Venturi effect, the speed of the fluid and the pressure are interrelated and correlated with the section of the pipe. The temperature should play no role in Venturi effect.

In contrast with these facts, all parameters of the gas are variable in the case of gas flowing through a Laval nozzle. The pressure and the temperature have a quite similar and wild variation, from high initial values to lower final values. The speed of molecules has a counter intuitive and opposite wild variation, from low initial values to higher values at the exit.

What happen in a Laval nozzle is a new effect in science and there is no present explanation for the fact that molecules of a gas are accelerated when passing through a Laval nozzle and especially the role of sound speed in this puzzle.

We are fooled that space shuttles are working on the action-reaction principle. The background is somehow correct, but in absence of the effect of sonic acceleration in a Laval nozzle, no space shuttle would ever reached orbital speed.

Maybe it is possible to have a similar effect for matter and light and accelerate normal matter to super-luminal speeds, but, by sure, this is a topic for future generations.

Maybe, it is better that such technology was not invented yet! We are all, rich or poor, intelligent or stupid, on the same boat and we have to take serious measures to not allow our boat to sink. One cannot imagine what frenziness such technology would create in our already mad society!

When imbecility is reigning supreme in science and in society in general, a intelligent person has to be content that he survived so long during these times and left a written testimony for future generations.

SECTION VI HOW A STEAM NOZZLE DEMOLISHES THE KMT IMBECILITY

As a reminder, KMT is a shortcut for Kinetic Molecular Theory.

In 1888, Gustaf de Laval developed a new nozzle shape for use in steam turbines called the de Laval nozzle, or convergent-divergent nozzle. This nozzle was essentially a tube with a pinched section in the middle, making an asymmetrical hourglass shape. The primary use of this nozzle is to accelerate pressurized gas to supersonic speeds through the conversion of heat into kinetic energy. Originally, this nozzle was created to accelerate hot gas flows on the inside of a steam turbine. This nozzle shape was adopted for use in a lot of other fields and is it worth remembering rockets propelling and abrasive blasting.

Here is an excerpt from wikipedia about the use of this nozzle in the rocket propulsion:

„*Goddard described extensive experiments with solid-fuel rocket engines burning high-grade nitrocellulose smokeless powder. A critical breakthrough was the use of the steam turbine nozzle invented by the Swedish inventor Gustaf de Laval.* ***The de Laval nozzle allows the most efficient (isentropic) conversion of the energy of hot gases into forward motion. By means of this nozzle, Goddard increased the efficiency of his rocket engines from two percent to 64 percent and obtained supersonic exhaust velocities of over Mach 7.***"

One can admire the simplicity of a De Laval nozzles in fig. 16; the tube is pinched in the middle, making a balanced, asymmetric hourglass-shape. It is the classical type of converging-diverging type of nozzle, generally employed to provide supersonic jet velocity at the exit of the nozzle.

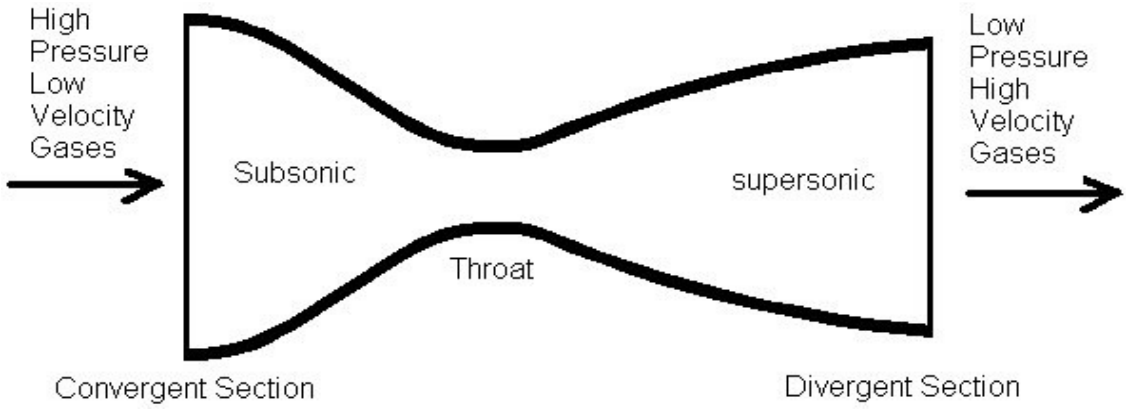


Figure 16 A type of De Laval nozzle

The present accepted explanation for the conversion of thermal energy in kinetic energy is as follows....

High-pressure gas coming from the combustion chamber enters the nozzle and flows into a region where the nozzle cross section decreases, $dA/dx < 0$, so the flow velocity should increase. Hence the thermal energy is converted into kinetic energy of the flow, and the flow goes through a sonic point at the critical point where the nozzle cross section narrows to its minimum ($dA/dx=0$). At that point the flow speed reaches the sound velocity. The cross section increases again after the critical point, and the gas is further accelerate to supersonic speeds.

One can see from fig. 17 that gas pressure and temperature drop dramatically and the gas velocity increases. This is considered a reversible, essentially isentropic flow process. Mach number should increase from M=0 near the inlet to M>1 at the exit. It is clear that the nozzle must converge in the subsonic portion and diverge in the supersonic portion. M=1 can occur only at the throat and nowhere else, and this happens only when the discharge is maximum. When M = 1, the discharge is maximum and the nozzle is said to be choked. The properties at the throat are termed as critical properties.

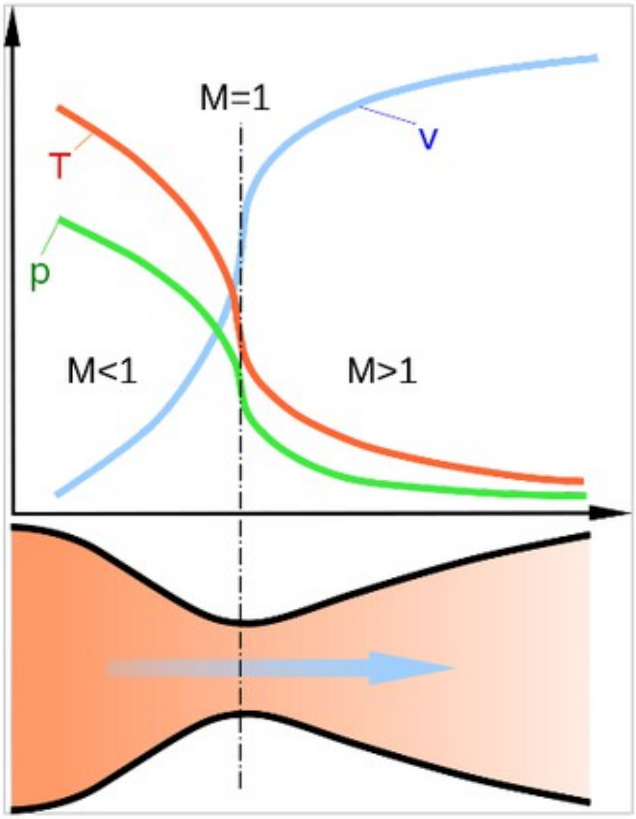


Figure 17 Gas characteristics change during passage through a De Laval nozzle (internet picture)

Years ago, when I first read about this device, my first thought who came into my mind was:

What are these maniacs talking about?

What does it mean to convert a large fraction of the thermal energy of the gases into kinetic energy?

What theory is used to make such kind of predictions?

Postulate (temporary formulation): Kinetic molecular theory predictions cannot accelerate a gas through a nozzle, irrespective of its geometrical form.

I suppose that the postulate is clear and one can also make a difference between fluid mechanics and kinetic molecular theory which is related to gases.

In fact, the mechanics of fluids too could not explain what happen in a Laval nozzle, because the fluid should return to its initial speed once it passes from chocked region. One can see that there is no big difference between entrance and exit sections of the nozzle, so the velocity would not change much.

As far here is only a warming up discussion, the further analysis is focused on gases.

In the field of thermodynamics, there is only one and unique theory which is assumed to explain any comportment of gases and this theory is called the Kinetic Molecular Theory (KMT).

In other branches of physics, the situation is more complicated. For example, the quantum theory is assumed to explain the microscopic world, but despite the assumed success of this theory, there are still a lot of discussions about its foundation and interpretation. In Gravitation as a further example, there is a classical theory of gravitation which explain common phenomena and another General Relativity theory which is supposed to work for details or in more extreme cases.

So, the situation have to be simpler with KMT explaining the comportment of a steam passing through a Laval nozzle.

One of the most absurd assumption of KMT (it was discussed previously in another newsletter) regards the direct relationship between gas temperature and average translation kinetic energy of molecules expressed in the equality:

$$\frac{mv^2}{2} = \frac{3kT}{2}$$

For a pupil mind, based on this KMT assumption, there is no possibility to convert heat into kinetic energy, because the heat, expressed as temperature, is already linked to the kinetic energy of the particle.

If one analyses the variation of molecules velocities and the temperature at entrance and exit of the De Laval nozzle – fig.17, a simple correlation between these units can be established:

High temperature is correlated with a region of low velocities of molecules at the entrance and low temperature is correlated with a region of high velocities for the gases at the exit.

This effect is a killer for the entire KMT!

What should happen, in order to have an acceleration of particles through a nozzle, according to KMT?

KMT further assumes that gas molecules at a temperature T, has a statistical distribution as in fig. 18. Most of the molecules have an average energy, but there are small fractions of molecules with higher or smaller energies.

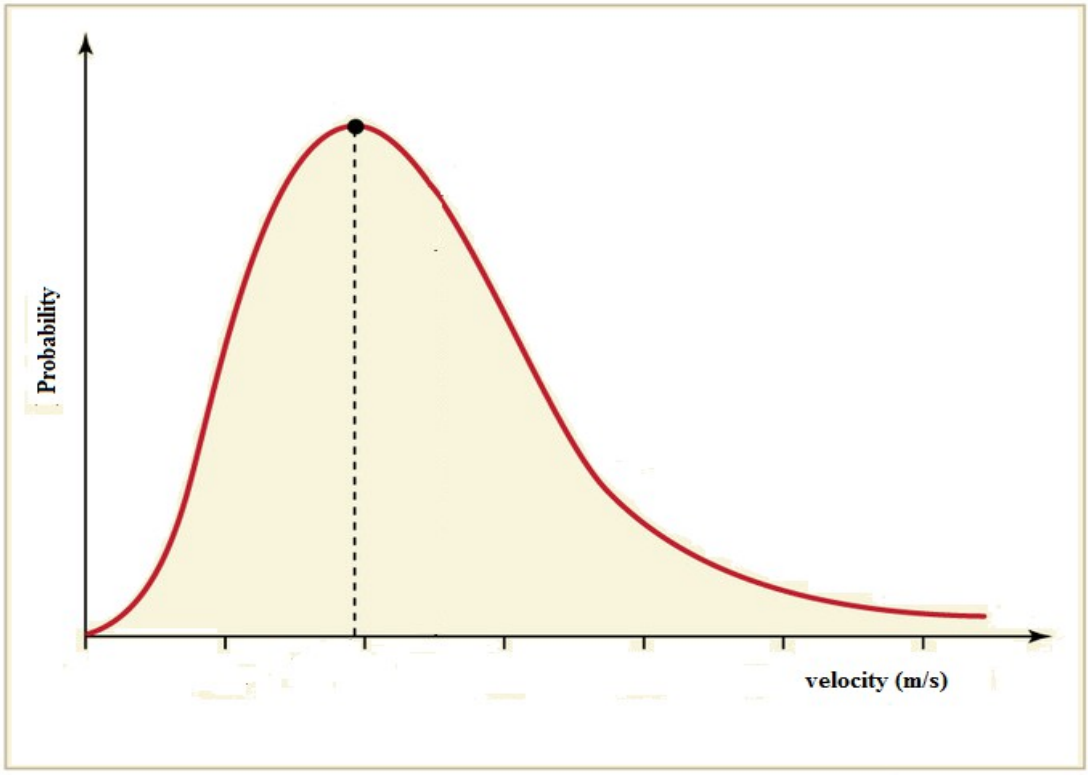


Figure 18 Distribution of molecules energies at temperature T

As far the entrance in the nozzle the molecules have the distribution of speeds as in fig. 18, it is expected that the same distribution has to be found at the exit of the nozzle. There is no supplementary factor which affect this energy distribution. Higher pressure of the entrance of the nozzle, could only increase the debit of the gas flowing through the nozzle.

In order to consistently explain the nozzle effect, in the frame of KMT, it is necessary to activate an old idea: the Maxwell daemon.

What a pity, that for more than a century, no one has observed that a Laval nozzle is doing what an imbecile thermodynamic theory thought it is impossible!

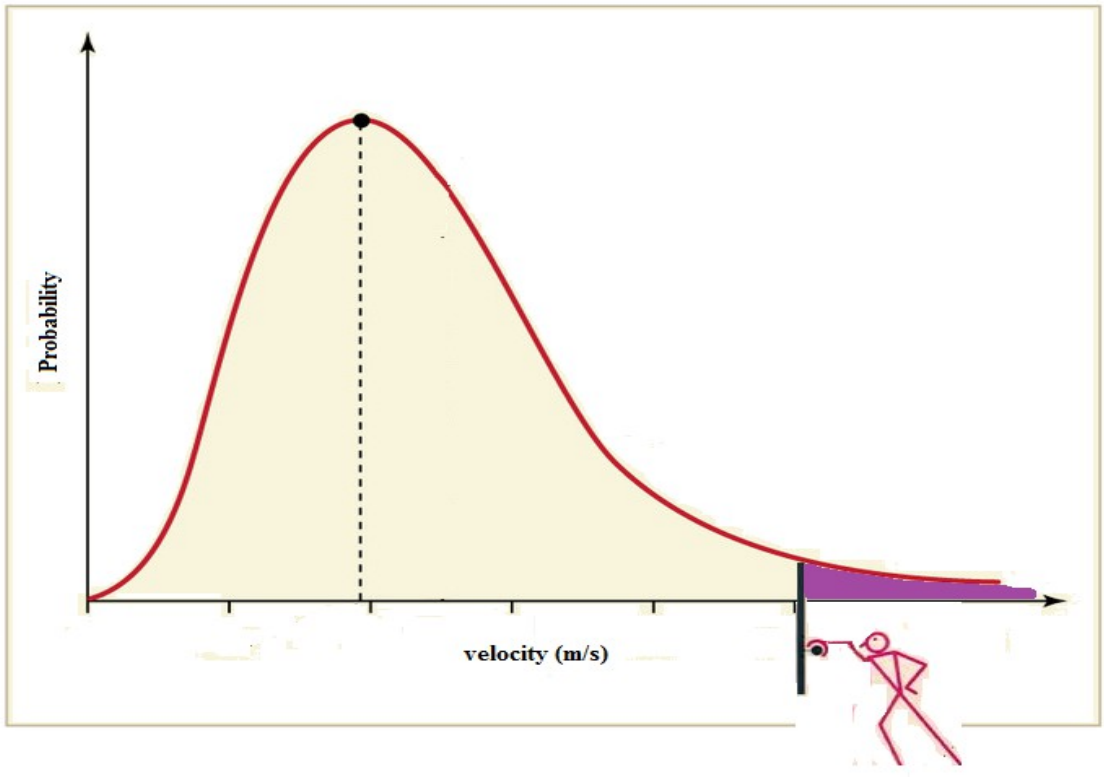
As you probably know, Maxwell's demon is a hypothetical intelligent being (or a functionally equivalent device) capable of detecting and reacting to the motions of individual molecules.

Such daemon, has to allow high energy molecules to pass through the choke of the nuzzle and send back the lower energy molecules.

By masterly performing this action, he is indeed succeeding to create more useful energy from the system than there was originally.

Equivalently it is assumed that such process is decreasing the randomness of the system (by ordering the molecules according to a certain rule), and this is decreasing the entropy; this is another story for the future …..

Expressed in a more quantitative terms, the daemon is able to change the existent distribution of gas molecules as in fig. 19 .



The high energy molecules, coloured with purple are now in the right part of the nozzle and they exit the nozzle with these higher velocities.

The low and medium energy molecules are kept in the left side of the nozzle and pushed back from the choke section.

Isn't amazing and amusing how science is disguised and confused with cheap magic in our times?

SECTION VII THE QUANTUM THEORY OF GRAVITATION

Postulate: The process of creation-extinction of virtual particles in vacuum rules out the conservation laws.

For decades, famous or eager to become famous theoreticians have done a hard work to reconcile the GR with quantum theory. Although this process is not completed, they consider that important steps have already been made.

This section is going to demonstrate that combining two imbecilities (GR+QM) can only generate catastrophes, i.e. bigger imbecilities $(GRQM)^2$.

Let us start with a theoretical background.

In quantum physics, a quantum fluctuation is considered a temporary random change in the amount of energy in a point in space, as prescribed by Werner Heisenberg's uncertainty principle.

The uncertainty principle states the uncertainty in energy and time can be related by

$$\Delta E \, \Delta t \geq \frac{1}{2}\hbar$$

where $\hbar \approx 6{,}626 \times 10^{-34}$ Js

According to the present interpretation, vacuum creates in a continuous manner virtual pairs of particles-antiparticles.

This means that pairs of virtual particles with an energy ΔE and lifetime shorter than Δt are continuously created and annihilated in empty space as in fig. 20.

Although the particles are not directly detectable, the cumulative effects of these particles are measurable.

For example, without quantum fluctuations the "rough" mass and charge of elementary particles is infinite; from renormalization theory the shielding effect of the cloud of virtual particles is responsible for the finite mass and charge of elementary particles.

The so called Casimir effect is a consequence of this quantum fluctuation too.

One of the first observations which was considered a evidence for vacuum fluctuations was the Lamb shift in hydrogen.

Quantum fluctuations are supposed to offer a possible explanation for the origin of the structure of the universe: According to the model of expansive inflation, the fluctuations that existed when inflation began were amplified and formed the seeds of all currently observed large-scale structure. Vacuum energy may also be responsible for the current accelerating expansion of the universe (cosmological constant).

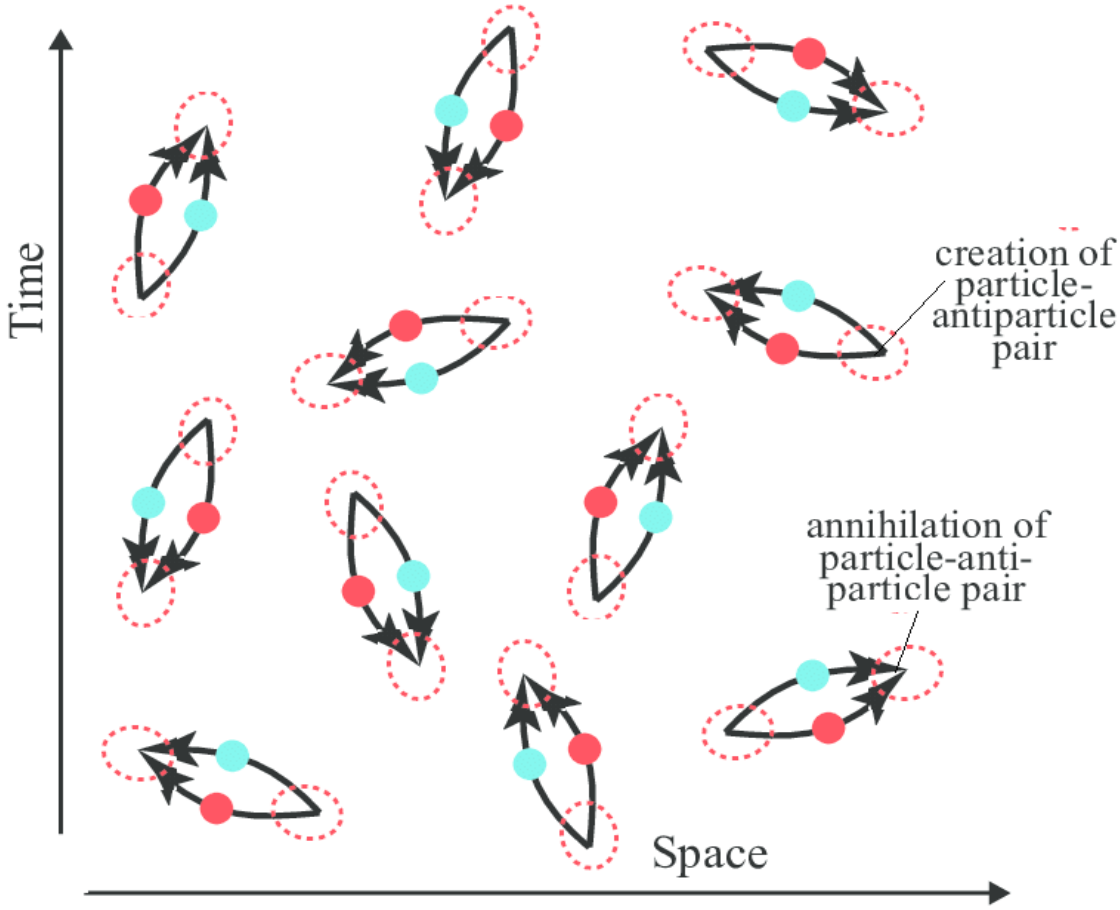


Fig. 20 Visualization of quantum fluctuations (internet)

In July 2020 scientists reported that they, for the first time, measured that quantum vacuum fluctuations can influence the motion of macroscopic, human-scale objects by measuring correlations below the standard quantum limit between the position/momentum uncertainty of the mirrors of LIGO and the photon number/phase uncertainty of light that they reflect.

What the Heisenberg principle really assumes? !

The classical quantum theory assumes that uncertainty principle puts a limit to the precision of simultaneous measurement for the position (x) and the momentum (p) of a particle. The more accurately we know one of these values, the less accurately we know the other. Multiplying together the limits in the measurements of these values has to give a number greater or equal to Planck constant divided by something. Planck's constant is assumed to be an important number in quantum theory because it measures the granularity of the world at its smallest scale.

Another similar formulation of the uncertainty principle concerns uncertainties in simultaneous measurements of the energy of a quantum state and its lifetime,

$$\Delta E\,\Delta t \geq \tfrac{1}{2}\hbar$$

where ΔE is the uncertainty in the energy measurement and Δt is the uncertainty in the lifetime measurement.

Here is a quote from Heisenberg original works:

"Even in principle, we cannot know the present in all detail. For that reason everything observed is a selection from a plenitude of possibilities and a limitation on what is possible in the future…. ***The more precisely the position is determined, the less precisely the momentum is known in this instant, and vice versa.****" — Heisenberg (1927)*

In a classical interpretation, both formulations of the Heisenberg principle do not enter in contradiction with classical conservation laws. The limits imposed by this principle do not mean that conservation laws are ruled out, but merely the ,,perceived" results of some complementary measurements are affected in some way.

One has to read a bit of the history of science and especially the fierce debate between Einstein and Bohr, in order to have a clear idea about what Heisenberg relations were intended to mean.

From this ,,orthodox" interpretation of incertitude principle, up to the new twist promoted these days, there is an abyss.....

The Heisenberg incertitude principle has nothing to do with the creation of something from another thing or from nothing. The Heisenberg principle assumes that once you have something, at microscopic level, some of its characteristics are somehow interrelated by an inequality.

I did not find up to this moment who was the first to advance the imbecile idea that Heisenberg relations allow the existence of some vacuum fluctuation or the creation of short living virtual particle-antiparticles pairs.

The following numerical exemplification is going to show for pupils that theoreticians need to leave aside computers and do some rough hand calculations before promoting such imbecilities.

Let us consider a simple exemplification with the energetic for the creation of an electron-positron pair from vacuum.

In order to create a pair of virtual electron-positron, an energy a little bit more than 1 MeV is necessary (2×0,5110 MeV to be exact); by converting 1 MeV in joules the necessary energy is $1{,}6021773 \times 10^{-13}$ J.

How long does the Heisenberg uncertainty principle allow this pair to „be alive”?

Let us substitute the numerical values and find the allowed time interval!

$1{,}6021773 \times 10^{-13}$ J $\times \Delta t > 6{,}626 \times 10^{-34}$ Js

As consequence $\Delta t >$ approx 4×10^{-21} s

Probably no theoretician was interested to check the consequence of this principle. ***It has to be highlighted that Heisenberg incertitude principle is satisfied in this case for any interval of time greater than a certain threshold value.***

In a literal interpretation, the incertitude principle allows this generated pair to exist for a time of, let us say, 10^{-21} s, but also for a time of one second too! It allows for a time of 10 s or for a time of billions of seconds too!

The same exemplification can be made for proton-antiproton virtual pair. In this case the energy necessary to create this virtual pair is about 2000 MeV; by converting this amount in J, the energy necessary is: $2000 \times 1{,}6021773 \times 10^{-13}$ J

$2000 \times 1{,}6021773 \times 10^{-13}$ J $\times \Delta t > 6{,}626 \times 10^{-34}$ Js

As consequence $\Delta t >$ approx 2×10^{-18} s

The conclusion is astonishing: ***Instead of limiting the existence of the virtual pairs to a very short interval of time, the Heisenberg incertitude principle would allow these virtual pairs to exist for any value greater than a threshold and in principle these virtual pairs of particle can exists for an indefinite interval of time, i.e. eternity.***

There is another imbecility preached everywhere, which can be dismantled with this exemplification. ***It is assumed that the greater the energy of the fluctuation, the shorter the time that it may last.***

Well, the up presented simulation demonstrates ***that bigger is the energy involved into the quantum fluctuation, bigger is the threshold for the time this fluctuation can persist***.

As Mr. Penrose assumes that black holes can be transferred from before the Big Bang, to our Universe, the same thing has to be valid for these virtual particle-antiparticle pairs. I suppose that after the nobel lecture more people are familiarized with Penrose absurd ideas about the succession of Big Bangs, the cosmic inflation, etc. and these topics are going to be analysed in a further newsletter.

Before analysing the quantum fluctuations from the conservation laws perspective, it is necessary to present some other helpful information and even a new postulate.

It is a well known fact that a high energy photon (gamma energy) in interaction with an atomic nucleus, can generate a pair of particle-antiparticle according to the diagram bellow – fig. 21.

A simple pupil learning the classical conservation laws, could interpret correctly the energetic of the processes involved in this pair creation.

There is an initial energy for the incoming photon and for the nucleus; this energy is further redistributed to the formed pairs and the nucleus.

There is an initial momentum of the incoming photon and nucleus, and this momentum is redistributed to the new generated pair of particles and nucleus. A pupil could make the detailed analysis with components of the momentum for horizontal and vertical axis and the result is going to be clear: the law of momentum is respected.

Not so evident, but one has to assume that angular momentum is also conserved during this process.

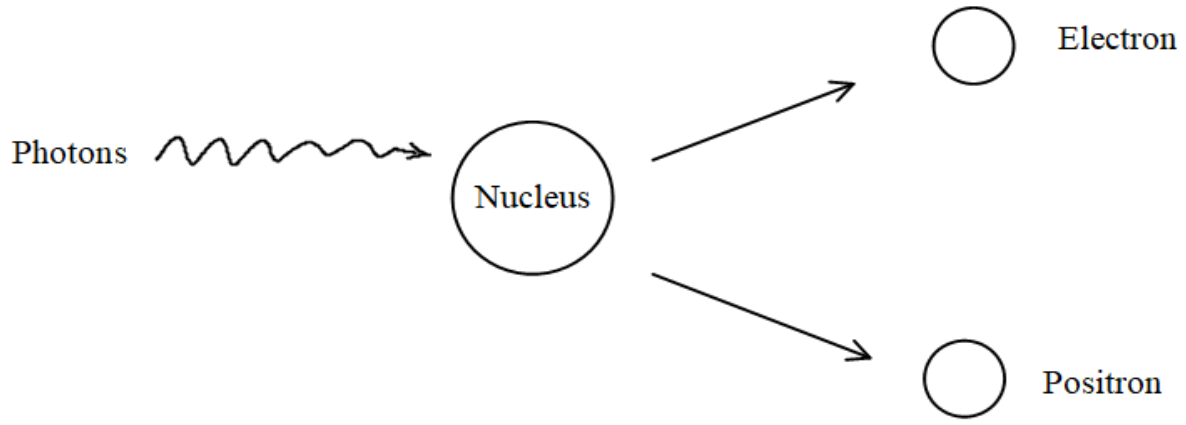


Figure 21 Pair of particle-antiparticle formation due to nucleus-high energy photon interaction

This situation is very important in astronomy and in the same time an important argument against mass energy equivalence formula.

When someone observe a gamma photon coming from the immensity of the cosmic space, it is pure chance that such photon did not interacted on its way with a nucleus and transformed into a particle-antiparticle pair.

I am going to call this interaction ,,strong" because there is also a ,,soft" interaction when the same gamma photon is too distant from nucleus and this pair generation is not possible. Yet, a

gamma photon can lose some energy during the ,,soft" interaction too, but this is an entire chapter of research.

The idea which is worth to be highlighted is very simple and intuitive: By itself, in absence of a strong interaction with a nucleus, a high energy photon never converts to a particle-antiparticle pair. There is something specific which takes place during gamma photon interaction with nucleus and ,,this specific" generates the particle-antiparticle pair and not a ,,conversion of energy into mater".

Postulate: In absence of a specific interaction, a photon, irrespective of its energy, is indefinitely stable in time.

The case of electromagnetic wave is completely different from photons (IR,VIS, UV, X-ray, gamma). If course no electromagnetic wave can ever transform into mass, but there are other specificities.

The interaction between photons or electromagnetic waves and matter is going to be an entire series of newsletters in the future, but I presented this case here only to have the intellectual property for these ideas.

Based on the particle-antiparticle pair formation from a gamma photon, it is high time to see what happen in case of a so called quantum fluctuations.

Even a pupils is going to spot the imbecility and impossibility of virtual pair formation and further annihilation as preached by mainstream physics fig. 20.

How is possible to have such curve-linear trajectories for the particle and antiparticle between formation and annihilation?

How these particle and antiparticle change their trajectory after short interval of time and have a successful collision?

Even in the real case when particle and antiparticles are generated after a certain angle - as in fig. 21 it is impossible for them to encounter again later; yet the virtual particle can do such acrobatics in disrespect to classical conservation laws.

As far the vacuum has no momentum, and the initial momentum was zero, the virtual particles have to be generated at 180 degrees one in relation to the other – fig. 22.

If the particle-antiparticle are generated at 180 degrees, as momentum conservation requires, only one imbecile can think that these particle have a chance to encounter again.

Not only the conservation of momentum is ruled out, but the conservation of energy is not respected either. Before the pair generation, there was no energy in that volume of space at all!

Once the particle and antiparticle are generated, an amount of energy pops out form nothing in complete disrespect of the conservation of energy law.

Figure 22 Virtual pair generation

But this is not the end of the imbecility: If one assumes that such virtual particles and antiparticles get annihilated somehow, a pair of virtual photons have to be created.

These virtual photons did not exist at the beginning and they cannot remain after the extinction of virtual particles.

If the vacuum is populated with virtual photons too, then an entire new physics is necessary here!

Is it worth to continue with the series of imbecilities?

If the up presented demonstration is not on your taste, then there are other facts which rule out the imbecility of quantum fluctuations in vacuum.

Postulate: The existence of quantum fluctuations make impossible a linear trajectory for photons and even for elementary particles in vacuum.

Internet is full of quantum fluctuations animations, but no one spotted the consequence of these imbecilities.

Fig. 23 presents a „instant moment" of such quantum fluctuation in a small volume of space and the original animation can be found on wikipedia.

Now, let us suppose that this volume of space is travelled by a photon.

What probability has a photon to keep its initial trajectory and not collide with something in this quantum fluctuation field?

What do you think? 99% or 50%?

In my opinion this probability would be less than 10%. In other 90% of situations, the photon is going to collide with one of the virtual particle and deviate from its trajectory as in fig. 24.

The fluctuations you see in those animations are at very small scale of distances, of the order of 10^{-17} m linear scale (the size of an electron is not known with exactitude, but it is assumed to be about 10^{-16} m); what you see in those animations are virtual particles and of course a virtual electron has to be equally in size as a „normal" electron.

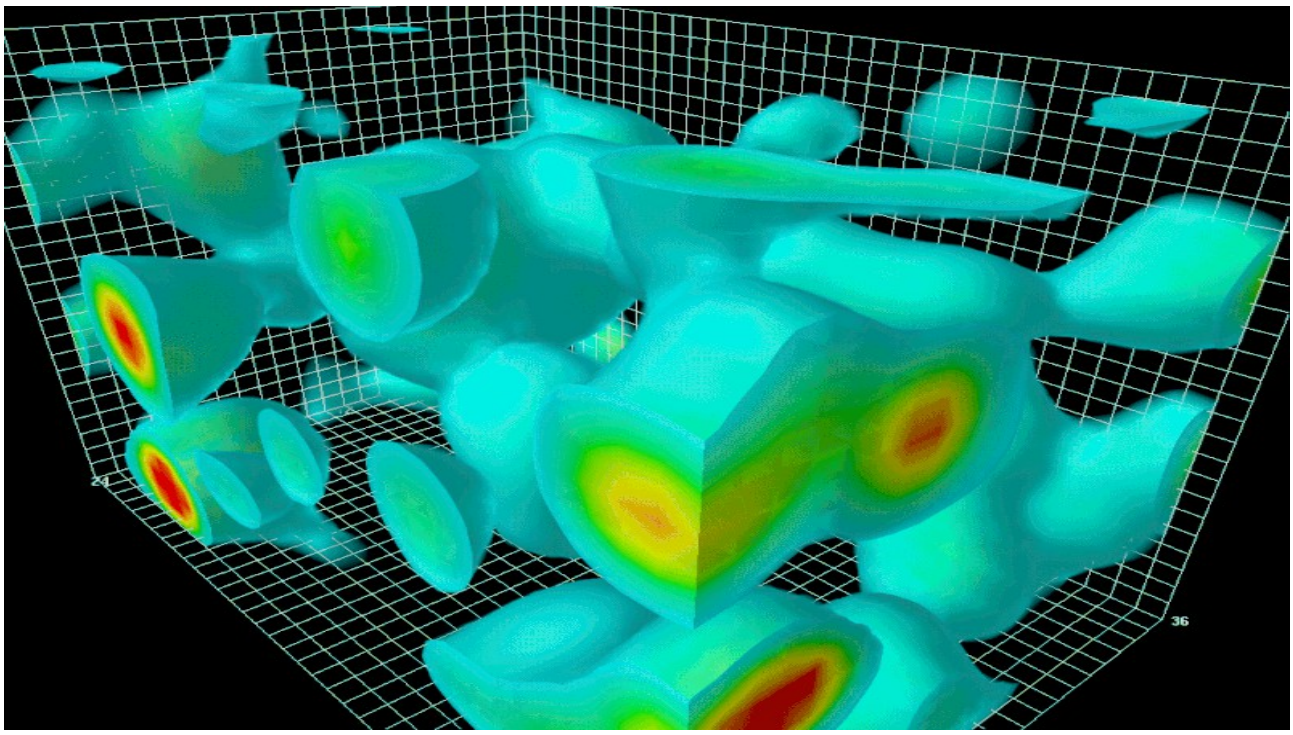


Figure 23 Quantum fluctuation snapshot from wikipedia

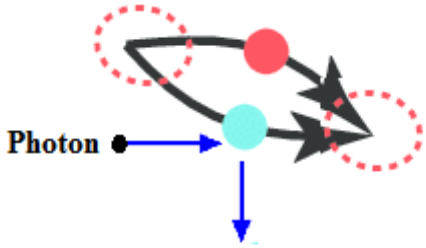


Figure 24

Now, imagine 1 m^3 of vacuum, well I wanted to say a 1 m^3 of vacuum oscillations, and a photon travelling this volume.

It can be demonstrated that by passing from that infinitesimal volume to 1 m^3, the probability that such photon keeps its straight trajectory decreases from 10% to some much smaller value, but it is not the purpose of this discussion to enter into such details.

I am going to further suppose that not for 1 $m^{3,}$ but for an entire astronomical unit, there is the same probability of 10% for a photon to keep its straight line trajectory.

Well, with this probability fixed, from a beam of photons coming from Sun, only 10% are going to arrive to Earth because the rest of 90 % are scattered by the quantum fluctuation during the trip.

The consequence for astronomy is simple: Sun has to emit roughly another 90 % of energy which is scattered by quantum fluctuations before arriving to Earth. The entire astronomy has to be reconsidered and take into account the effect of quantum fluctuations.

Corollary: An observer can perceive only distorted astronomical phenomena, and up to a certain „distance". Above that threshold, the universe has to be completely invisible to him.

If this quantum fluctuation were to exist, then each galaxy has to be surrounded by a bubble of visibility with a certain radius R, and everything outside is completely invisible.

The corollary is self explanatory: if a physical phenomena is chopping consistently and continuously from the signal carrying the information to the observer, the observer has to take into account this effect. The rest is only fine tune to find this radius and the effects.

Now, I have nothing against these quantum fluctuations, but the consequences are going to be disastrous for other established branches of sciences, not only for astronomy!

Postulate: Quantum fluctuations changes the expected comportment of normal matter.

In astronomy there is a extremely famous imbecility that only ,,free space" expands and the space occupied with matter is not allowed to do so. If quantum fluctuation were to exist, they have to be restricted to the ,,free space" too! Otherwise nasty phenomena take place ,,out of thin air" and the consequences are quite unpleasant.

In fact, in the following section, when Hawkins radiation is discussed, one has to reconsider the idea that inside a black hole horizon pairs or particles and antiparticles can be created; and this change a bit the entire approach.....

Previously, it was presented that one photon can knock a particle from the pair and the trajectory of the photon is changed; this would be the case for low energy photons like infrared. Or visible.

If X-ray or gamma photons are used, those photons can change the direction of motion for the collided particle or the antiparticle and …..other imbecilities are generated...

The short time interaction of quantum fluctuation with matter, if they were to be real, would be the topic for an entire book. There are a lot of possible interactions, with a lot of various consequences.

For example, a simple quantum fluctuation of a few eV, can perturb an electron form its orbit. I suppose that low energy fluctuations have to be implemented too, and not only high energy

fluctuations. Why should nature allow the creation of virtual particles from 1MeV energy up the ladder and not bellow?

If one electron is perturbed from its orbit, by such fluctuations, then Einstein dream can finally become reality. For decade he argued that some hidden variables are missing in the quantum theory, and once these variables are taken into consideration, the quantum theory can become a deterministic theory.

Well, I do not understand how an entire army of idle theoreticians missed this opportunity …

In the field of high energy vacuum fluctuations, the interaction with „real" electrons creates a completely havoc in the comportment of matter.

Depending on the configuration and approach, it is possible that real electron annihilates the virtual positron and the virtual electron has to be caught by the atom with other energetic effects.

In other configuration it is possible that real electron interacts with virtual electron and get knocked out of its orbit. This situation is completely out of control ….

Well, there is little information but quantum fluctuation can create protons and antiprotons too. There is no information about these fluctuations interactions with matter or other effects.

There are though some so called evolutionary physicists who argue that the universe itself is the result of such a quantum fluctuation. I think that these theoreticians need to get familiarized with the precepts of the absurd quantum theory they preach....

To assume that an electron makes a „quantum jump" and build an entire mathematical apparatus for describing in a probabilistic manner the comportment of orbiting electron, is tolerable. As far everything happen inside a small box, from outside, it was quite complicated to analyze what happen in the box, at least until this new theory appeared.

Yet, even with the fake Big Bang theory in place, a sound mind cannot assume that this entire universe was only a quantum fluctuation. As a simple example: once a physical system contains a certain amount of matter, the quantum laws do not apply. At any moment, the Universe had to contain large amount of matter agglomerated in chunks for which the quantum theory do not work. The supposed existent singularity before the Big Bang and the hot soup immediately after Big Bang do not follow the laws of quantum mechanics ever.

The physical model for such cosmic quantum fluctuation stinks ...

SECTION VIII HOW A BLACK HOLE EVAPORATES

A black hole is considered a region of space within which the force of gravity is so strong that nothing, not even light, can escape.

Their existence was first suggested as far back as the late 1700s. However, by solving the Einstein's equations of GR, Karl Schwarzschild discovered that matter compressed to a point (now known as a singularity) would be enclosed by a spherical region of space from which nothing could escape. The limit of this region is called the event horizon, a name which signifies that it is impossible to observe any event taking place inside it.

Everything within the event horizon is irreversibly drawn towards this point where the curvature of spacetime becomes infinite and gravity is infinitely strong. There is still a hot topic of debate how the laws of physics holds in the vicinity of a singularity, but this is an advanced topic and not for laymen.

Black holes are completely characterized by only three parameters: mass, rotation and charge. When classified by their mass, the following types of black holes are supposed to exists:

1. Primordial Black Holes have masses comparable to or less than that of the Earth. These purely hypothetical objects could have been formed through the gravitational collapse of regions of high density at the time of the Big Bang.
2. Stellar Mass Black Holes have masses between about 4 and 100 solar masses and result from the core-collapse of a massive star at the end of its life.
3. Intermediate Mass Black Holes of 10^2 and 10^5 solar masses may also exist. The first good type of such BH is considered the X-ray source HLX-1, seen near the center of the S0 galaxy ESO 243-49.
4. Supermassive Black Holes weigh between 10^5 and 10^{10} solar masses and are found at the centers of most large galaxies.

In 1974, Stephen Hawking made one of his most famous predictions: that black holes eventually evaporate entirely. One can find his article on internet, but from his text, the physical reality behind the complicated mathematical formalism is difficult to be grasped even by specialists; as far this newsletter is addressed to a broader category of people, I do not think that such article is worth the time being read.

Here is a link where the article can be found:

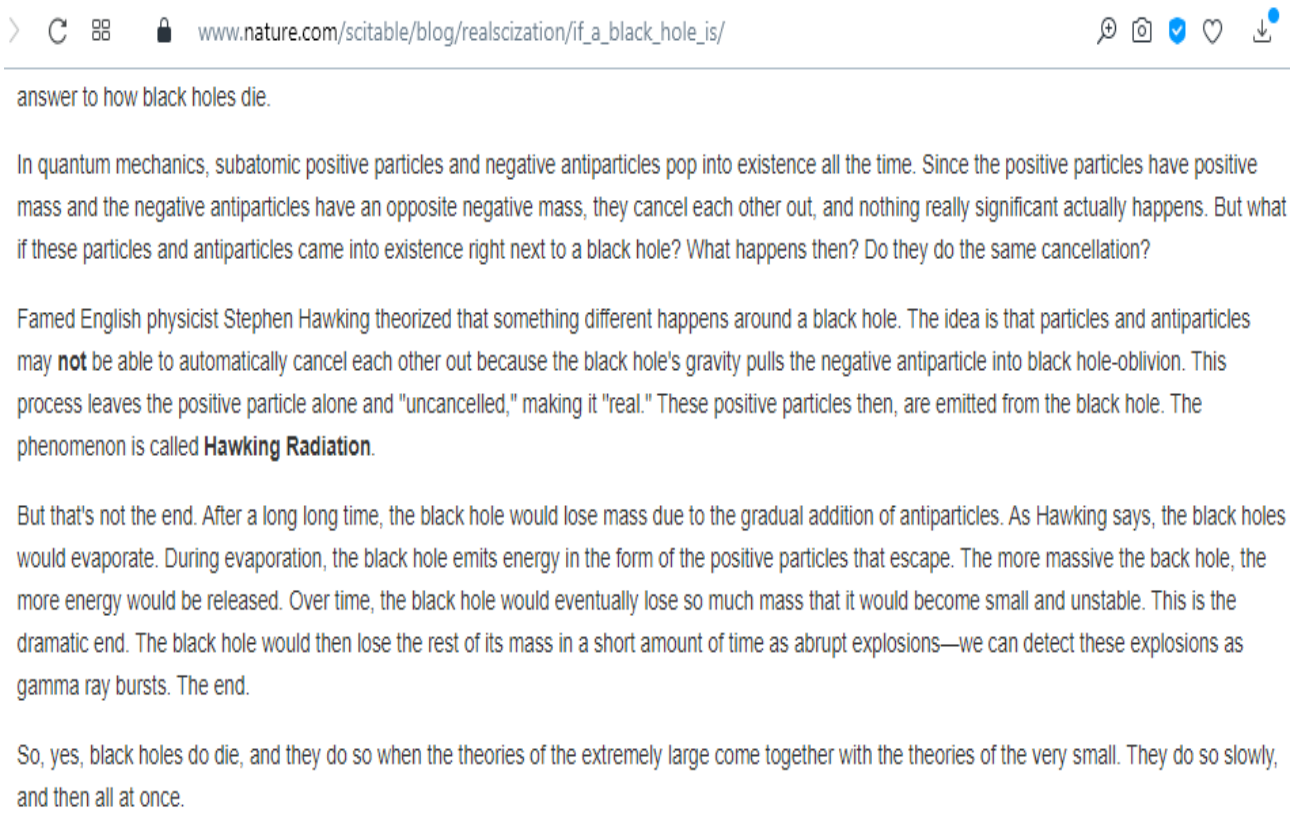
https://projecteuclid.org/download/pdf_1/euclid.cmp/1103899181

Particle Creation by Black Holes, S. W. Hawking, Department of Applied Mathematics and Theoretical Physics, University of Cambridge,

Of course, I was forced to read it in order to have an idea about what he is talking there, but the subsequent discussion is using other ,,more approachable" texts found on internet.

Here is one of the explanation posted on Nature website, by a future enthusiast theoretician, who already lost any contact with reality:

https://www.nature.com/scitable/blog/realscization/if_a_black_hole_is/


www.nature.com/scitable/blog/realscization/if_a_black_hole_is/

answer to how black holes die.

In quantum mechanics, subatomic positive particles and negative antiparticles pop into existence all the time. Since the positive particles have positive mass and the negative antiparticles have an opposite negative mass, they cancel each other out, and nothing really significant actually happens. But what if these particles and antiparticles came into existence right next to a black hole? What happens then? Do they do the same cancellation?

Famed English physicist Stephen Hawking theorized that something different happens around a black hole. The idea is that particles and antiparticles may **not** be able to automatically cancel each other out because the black hole's gravity pulls the negative antiparticle into black hole-oblivion. This process leaves the positive particle alone and "uncancelled," making it "real." These positive particles then, are emitted from the black hole. The phenomenon is called **Hawking Radiation**.

But that's not the end. After a long long time, the black hole would lose mass due to the gradual addition of antiparticles. As Hawking says, the black holes would evaporate. During evaporation, the black hole emits energy in the form of the positive particles that escape. The more massive the back hole, the more energy would be released. Over time, the black hole would eventually lose so much mass that it would become small and unstable. This is the dramatic end. The black hole would then lose the rest of its mass in a short amount of time as abrupt explosions—we can detect these explosions as gamma ray bursts. The end.

So, yes, black holes do die, and they do so when the theories of the extremely large come together with the theories of the very small. They do so slowly, and then all at once.

According to this rough imbecile explanation, which I suppose is going to receive a nobel prized soon, there exist elementary particles with positive and negative mass. The black hole is so intelligent to catch only the negative mass particles and eject the positive mass particles. The rest is only a simple operation of subtraction until the black hole disappears. I do not think that is it worth to further comment this possibility....

Another explanation which can be found often is that when particle-antiparticle pairs are created near the horizon only the anti-matter particles fall in, and decreases black hole's mass. This imbecility again does not need an exhaustive analysis. These people need to read elementary concepts in nuclear physics, because the difference between a particle and an antiparticle is in the charge sign and not in the mass sign. Electron and positron as example, are supposed to have the same mass (positive, of course!) and opposite charges.

Other articles assume that a object falling inside a black hole gets a negative energy and during this process, it somehow magically decreases the black hole mass. Scientific articles are boring to be read by laymen, so I am going to make reference to a video which can be found at the following link:

https://www.youtube.com/watch?v=3EOpHHjv5g8

In this documentary hosted by Brian Greene and entitled Reality Since Einstein (World Science Festival), there is a professor from Ohio state university which advance such magic ideas about how black holes evaporation by quantum effect, but he offers no details about the real trick behind.

According to him, the gravitational field has a negative energy and the particle which falls on the black hole has a positive energy ($E = mc^2$). As the particle falls into the black hole, and the r in the formula of gravitational potential becomes smaller, the negative gravitational energy becomes greater (as absolute value) than the positive energy given by the $E = mc^2$ formula. This is considered an important specific of a black hole: the total energy of the particle becomes negative and the addition of this ,,negative energy" to the black hole make it to decrease in time.

Brian Green seemed to be a bit perplexed, or he was was acting in such manner; he further insisted on this idea as follows: although the black hole is eating one of the particle from each pair, and one would expect that total mass is increased, yet the black hole somehow manage to become smaller and smaller by some curious effect of the negative gravitational energy....

I suppose that even a pupil learning introductory science is going to spot the imbecility in this situation.....

The fact that by convention, a gravitational potential has a negative sign it does not mean that a material body in such field has indeed a negative energy. It is merely a convention to choose the potential energy with a negative sign in order to show that such object is bound to another object and in order to separate them, a external energy is necessary.

Furthermore, a material body in such negative gravitational energy is going to increase its kinetic energy; the comparison and any assumption between negative gravitational energy and the energy of a particle given by $E=mc^2$ formula make no sense for any common sense mind.

I cannot make a direct analogy between an object falling on a black hole and falling on a star, because any materiel object falling on a star is going to be evaporated, so the situation becomes more complicated.

A good analogy is to consider what happen with falling object in the gravitational field of a planet without atmosphere and after that what happen if in an ulterior step, the planet is squeezed to the size of an hypothetical black hole.

The fact that an object after falling in the negative gravitational field of planet, lands on the surface of planet, it does not mean that total energy of system is decreased; neither the mass of the system can decrease in these circumstances....

First of all, when an object falls in the gravitational field of a planet there is an interplay between kinetic (KE) and potential energy (U) of the falling object. As the object is approaching the planet, in free fall or in an orbital motion, the kinetic energy of the object is increasing on the expenses of the potential gravitational energy.

The energy content of the falling object given by the mass energy equivalence formula ($E = mc^2$), plays no importance at all in case of an object falling in gravitational field!

It is irrelevant for the situation if the energy given by the $E = mc^2$ formula is smaller or greater than the negative gravitational field of planet.

Furthermore, anyone has to answer to another simple question: Is there any physical possibility to convert the negative gravitational potential energy in a ,,missing mass" from the system? I do not think so ….

The falling of an abject in a black hole gravitational field is assumed to be not much different from the falling in a planet gravitational field. One can find a lot of GR fanatics who describe how a spaceship trespass the event horizon of a big black hole and ,,nothing" strange happen to the spaceship. There is only an impossibility to send messages back, outside the event horizon, or to escape from the black hole. It is common sense to assume that mass of the black hole is increased with the mass of the spaceship, and there is no physical possibility to have a decreased mass for the entire system (black hole plus spaceship).

Some GR fanatics have to invent a new phenomenon in order to allow a black hole to decrease its mass in time!

There are many article about this topic which hardly could be classified as scientific literature judging after present standards. In the future, these texts have to be preserved for historical reasons, in order to analyse the madness of a opulent society.

One of the most readable article about this topic is: ***How Do Black Holes Actually Evaporate? by Ethan Siegel,*** a Ph.D. astrophysicist, author, and science communicator.

The link to the original article:

https://www.forbes.com/sites/startswithabang/2018/11/03/ask-ethan-how-do-black-holes-actually-evaporate/?sh=75b0454d24a1

Here are some long excerpts from this article, followed by a thorough analysis.

„The border between being able to escape and not being able to is known as the event horizon, and ought to be a property of all black holes that exist in our Universe.

With all of this in mind, you might start to put some puzzle pieces together, just as Hawking did.

Perhaps you're thinking, "okay, there are all sorts of particles and antiparticles that pop in-and-out of existence, filling empty space. And we now have an event horizon: a region from within which nothing can escape. So occasionally, perhaps, one of the particle pairs that pops into existence outside the event horizon crosses over to be inside the event horizon, before it can annihilate away. The other particle, therefore, can escape, and carry energy away from the black hole as it does."

Since energy has to be conserved, you might then put together one more puzzle piece, and claim that the energy must come from the mass of the black hole itself. This is very similar to the popular explanation Hawking put forth in explaining Hawking radiation, which details how black holes evaporate.

It's not right, though, in a number of ways. First off, this visualization is not for real particles, but virtual ones. We are trying to describe the quantum vacuum, but these are not actual particles that you can scoop up or collide with. The particle-antiparticle pairs from quantum field theory are calculational tools only, not physically observable entities. Second, the Hawking radiation that leaves a black hole is almost exclusively photons, not matter or antimatter particles. And third, most of the Hawking radiation doesn't come from the edge of the event horizon, but from a very large region surrounding the black hole.

If you must adhere to the particle-antiparticle pairs explanation, it's better to try and view it as a series of four types of pairs:

- *out-out,*
- *out-in,*
- *in-out, and*
- *in-in,*

where it's the out-in and in-out pairs that virtually interact, producing photons that carry energy away, where the missing energy comes from the curvature of space, and that in turn decreases the mass of the central black hole.

But the true explanation doesn't lend itself very well to a visualization, and that troubles a lot of people. What you must calculate is how the quantum field theory of empty space behaves in the highly-curved region around a black hole. Not necessarily right by the event horizon, but over a large, spherical region outside of it.

We cannot calculate the absolute energy of empty space, whether it's curved or uncurved, but what we can do is calculate the difference in the energy and properties of the quantum vacuum between empty and non-empty space.

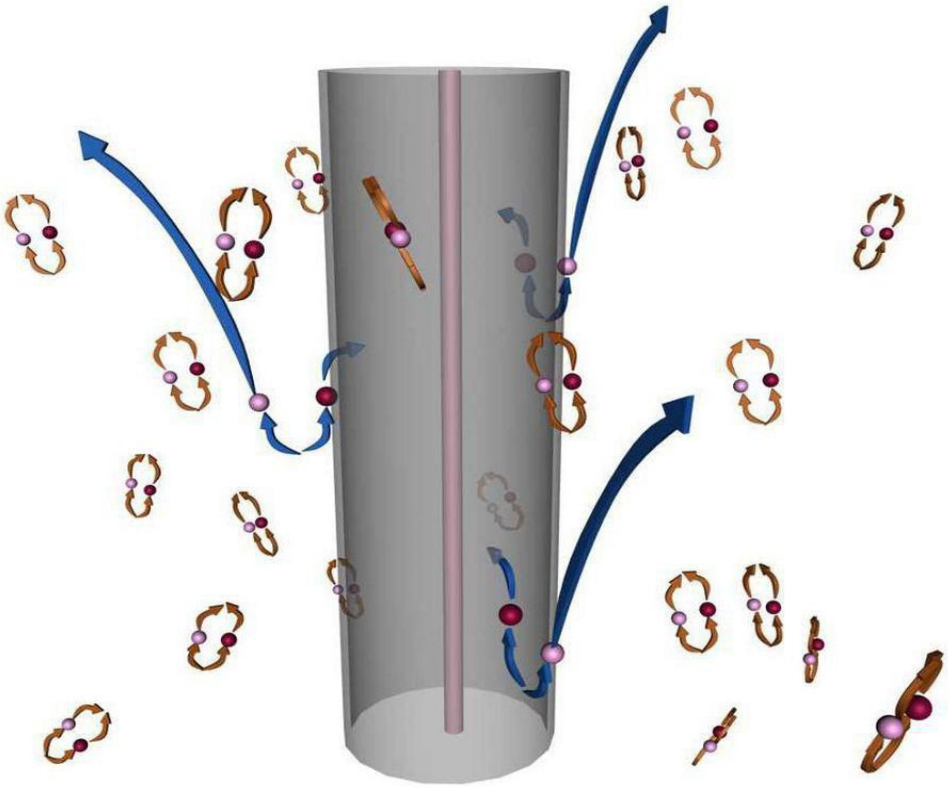


Figure 25 If you visualize empty space as frothing with particle/antiparticle pairs that pop in-and-out of existence, you'll see radiation coming from the black hole. This visualization is not quite correct, but the fact that it's easy to visualize has its benefits., ULF LEONHARDT OF THE UNIVERSITY OF ST. ANDREWS

When you perform the quantum field theory calculation in curved space, you arrive at a surprising solution: that thermal, blackbody radiation is emitted in the space surrounding a black hole's event horizon. And the smaller the event horizon is, the greater the curvature of space near the event horizon is, and thus the greater the rate of Hawking radiation.

The real explanation is a lot more complex, and shows that the simplistic picture of Hawking has its limits. The root of the problem isn't that particle-antiparticle pairs are popping in and out of existence, but that different observers have different views and perceptions of particles, and this problem is more complicated in curved space than in flat space.

Basically, one observer would see empty space, but an accelerated observer would see particles in that space. The origin of Hawking radiation has everything to do with where that observer is, and what they see as accelerated versus what they see as at rest.

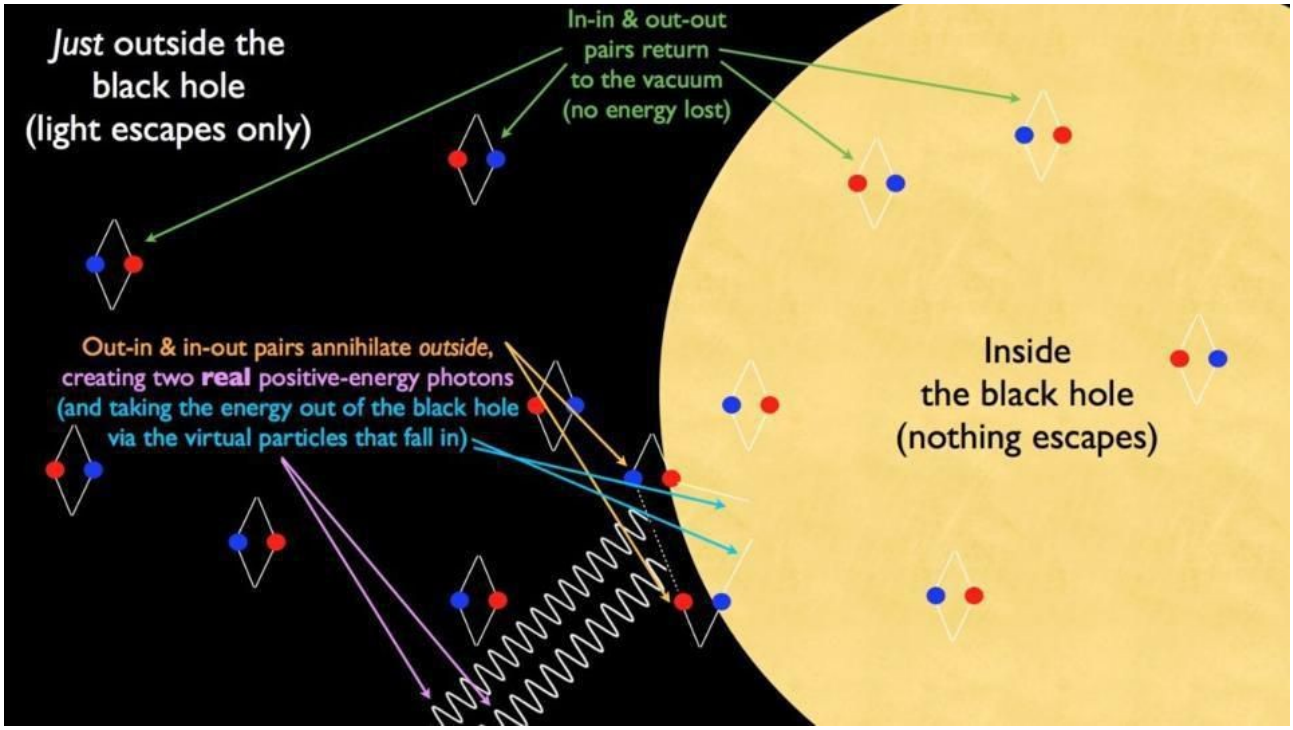


Figure 26 Hawking radiation is what inevitably results from the predictions of quantum physics in the curved spacetime surrounding a black hole's event horizon. This diagram shows that it's the energy from outside the event horizon that creates the radiation, meaning that the black hole must lose mass to compensate. E. SIEGEL

The result is that black holes wind up emitting thermal, blackbody radiation (mostly in the form of photons) in all directions around it, over a volume of space that mostly encapsulates approximately ten Schwarzschild radii of the location of the black hole.

The big part of Hawking's explanation that's correct is that it does imply, given enough time, that black holes will not remain forever, but will decay away.

The loss of energy lowers the mass of the central black hole, eventually leading to total evaporation. Hawking radiation is an incredibly slow process, where a black hole the mass of our Sun would take 10^{67} years to evaporate; the one at the Milky Way's center would require 10^{87} years,

and the most massive ones in the Universe could take up to 10^{100} years! And whenever a black hole decays, the last thing you see is a brilliant, energetic flash of radiation and high-energy particles.

Yes, it's true that Hawking's original picture of particle-antiparticle pairs produced outside of the event horizon, with one escaping and carrying energy away while the other falls in and causes the black hole to lose mass, is oversimplified to the point of being totally wrong. Instead, radiation is formed outside the black hole owing to the fact that different observers cannot agree on what is happening in the strongly-curved space outside a black hole, and that someone who's stationary a far distance away will see a steady stream of thermal, blackbody, low-energy radiation emanating from it. The extreme curvature of space is the ultimate cause of this, and results in black holes, very slowly, evaporating away.

Those final decay steps, which won't occur until long after the final star has burned out, are fated to be the last gasps of energy the Universe has to give off. When the most massive black hole ever to exist finally decays away, it will be the last gasp for new quanta of energy that our Universe, as we know it, will ever create."

In the subsequent analysis, I am going to suppose that vacuum can indeed create pairs of particles-antiparticles by a presently unknown method, and in disrespect to classical conservation laws.

Even making this absurd assumption, it is simple to demonstrate that Hawking radiation is not the right emission pattern for such a hypothetical black hole.

It is important to highlight that Mr. Siegel had a good start, by presenting in a consistent and quite logical manner what happen with such a pair particle-antiparticle at different locations. It is consistent, to assume that generated pairs inside black hole and far away from horizon appear and disappear without any „trace". It is also for the first time when I read an article showing that near the horizon, there is an equal probability that an particle or an antiparticle is „captured" by the black hole.

Unfortunately the „consistent" explanation stops there and the rest is pure imbecility climbing over other imbecilities.....

There is no time to enter in details for each imbecility here, so only some of them are spotted followed by short comments.

Quote: *The particle-antiparticle pairs from quantum field theory are calculational tools only, not physically observable entities.*

If these pairs are only calculational tools, i.e. imaginary things, then the event horizon cannot separate a particle from an antiparticle. The gradient in the gravitational field of a black hole is supposed to be so enormous that tiny difference in their location makes possible this separation. If these pairs particle-antiparticle are only theoretical tools, than no physical phenomena can affect them.

Quote: *Basically, one observer would see empty space, but an accelerated observer would see particles in that space. The origin of Hawking radiation has everything to do with where that observer is, and what they see as accelerated versus what they see as at rest.*

Apparently a black hole seems to be the perfect tool to establish if a reference system is in accelerated motion or not....and this overturn the entire foundation of physics. An entire new physics can be assembled only based on this imbecility! Have by any chance Mr Siegel heard about equivalence between acceleration and gravitation in the frame of GR? I do not think so ….

For this imbecility, I was able to trace back its origin and if necessary, I am going to come back and debate about its consequences in another article. Read and get illuminated poor mind!....

The definition of a particle (quantum) depends on the frame of reference. If the frames of two observers differ only by a Lorentz transformation, then they will agree about the particle content. If they have relative acceleration, then they will measure different particle numbers!

The vacuum in Minkowski spacetime appears to be a thermal state when viewed by an accelerating observer (DAVIES, 1975, and UNRUH, 1976).

Quote: *The result is that black holes wind up emitting thermal, blackbody radiation (mostly in the form of photons) in all directions around it, over a volume of space that mostly encapsulates approximately ten Schwarzschild radii of the location of the black hole.*

From the quite consistent pairs generation in the beginning, to this final black body spectra there are an infinite number of hypothetical imbecilities. Yet, for the new theory, physics is not cheap magic where flying birds are materialized under a hat!

The problem is that according to the initial virtual pairs generation, there are different outcomes possible and they are leading to different patterns for black holes emission.

In all the cases, it is important to be highlighted that black hole is continuously increasing its mass.

The simplest and consistent idea to make the entire process work, at least from theoretical point of view, is to implement a process of borrowing. It is something similar to another imbecility introduced a century ago in the semiconductor theory: holes propagation. It has been an imbecility, but at least it was a logical imbecility and this is already a performance ….

Haw would such process of borrowing work in case of a black hole?

For simplicity, in fig. 27, some pairs of particles, antiparticles are generated. The black hole engulfs one particle and one antiparticle and these are incorporated into the black hole.

Their counterparts can annihilate with a corresponding particle or antiparticle coming from another quantum fluctuation. The process can continue and the quantum calculation deficit is transmitted farther away.

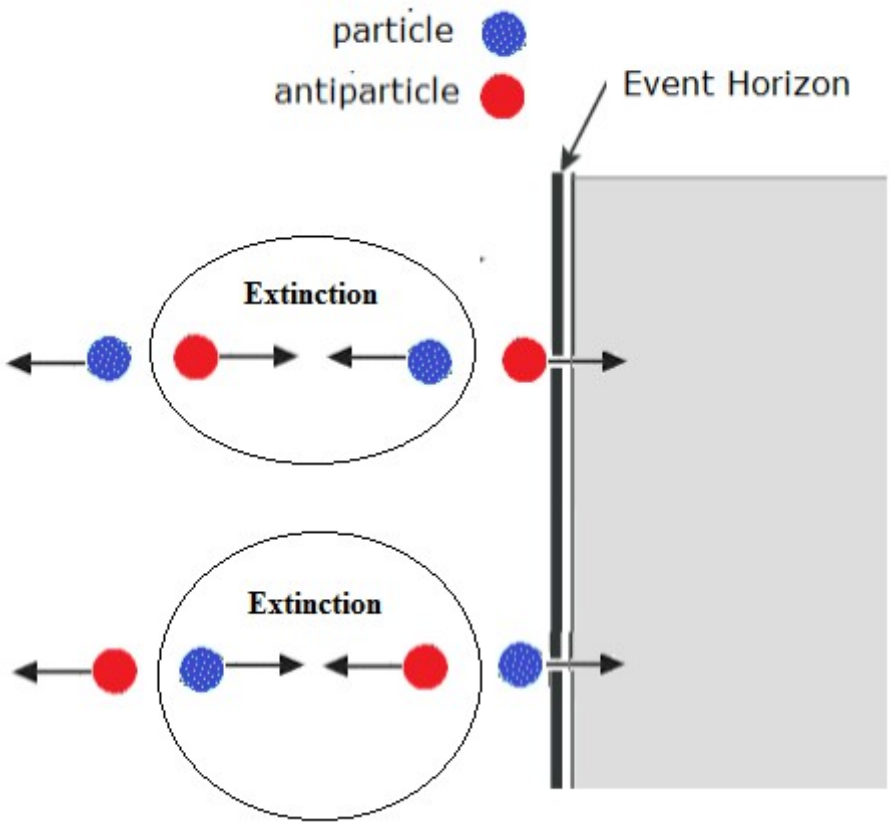


Figure 27

Regarding the possibility to „convert" some energy from black hole or from this pair of virtual particle, the new proposed theory comes with a postulate to clear the things.

Postulate: It is impossible to convert a high energy photon in a thermal spectrum in absence of photon-matter interaction.

Well, by photon-matter interaction, I intended normal matter. As far the black hole is supposed to have some kind of degenerate matter, it is out of question that a black hole in itself can ever have a black body spectra.

It remains a slight possibility that a „virtual gamma photon" could somehow be converted to a thermal spectra.

A compulsory but not enough condition, to have such conversion supposes that such gamma photon interacts with a lattice of atoms, which can absorb this energy, redistribute it to more centres and re-emit it at lower energies for photons.

If there is no such lattice, a gamma photon can only exchange energy with other individual particles, but never generate an black body spectra.

Even in case of a lattice, not all high energy photons can be converted into thermal spectra; other conditions are necessary too...

There is going to be an entire section dedicated to this topic, how and when a high energy photon can be converted to a thermal spectra.

The following topics related to Black holes radiation are postponed for a future newsletter:

- ***depth of a black hole horizon and the length of a virtual particle trip allowed by Heisenberg principle;***
- ***entropy, information and black holes;***
- ***virtual photons and vacuum fluctuations ;***
- ***how to put in evidence a black hole horizon ;***
- ***time of black hole evaporation and cosmic cycles (Penrose would be very disappointed!).***

SECTION IX OPTICAL ILLUSION AND GALACTIC CENTER

This section is only an introductory discussion based on last century physics and antique euclidean geometry. Before proceeding with more advanced topic it is necessary to have a proper warm up using a bit of infrared....

As far most of the matter (star and clouds) forming Milky Way is situated in a thin disk, and unfortunately our System Solar is contained in this disk, there are some technical difficulties in studying our own galaxy.

The use of visible light is limited and in some cases totally inappropriate as far dust and clouds are opaque to it. By contrast, infrared light is able to pass through such dust and clouds although with a high cost: about 90 % of the infrared light is absorbed too.

Anyway, the rest of 10% able to escape, is more than enough for astronomical purposes.

In the late 1960s, the infrared technology developed mainly for military purposes, became mature enough to be used for astronomical purposes too.

There was a keen interest to develop such technology as far many astronomical objects emits consistently in infrared domain (cool stars and dust, clouds).

One of the first astronomic study in infrared (at 2,2 microns) tried to map the infrared emission of our galaxy and locate the galactic centre. It was possible to correlate a maximum of emission in infrared with the strong radio source Sgr A, and as consequence this location became the galactic centre of Milky Way.

Later on, studies were extended to mid and far infrared regions and maps with these emissions were published too.

Here are such kind of infrared emission maps for Milky Way disk, which can be found on the NASA website (https://asd.gsfc.nasa.gov/archive/mwmw/mmw_sci.html)

Near Infrared

Mid Infrared

Mid Infrared

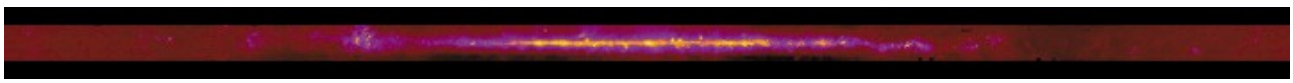


Figure 28

Long time ago, when I analysed for the first time this kind of images, I thought: **It cannot be true!**

Ok, I can bring other references, but one has to know that until recently, most of the articles published about this topic were based on a handful of primary studies.

Here are some similar „all sky map" side by side for the Milky Way emission in infrared, at different wavelengths.

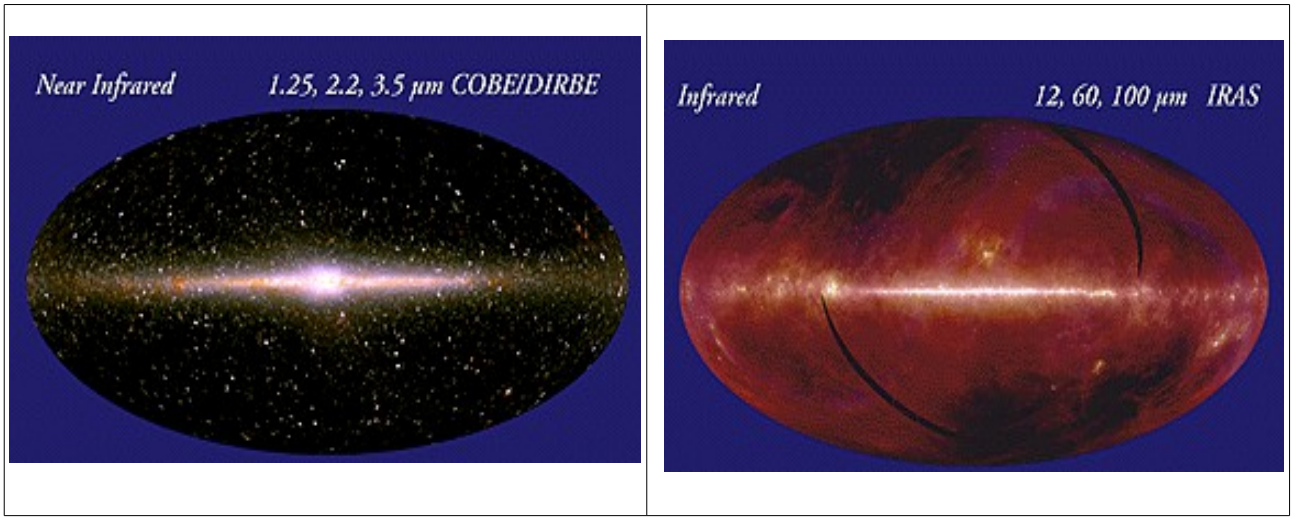


Figure 29

The simple question which should pop up in a non astronomical mind is: ***Where the heck the bulge has disappeared?***

If one make a short visual analyses of these pictures, it is evident that, there is a correspondence between the emission of energy for the matter situated in the galactic disc in both pictures; high emission in the near infrared domain at 1 or 2 microns has a correspondent in high emission at 60 or 100 microns.

Not the same thing happen for the matter in the galactic bulge; high emission in the bulge at 1 or 2 microns have no correspondent emission at 60 or 100 microns in the right picture.

Present day explanation:

Near infrared emission is dominated by cool stars. Since these are typically either old or long-lived stars, this is our best view of the Galaxy with the hot, bright young stars removed. Dust absorption at these wavelengths is very low and we get a clear view all the way to the Galactic center of the disk and bulge.

In contrast, for the infrared maps at 12, 60 and 100 microns, the emission predominately comes from interstellar dust which is "warmed" by the ambient radiation field of the Galaxy's stars.

In such pictures, which are falsely coloured, one has to take into account that missing bulge

at farther infrared can have more explanations.

I am going to exclude the possibility that during this ,,picture" manipulation an error of processing was made. As far all people were keen of what happen in that region, to have such an error there, has a very small probability.

Based on the image from near infrared (1 and 2 microns), the dust and interstellar matter in the bulge zone should be ,,warmed" in the same manner as in the plane of the galaxy. As consequence, the image at mid infrared has to be symmetrical to that of near infrared.

Why such a thing does not happen?

Ok, even in the extreme case that ,,another unknown effect is in place" and there is no or very low dust emission, in the bulge region, there is a second question: ***Where is the emission from the stars in that region of the bulge at 100 microns?***

It is not possible to have those stars hidden because they still emit at that wavelength!

In more than a half century, millions if not billions of people have looked at these images and no one was struck by the oddity of the situation!

What a strange way of doing science!

That oddity is only the beginning of a long series, because the entire field of infrared astronomy is faked too....

In order to see how faked it is, one has to keep in mind those simple images and in the same time we need to return a bit to the black body theory and its consequences.

The first topic I would like to deal with, is a new phenomenon which is going to remain in the history of science as **„the great infrared paradox"**.

The black body theory assumes that a body at temperature T emits energy on all possible frequencies, with a certain specific distribution. Supplementary for two bodies at different temperatures, all the time and at all frequencies, the emission of the hotter body is higher – fig. 30.

On the pleistoros website, there are already published an entire series of materials about the black body concept and its implication for modern science; unfortunately there was no time and logistic to organize these materials in a more systematic way so, someone has to browse the pages and the newsletters in order to find the relevant information.

Maybe a retrospective is going to be made soon, as far the quantum theory is going to return into focus. The Horizon 2020 program ended and of course there is going to be an analysis of this program. In fact the Horizon 2020 is going to remain in the history not as the the biggest EU research and innovation program ever, but as one of the biggest financial blunders in science ever!

As a reminder in the frame of Horizon 2020 program, about 80 billion Euro were spent on

f-utilities.

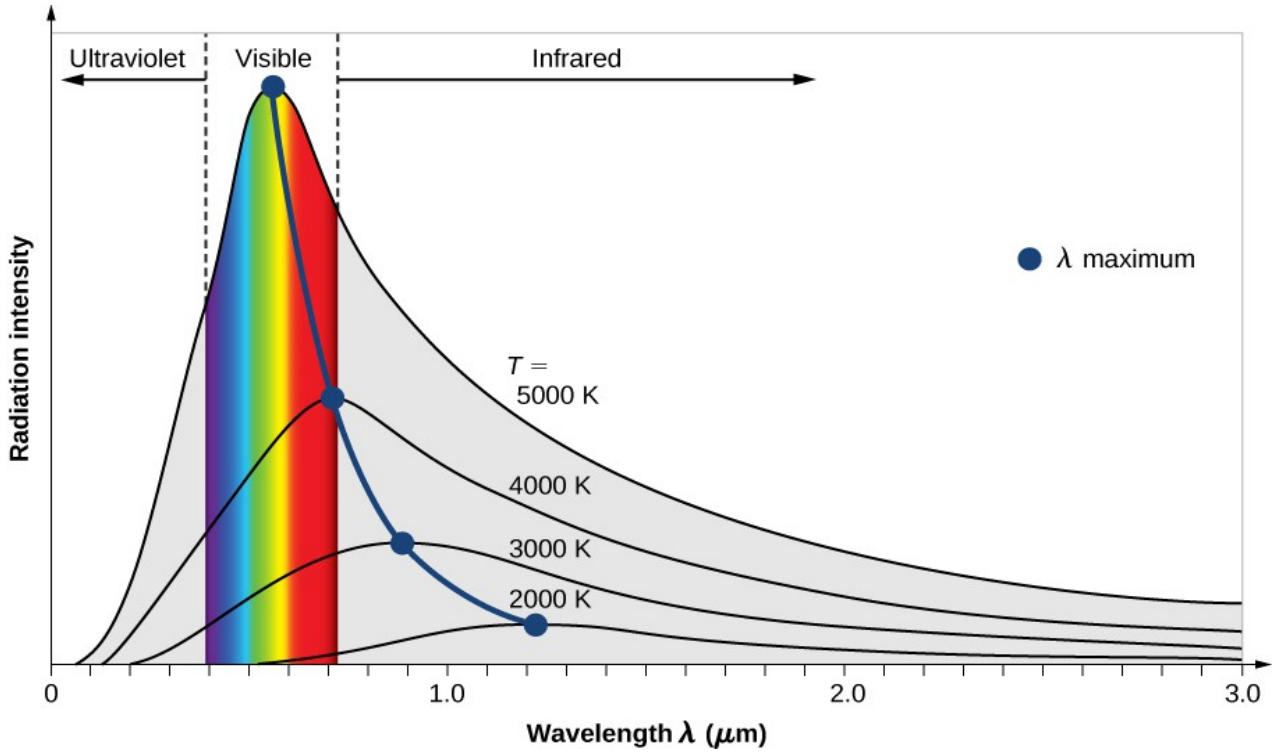


Figure 30 The intensity of black body radiation versus the wavelength of the emitted radiation.

Coming back to our discussion, if one analyses the emission curve for a black body at 4000K, it is easy to be observed that, at any frequency, the intensity of emission is smaller than a similar body at 5000K.

Not represented in fig. 30, but evident for anyone, is the fact that a black body at higher temperatures, let us say 7000K or 10000K, has to present a higher emission at all frequencies, infrared included as a black body at 5000K.

If these are the prediction, how is possible that at 1 micron, the hot and bright stars have an negligible emission?

Quote: ***Near infrared emission is dominated by cool stars. Since these are typically either old or long-lived stars, this is our best view of the Galaxy with the hot, bright young stars removed.***

This sentence, pronounced with half mouth open, says in reality that hot and bright stars have a negligible emission in the near infrared domain and they can be discarded from the picture.

An amoeba, an unicellular being, without brain, by looking at the black body radiation curve

would conclude that such thing is completely impossible!

Well, for an amoeba is quite complicate to estimate the area under each correspondent curve, but being a bit smart, the amoeba makes some comparisons for a couple of wavelengths in the near infrared domain - fig. 31.

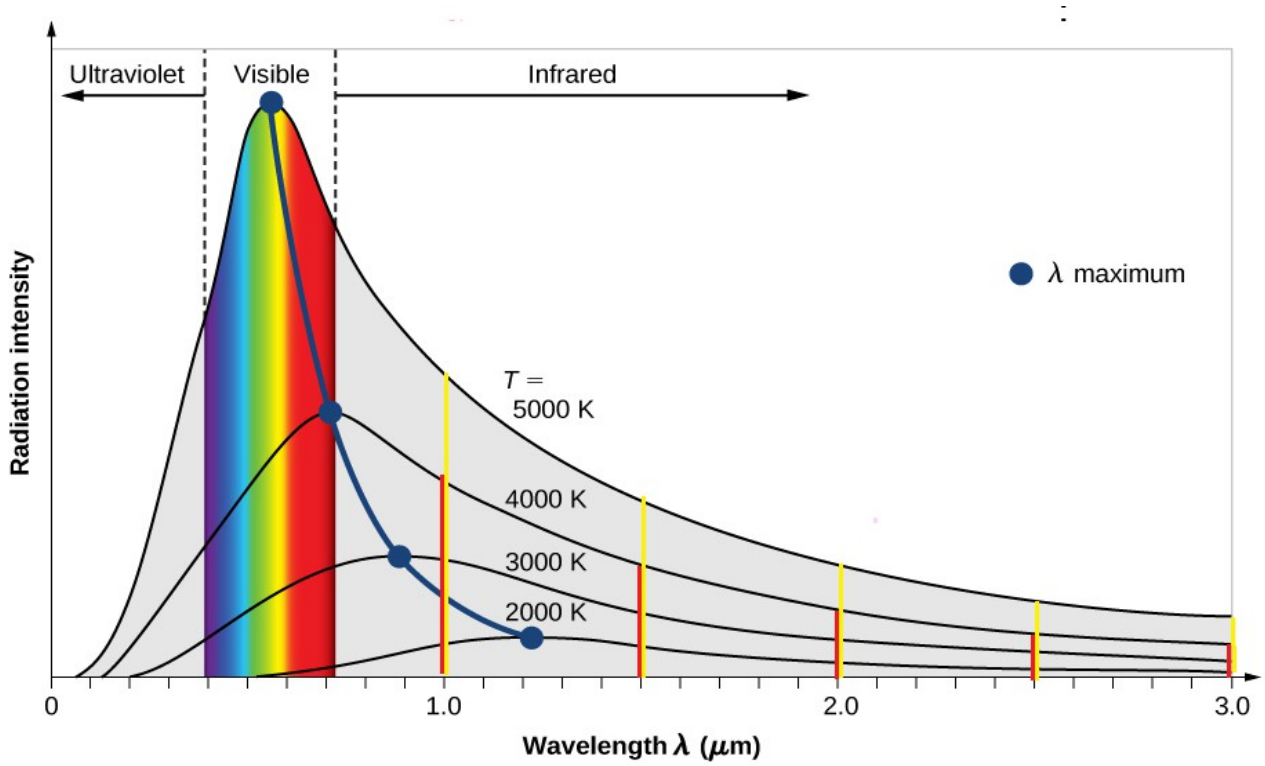


Figure 31 Amoeba exemplification for black body emission at two different temperatures

For any wavelength in this near infrared domain, the red segment is smaller than the yellow segment so, being unable to explain this situation, the amoeba is smart enough to introduce a new paradox in physics.

For at least half century, all the people who worked in this field were not able to arrive at least at such simple conclusion!.....

Well, in comparison with **„the great infrared paradox",** the fact that some stars contribution is missing when switching between two infrared energies, is only a „**small infrared paradox**".

Anyway who cares about real science, when noble prizes are attributed for nonsensical concepts as black holes and conformal representation of infinity?

As far the infinity concept started to be explicitly used by antique Greeks and quite in the same times the euclidean geometry was synthesized, I am going to go further with a simple exemplification of this geometry in modern infrared astronomy.

Early pioneers in this field, Eric Becklin and Gerry Neugebauer are reminded most for the first mapping of the Milky Way emission in infrared and it is assumed that based on their studies, the galactic centre was located in the direction of Sagittarius constellation; to be more precise the galactic centre was found to be identical with a previous known radio source Sgr A.

At a first glance, when someone is analysing the variation of emission in the near infrared, it is obvious to assume that the centre of the galaxy is in the region with the greater emission.

For qualitative astronomy, one can accept that galactic centre is somewhere toward the Sagittarius constellation. Yet, for precise astronomy, as it is supposed to have with the present day instrumentation, the position of galactic centre needs to be revised from scratch.

It is a pity that an entire army of astronomers, those pioneers included, have not understood some simple concepts of astronomy like apparent location and real location. Further on, to ask about the consequences of confusing apparent with real location is something to complicate for their minds.

For simple laymen, confusing apparent with real location is like considering that Sun is rotating around the Earth.

For about 2000 years it was considered that Sun indeed rotates around Earth and some people tried to make this model work. As far at that time the science was in incipient phase, there were not many minds and not many logistic involved in this task. It is worth to be reminded that despite the fact that some of the most astute minds worked to complete and improve this model, in the end the model failed miserable...

The modern astronomy has fallen in the same trap again and, again they have confused the appearance with the reality.

The all map sky in the infrared from fig. 29 and even 28, assumes that all emitting sources are somehow projected on the celestial sphere and all are at the same distance from the observer; I already presented the concept of celestial sphere previously, so it is not the case to insist on it again.

The conclusion is simple: the all map sky offers only an apparent location of these sources.

For our example, the real position of the galactic centre can be estimated if other parameters are taken into consideration. In fig. 32, for simplicity, I have chosen an hypothetical observer who from point P, measures the near infrared emission of our galaxy.

As far the position of the observer is symmetrical to the central bar of the galaxy, BO and OC are equal and PO is perpendicular on BC, it make sense to take „the apparent" map for galactic centre, and find the centre of the galaxy by dividing the BC segment in two. The point O will be, with some errors of estimation, the centre of the galaxy.

Due to the symmetry of the central bar relative to point P, it make sense to consider the ,,apparent location for these sources" as the real one. It is only a mathematical simplification which do not affect the results in a significant manner.

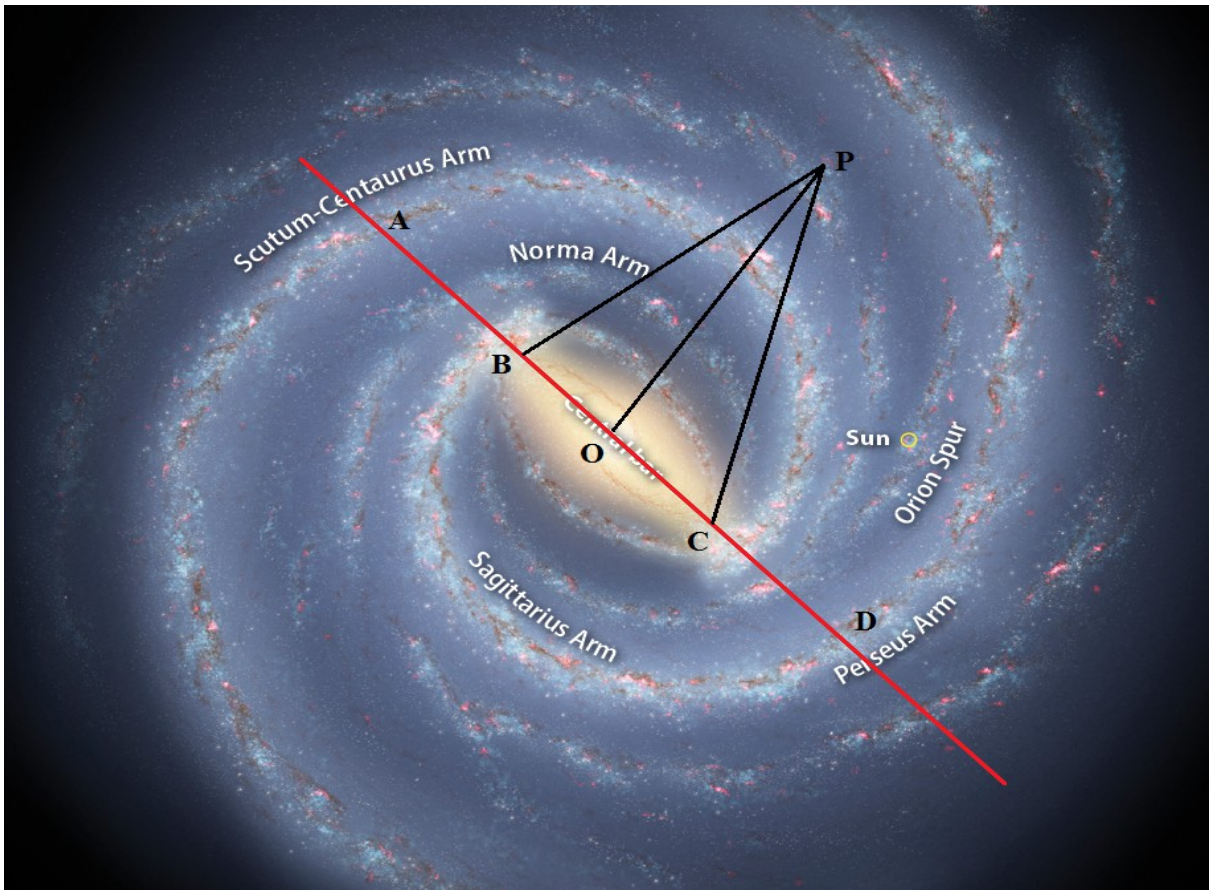


Figure 32 Galaxy emission for a preferred observer

The real problem is that our Solar System cannot be such a preferred observer in relation to the central bar; nor it is possible to send an observer in such location in order to firmly establish the position of galactic centre.

The location of our Solar system in galaxy in relation to the central bar complicates the situation - fig 33.

In order to simplify the analysis, I am going to consider that infrared light extinction has a constant value per parsec of distance travelled. This is by sure not true, but this discussion is like the late alphabetization for whose who missed the school.

When an observer on Earth or near Earth maps the galactic centre in infrared, the photons from C and C' points are registered simultaneously. This means that the ,,apparent" size of the galactic centre for the Earth observer is CC'. It is obvious for a pupil that ,,apparent" size is much different from ,,real size" which is BC.

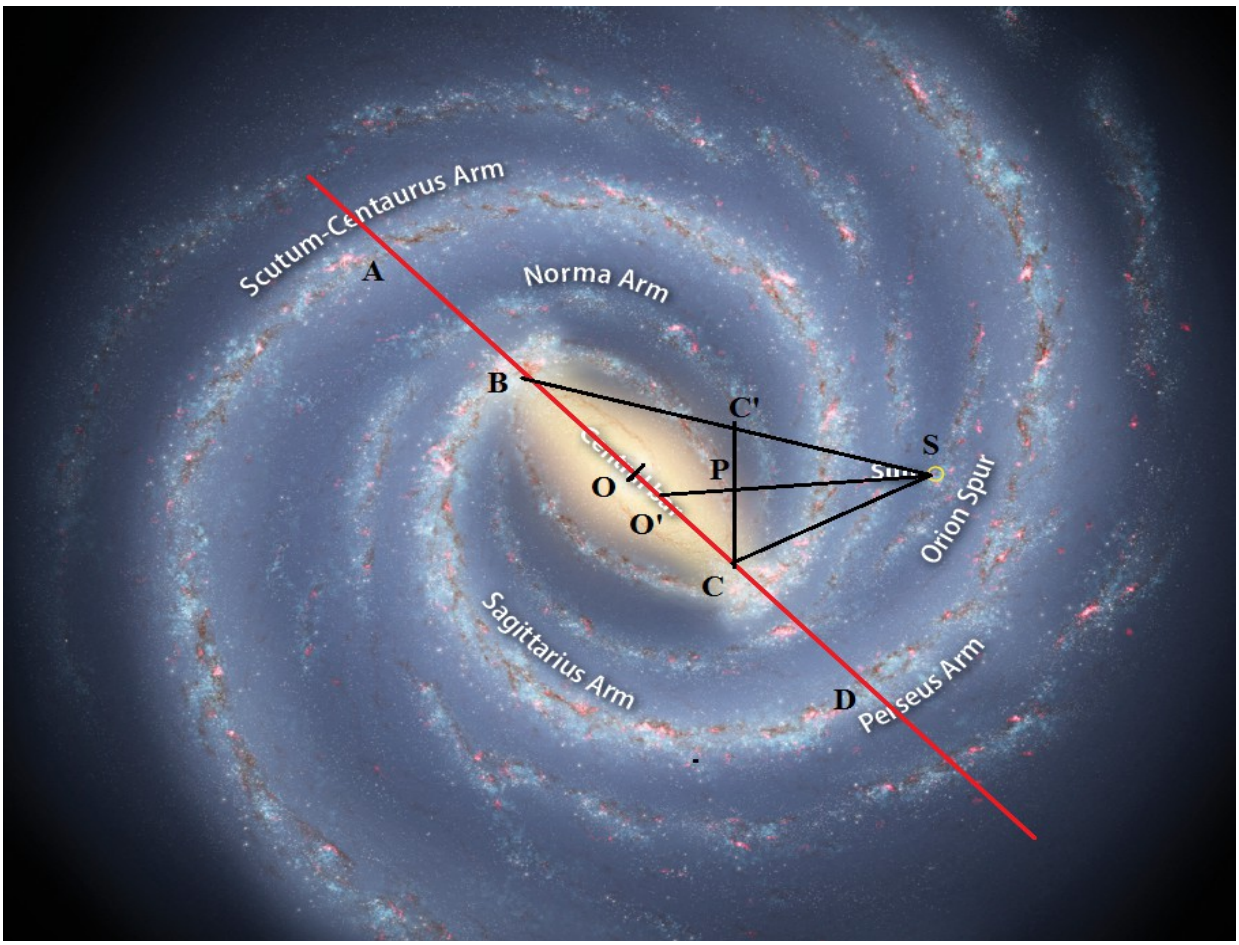


Figure 33 Galaxy emission for an Earth observer

In the all sky map, for the infrared or other radiation (X-ray, gamma) coming from the central region of the galaxy, the image an observer „see", is a „instantaneous picture" of the radiation found at a certain moment in past along the line CC'.

Based on these considerations, the middle of the CC' segment cannot be the galactic centre; neither the O' point cannot be the galactic centre. It is expected that P and corresponding O' point has the maximum value registered for the intensity coming from the galactic centre, but this does not mean the galactic centre is there. The apparent map of infrared emission cannot be used in this way to estimate the position of the galactic centre and this should be evident even for pupils.

For those who don't believe in simple and consistent mathematics, please make a simple experiment with your dinner plate. Suppose that the plate has a diameter D_1 when viewed from the front. When you rotate the plate with an angle θ, the apparent diameter changes and it has another apparent value D_2. The relation of transformation between these units is : $D_2=D_1 \cos \theta$.

A similar situation takes place in astronomy, but one has to be careful because there are other factors which affect the apparent emission beside the change in size of the central bar.

One has to take into account that BC segment is assumed to be around 1000 pc. The light from the C point arrives much earlier, but in the same time it appears more intense. During the trip from B up to C', there is a consistent extinction of the light departed from point B, while there is no loss for the light emitted in C. Similar phenomena of supplementary extinction happen for the light emitted in point O' when arrives in point P.

As far the extinction is related to the distance, the losses during the trip are much bigger for BS as for CS segment.

This comportment generate another mess in the apparent map of infrared emission.

It is preposterous to say that astronomers have found the real centre of the galaxy in these conditions when they are not able to use a mathematical formalism developed two millennia ago.

Have you got tired?

If geometry is not on your taste, let us go further with a much simpler case: imagine you are on a plain and there is a forest in front of you. Somewhere in the forest, at about 3 km distance I am going to mark a certain tree with a sign. You are equipped with the finest optical technology ever, but you have to locate the marked tree from your position, outside the forest.

What do you think? Could you find the marked tree using your billions expensive telescope?

Here is an artistic representation of a forest, to help you ….

Figure 34 Angelo Masera - Bosco di Betulle

I am sure that most of the readers would assume that it is not possible to find such a tree after a certain distance in the forest.

If you think that such a marked tree can be found with a sophisticated telescope after a certain distance in the forest, then I am interested on a bet; do write to me!

The explanation for the negative result of this endeavour is very simple; it can be grasped even by pupils and it was translated in a proverb: ***one cannot see the forest because of the trees.***

It is obvious that when you consider your line of sight, you can see only a layer from the forest for a certain distance and nothing more further....

Let us translate this situation to the galactic centre detection. For simplicity, I am going to resume the discussion to the central bar and consider that the other arms in the line of sight are not so problematic for this task.

By looking into internet, one can find relevant information about the density of celestial bodies in the bar and even the density of celestial bodies in the central parsec of the galaxy, where the centre is located.

Quote: ***within a parsec of the galactic centre, the estimated number density of stars is about 10 million stars per cubic parsec. By contrast, the number density of stars in the Sun's neighbourhood is a puny 0,2 star per cubic parsec.***

I am quite sure that with present technology, and being very close to that dense central parsec of objects, it would be possible to study the motion of those objects.

Unfortunately, there is a factor of distance, which introduce some limitations. The angular size of an object is determined uniquely by its actual size and its distance from the observer. For an object of fixed size, the larger the distance, the smaller the angular size.

From our position in galaxy, the central parsec would appear as an angular size of about 25 arcseconds. To think that in 25 arcsec, where there are 10 millions objects, someone is able to establish the trajectory of such objects, for me at least, is a bit surreal.....

If some think that such achievement is possible, then it is high time to go further....

That central parsec is not alone there and surrounded by vacuum. I mean classical vacuum and not some quantum fluctuation...

That central parsec is surround by other cubic parsecs full of the stellar matter and containing fewer objects as the distance form centre increases.

In fig. 35, the parsecs in the central region of Milky Way are exaggeratedly increased, because a scale representation would mean to have a single minuscule point for a squared parsec (we are in a plane so cubic is translated to squared).

The central parsec is coloured with black, the second layer of parsecs is in blue and the third layer is in green. The process should continue layer by layer until the entire OP path is covered.

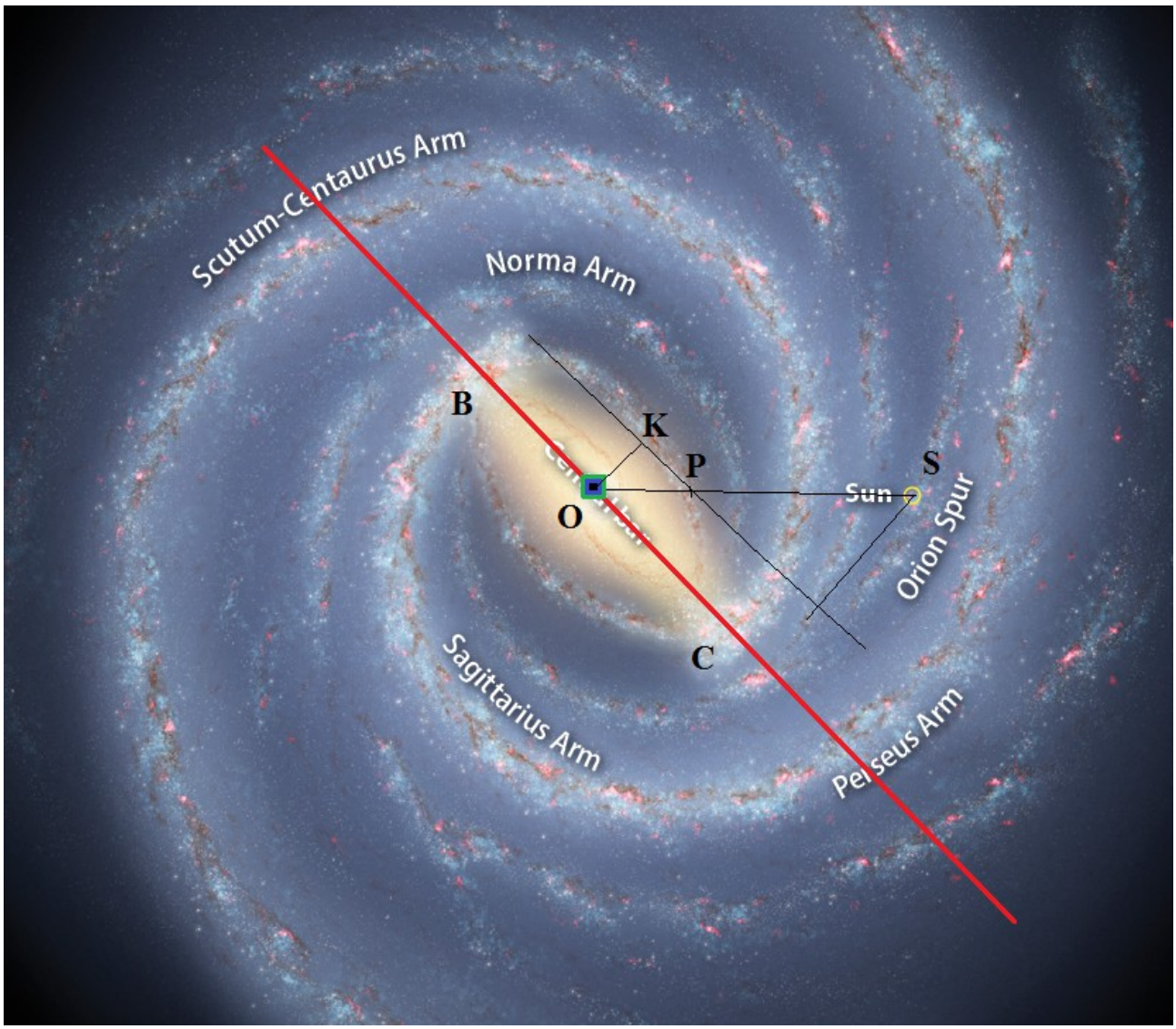


Figure 35 Depth of photon trip through central bar

It is important to highlight that although the density of stellar objects is decreasing with the distance from the galactic centre, for the bulge, it remains to a much higher value than what we measure around our Sun. I did not find an exact estimation, but a sound assumption is to suppose that at the surface of central bar, this density is a factor smaller in comparison with the central parsec.

This means, that one cubic parsec in the vicinity of point P, is still going to have about one million objects inside, mostly stars.

An estimation of the OP segment is necessary; this length represents the path of a photon inside galactic bar.

The angle SOC is not precisely measured and I found different values in literature. A sound assumption would be around 30°. The distance OK is again not known with precision, but it has to

be at least 200 pc. A galaxy with such mass cannot have a thin rubber band in the middle to keep it in motion.

With these conservative assumptions, and with a bit of geometry (the angle POC is equal with KPO), one can find the size of PO by applying the sine function.

Sine 30° = KO/OP

Consequently OP = KO / sine 30° = 200/0,5 = 300 pc

Can a sound mind think that a photon from the galactic centre can travel at least 300 pc (conservative estimate) through dense celestial objects around, in order to start the real journey toward Earth observer?

A pupil would laugh at this imbecility …..

It is possible that our powerful telescopes in infrared have arrived to see the central bar in a similar manner with a person seeing a forest at horizon. In the most fortunate case, the images published to this moment about galactic centre are presenting the first few parsecs in the vicinity of the point P.

Well, most of the images and videos presented to the public are cleaned and processed so when these are analysed, one have to look careful to the ,,data treatment".

I found by chance one image about ,,the galactic centre" which seems less ,,processed". Here is the link, and as far the image can be zoom in and out, it would be nice you have a look at it too....

https://iopscience.iop.org/article/10.1088/0004-637X/692/2/1075/meta

The article has as co-author Mr. Genzell, so anyone can see that I take care of our laureates.

Monitoring stellar orbits around the massive black hole in the galactic center

S. Gillessen, F. Eisenhauer, S. Trippe, T. Alexander, R. Genzel, F. Martins, and T. Ott

This figure is based on a natural guide star adaptive optics image obtained as part of this study, using NACO at UT4 (Yepun) of the VLT on 2007 July 20 in the H band. The original image with a FWHM of ≈75 mas was deconvolved with the Lucy–Richardson algorithm and beam restored with a Gaussian beam with FWHM=2 pixel = 26.5 mas. Stars as faint as mH = 19.2 (corresponding roughly to mK = 17.7) are detected at the 5σ level. Only stars that are unambiguously identified in several images have designated names, ranging from S1 to S112. Blue labels indicate early-type stars, red labels late-type stars. Stars with unknown spectral type are labelled in black. At the position of Sgr A some light is seen, which could be either due to Sgr A* itself or due to a faint, so far unrecognized star being confused with Sgr A*.*

When someone looks at the fig. 36, and assuming that telescope arrived to see the central

galaxy bar, each point in that picture has to be a point situated on a star surface. Ok, one would ask, if any point in the picture is in fact one point of a star surface, why there is no uniformity of emission from that portion of the sky?

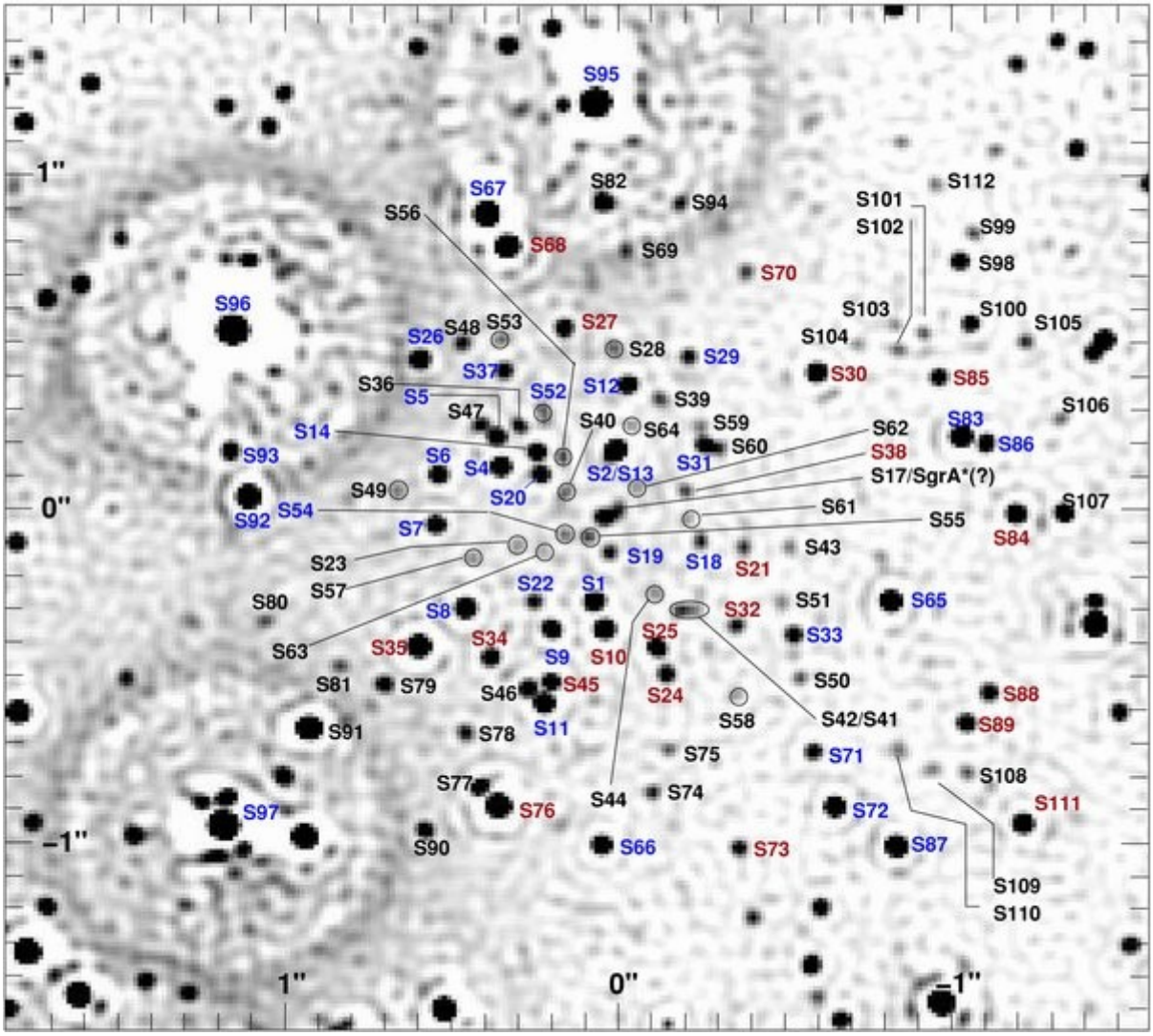


Figure 36 Supposed stars in the central parsec of Milky Way

There are more factors which affect the difference of emission perceived by the observer.

Some stars are too dim and they do not appear in the image although they are present there; other evident and known fact regards the different emission of various stars populating that region.

As previously described, the S-type cluster of stars (you see a lot of them in the picture) are young and bright in visible, but lazy in near infrared. When seen into infrared telescope, a red giant is going to appear much intense than a S star and this creates optical effects and differences in image acquired by the telescope.

Well, some are going to say: your approach seems nice and logical, but I saw stars rotating

around a point where nothing can be seen....

How the heck such rotation is possible?

My question is: ***Are you sure that those stars really rotates in the manner you „see"?***

Don't you see the Sun rotating in the sky each day? If I make a movie with our Sun in rotation above your head, would you believe me ?

It would be advisable that present day astronomers take some elementary lessons in GR and after understanding how imbecile this theory is, they can further polish the author's shoes.

I suppose that anyone has read about Eddington's eclipse experiment and the deviation of light in gravitational field. The basic tenet of Einstein's GR is that a light ray grazing on the surface of the Sun will be deflected by 1,75 arcseconds.

The topic was presented in some previous newsletters and it is not yet exhausted; ***here we are assuming that observed results are solid rock and only some consequences are analysed.***

In principle, it is interesting to have a simple extension of this experiment to a larger scale -fig. 36.

What is the deviation of light if the observer is situated at about 8000 parsecs? I choose this value because it is the standard accepted distance up to the centre of the Milky Way, although new data suggest that Solar System is closer to the galactic centre.

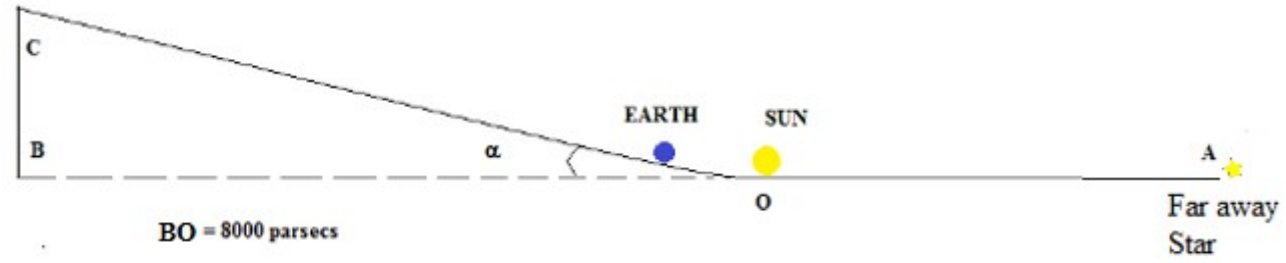


Figure 36

The euclidean geometry is more than enough to solve this problem. In the triangle OBC an angle and OB are known so, it is a piece of cake to find the BC segment.

Tan 1,75 arcsec = 0,00000848 =BC/OB

BC= OB × 0,00000848 = 0,06784 parsecs = $2{,}09 \times 10^{12}$ km

Interpretation:

If a similar Solar system exist in point B of the image, the telescope from the third planet (Earth) has to be moved close to the level of Uranus orbit in order to observe the phenomena. I suppose that experimental optics is a quite mature branch of science and it is not the case to

explain why the image moves up to the that position.

Now, in the study Andrea Ghez and Reinhard Genzel teams made, the observer is indeed situated in the point B and it is looking toward the Milky Way bulge. In this case, the situation is a bit different because in the points O, A and all the space around, there are millions of stars and although their orbits do not intersects, there are many occultation phenomena when a star pass behind or in front of another star.

What would the observer see in this case?

Well, the image taken by a telescope is nothing more than an optical illusion; apparent twists and deviations would appear out of thin air....

Of course, behind this apparent optical illusions, those stars have a real motion too, but their real motion cannot be studied yet!

The topic is going to be reloaded in a future newsletter and completed with the effects of a black hole on the ,,apparent" orbits of S stars around it.

Most of the S star elliptical orbits are too perfect for GR and in fact they rule out the entire GR.

For any common sense mind, the argument of a black hole in the galactic centre is a dead one.....

SECTION X COMPARISON BETWEEN THE MAGNETIC FLUX AROUND AN ELECTROLYTE AND A METALLIC CONDUCTOR.

*This is again **one of the most representative experiments in the XXI century science** and the experiment was performed entirely by a friend, Finn S. Nielsen. I should have started this newsletter with it, but from objective reasons which does not worth to be commented, I got the material in the last moment, when the pictures in the other sections were already numbered; as far this newsletter exhausted me completely, I considered not worthy to change the entire numbering and the references in text, so the experiment became the last, but not the least scientific section....*

*The experiment was proposed years ago, and practically rules out the entire electrolytic dissociation theory. The idea of the experiment is simple: **according to dissociation theory, around an electrolytic conductor the magnetic field (and flux) has to be double as for a metallic conductor**. The reason is simple: in the electrolytic conductor there are positive and negative charge carriers, but in the metallic conductor only negative carriers.*

The original article can be found here:

https://www.pleistoros.com/en/books/electromagnetism/magnetic-effects-around-ionic-conductors

The following text and variation of the original experiment is entirely the contribution of Mr. Nielson and I made only some small text editing arrangements.

The purpose of this experiment is to perform the relative measurement of the magnetic flux though an area around:

1. A metallic conductor connected to the electrodes inserted into the tube containing the electrolyte.

2. A glass tube containing an electrolyte which in this case is going to be a solution of NaOH in water. The electrolyte will be connected using a (spiral) surface of iron.

This measurement will allow a comparison of the resulting magnetic field from a current passing through an electrolyte compared to that of a metal conductor. Although the current will perform work in the form of electrolysis, no leakage of current is allowed in the setup. Direct current is used.

Materials needed for the experiment

All the materials are easy to obtain:

1. Clamp-on amp meter with a large opening and which can measure DC currents.

2. A car battery lead-acid electrolyte density meter (typ. 210mm x 20 mm inner diameter).

3. 2 mm iron wire - stripped off welding rod wire was used

4. Connecting cables.

5. Suitable DC power supply capable of delivering up to 2 A and up to 24V (two 12V lead acid batteries can also be used)

6. Water and NaOH in the form of dry crystals or a strong solution.

7. Suitable plastic container to avoid spillage and for support.

8. 0.5/1 L glass beaker for making NaOH solution

9. Scale

A drawing of the setup can be seen below - fig. 37:

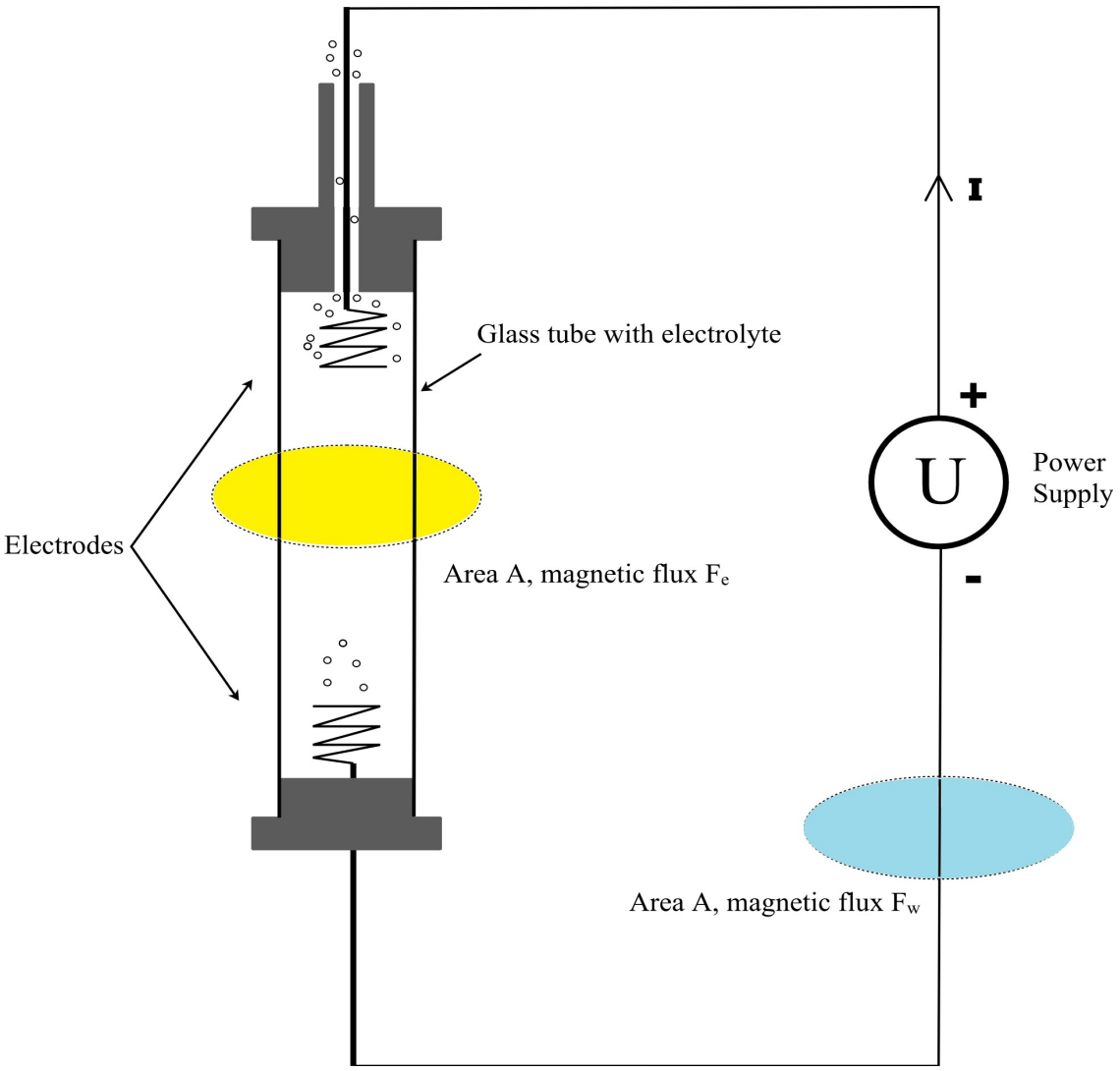


Figure 37 Experiment setup

Safety precautions:

1. Use gloves and protective goggles as NaOH solutions is corrosive and there is a small risk of fracturing the tube with the electrolyte, if the developed gases are somehow ignited.

2. Make sure the developed gases can escape in the top of the electrolyte tube.

3. Only make brief measurements of a few seconds at a time to avoid too much gas to develop.

4. The hydrogen-oxygen gas mix is ex- and implosive, avoid sparks - switch the power at the supply rather than at the electrodes.

5. Perform the experiment in a well ventilated area or large room.

Disclaimer: Perform this experiment at your risk, the authors are not liable for any injury, property damage, and other dangers. The list of safety precautions listed here may not be

complete.

Preparation:

1. Disassemble the density meter and remove the float unit.

2. Drill a 1.5mm hole in the bottom rubber cap.

3. Using a suitable rod, curl up the two electrodes leaving 5 cm of straight wire

4. Insert the electrode into the hole of the bottom rubber cap and insert it into the glass tube (you can use a little silicon grease to help it along and for extra sealing)

5. To make a 1 molar solution of NaOH, using the scale, measure up 10 grams of solid NaOH then add it to a container containing 250 ml of lukewarm water. Stir until crystals have dissolved.

6. Mount the glass tube to the wall of your container using two pieces of iron wire.

7. Pour in the NaOH solution, leaving enough room to allow the top cap to be inserted without spillage. Do **not** leave an empty space at the top, as gases can accumulate there.

8. Insert the other electrode into the (suction) top cap and mount the cap onto the tube.

9. Prepare the circuit with the wires to the power supply so it can easily be switched on and off.

Measurements:

1. First measure the current thought the wire with the clamp-on amp meter. Make sure you are at least 10 cm from the glass tube with the electrolyte. Pulse the supply on, make sure you get around 1 A of current or more (most meters have 0.1 A resolution)

2. Measure the current though the electrolyte by measuring around the glass tube with the electrolyte. Make sure you can measure somewhere around the middle of the tube.

Note down both currents (and the supply voltage). What is observed ?

1. Think about what is happening at the electrodes

2. Write down the reactions at the electrodes

3. What kind of ions are moving where and in which direction ?

4. What are the contributions to the resultant magnetic field ?

5. What does theory say about the conductivity of the solution ?

Readers are encouraged to reply back **(**hi@infile.dk**)** with their analysis and equations for the resulting magnetic field and flux through an area around the glass tube containing the electrolyte.

Results:

It was found that the magnetic flux is the same for the conductor as well as for the electrolyte $F_e=F_w$ ***(within +/-10% accuracy with the meter available, which had 0.1A resolution). The current was 1.0 A at a supply voltage of 22V. The experiment was performed with a 1 molar NaOH aqueous solution at room temperature (20 degrees).***

Finn S. Nielsen, MscEE (hi@infile.dk)

SECTION XI OLD GAME, SAME SCENE, NEW ACTORS AND FIGUREHEADS ….

In a previous section, I made a short presentation for the Papin case in order to see what lesseon of history has to be learned.

Of course, I am going to continue the investigations and write a book about the Papin`s life. I hope that some French organizations or individuals are going to support this initiative.

By sure the life of a genial man deserves a book; by comparison, some people considered necessary to write a book which analyses only the origin of the expression used by Newton ,, by standing on the shoulders of giants".

I hope that some German and UK organizations are going to support a much larger project to write a more objective version of the XVIIth century events based on the documents available.

And now it is important to make a comparison between what happened three centuries ago and what happens now....

At that time there was only Royal Society which sabotaged Papin, for some small reasons which by sure are going to surface soon ….

In our days, and for a quarter of century, a crowd of imbeciles, occupying key positions in society, have been preventing an intellectual revolution, i.e. a change of the entire foundation of exact sciences.

This crowd is composed mainly by the present intellectual elites but legislatives and executives are part of the plot too.

The European Commission is a representative example which needs a special attention. They are meant to ensure progress and stability for the European Union and steward the interests of European citizens, but in reality they are doing the opposite. In the past, I filled in a complaint against European Commission without any positive result, there is still a petition to the European parliament, but as in the Savery times, it is so simple to pass by these things and cover everything in a bureaucratic procedures.

Of course, from their point of view, no one sabotaged me! They were doing their jobs only and they were only doing with a bit of excess of zeal their jobs! Can someone accuse such people that being well paid, they were doing the jobs even more thoroughly as it should have been done?

The academies and other representative institutions (universities, research centres) all over the world are part of the plot or in any case they tacitly tolerated it. I remember sending a paper for publishing to the Australian Academy of Science around 2007-2008 and they refused publishing it on the reason they do not understand the English in the article. I kept the original version of the article on the website (about covalent bond - the atomic book) and although there are some grammatical errors, the idea can be spotted easily. Anyway, after correcting the article by a professional English speaker and resubmitting the corrected article, they did not ever answer to my email.

Any such representative institution, in a direct or in an indirect way, has took part in the plot, by not doing what they were meant to do!

The Romanian Academy, which should promote the national values, including this theory, did the worse job in its history. There are available about 40000 Euro each year for an academician to be spend on indemnity and other expenses, but one Euro for this theory could not be found! Well, don't imagine that an academician lives only from the money coming from Academy!

Of course, all the present Romanian academicians have been schooled in the wealthy western society and they are in contact with the intellectual elites; in fact, they have been paid directly or indirectly by these elites to keep their mouth shut and do nothing for promoting this theory. For a few thousands euro, they can be bought anytime at „their real market value". They have forgotten that they should represent the cultural elite of a nation and in the same time to be a model for the young generations.

It is important to be highlighted what is at stake for the entire society in this modern plot...

Well, it is impossible to quantify at this moment what this new theory in economic terms really means! I am going to exemplify what does it mean only for a part of the energetic sector. Again, I do not make the estimation for the entire energetic sector, but only to highlight the consequences for the simple application discussed today, i.e. a simple change of a fluid in a power plant without any other investment. We have shown that by doing such small change, an amount of 3000 TWh (from coal and nuclear) could have been produced „from thin air" at the level of production estimated for 2016.

Ok, „from thin air" it does not mean I got it from my pocket, it is only the result of a technological improvement.

At a cost of production of about 0,1 Euro per KWh, that amount would have represented 300 billions Euro for 2016, i.e. more than entire GDP of my country.

What do you think now? Would someone want to kill for this fortune? If you say no, then your are completely torn from the reality! 99% of the human population in these civilised times would do it with the first occasion if they would be sure they are not caught!

Attention, this is not a new technology in itself...it is only a small detail which was left aside by an imbecile science...

What can a real new technology of electricity production bring, is going to be seen in the future....

Anyway, there is going to come a time when any company in the electricity field is going to be asked why did they, directly or indirectly, opposed to a switch in the technology!

The direct consequence of not implementing these technologies is seen in climate change and industrial pollution. Of course many people, especially politicians, make a lot of noise about these topics but all the strange measures they want to implement have to be supported by citizens.

The new theory comes with solutions to at least alleviate this burden on the citizens shoulders; but, do you think that this is important for a bunch of corrupt or lazy bureaucrats?

Even a laymen could understand that society as a whole is already losing because these technologies are not implemented.

I am not going to lose because the royalties for the electricity production are going to be recovered for me starting with 2010. Supplementary the new technologies are going to remain as

intellectual property and never as brevets. Someone in the field of intellectual property knows what the difference is….

If a country wants to have progress and real scientific research, then it is high time to think in the future.

Let us see what the consequence of this organised plot for the educational system are!

At least 20 generations of pupils, scholars, students and teachers were indoctrinated with a wrong scientific background and for most of them it is going to be impossible to switch to the new one. There are other generations coming from behind and although theoretically it is possible to ,,re-educate" these lost generations, in practice this is not going to happen.

Although there is no doubt that this new theory of science is going to become the foundation for the future progress of humanity, this theory is only in its initial stage....

In the view of opposed resistance from the imbecility of elitist intellectuals, I was forced to dedicate my scarce time to bring up new experiments and facts which could demolish or rule out the present accepted dogma, so the ,,proper" development of the theory is lagging behind. If for example, the theory is going to be accepted tomorrow, there is a huge vacuum in many branches of science which cannot be filled over the night.

As already presented with another occasion a period of at least five years is normally necessary for having new manuals, new teachers and so on. If the society as a whole afforded to be careless about such transition, this period is going to be extended accorded to the rules defined in a previous newsletter.

How many lost generations can a society still afford? And who is going to be charged guilty for this disaster?

Another major loss for the society as a whole is related to research expenses.

The amount of money spent on futile research in this lost quarter of century is difficult to be imagined. At national level, for a developed country, there is about 5% of GDP dedicated to research. This is money from budget dedicated to fundamental research by the grant system. If one considers the private and industrial research, the expenses are bigger. In a quarter of a century, each developed country has thrown away at least the equivalent of a GDP....

Of course some are going to argue that part of these research are applicative research which remains valid even the foundation changes. This is true, but now there is necessary other input of money to clean up the mess and decide what is going to remain and what is going to be discarded.

If this step were to be done a quarter of century earlier, tons of junk literature would have not been written and the transition would have been simpler...

Does someone think that such process can be performed over the night and with a team of few people?

Where are these people coming if the entire community is indoctrinated with imbecilities?

So, even for research there is going to be a discontinuity period according to the rules defined in a previous newsletter.

In a future newsletter, there is going to be a broader presentation about the purpose of this theory and what are the targets....

First of all, each living person should ask himself what price would (s)he pay that his/her offspring have access to this theory.

A real price, from my point of view, would be as follows: one generation of his/her offspring work for me, in the same conditions I have been working for decades and paid as I was paid. When his/her offspring have generated at least 1% of what I generated, then they are free to have access to this theory for them and for their descendants.

If they are not able to generate in one generation that 1% of what I have generated, the contract extends in the same conditions for the next generation and so one.

What do you think about this bargain? Would you be interested in it?

The difference between a great man and a common one can be seen in these conditions.

What is going to happen when a great man acquires the power? Would he change something for the future or will he use the power only to get revenge for what happened to him previously.

The Newton – Hooke case can be framed as a classical example for what happen when a tyrant got the power in his hands....

We imagine that such repetition of things is not possible in democracy but this is false. In a democracy these things happen all the time, but they are hidden.

Beside professional harassment, for a quarter of century I was hunted by ,,imaginary ghosts" because when the entire system is against you, the danger comes from everywhere.

A simple walk in a beautiful but uncrowded place, in a second can become a place where your life is endangered. A simple theft can appear as an accident, but these are only appearances because few (if any) such occasional acts are done for documents. Or maybe in the latest times many thieves want to improve their scientific knowledge...

Probably the most tranquil period I remember was when I worked as a chemist for a half year to a cannabis cultivar in Switzerland. Unfortunately, this tranquillity suddenly disappeared when in a Sunday morning some gunshots outside disturbed my intellectual preoccupations. By sure I did not want to be a collateral victim in another war so this was also a reason I quit soon that job. Of course I was not keen to be part of such insignificant conflict either....

In a dictatorship, a dissident knows where the danger is coming from. In a democracy the danger comes from everywhere.

Of course there is police but they are only to serve the system and to register the facts; they are not to prevent such situations.

Such direct or indirect pressure would drive any normal person crazy and would make it slip into paranoia and mental derangements. Boltzmann arrived to suicide for much less pressure and of course there was no one to see why such a person arrived to such desperate act.

Unfortunately for this bunch of criminals, I have trained myself to endure this pressure and overcome any situation.

Of course in such situations a strong believe in a ,,upper" protection is crucial; I always had an internal feeling that there is a greater purpose behind all these events and maybe someone incarnate in this life in order to change these things and show another path to be followed in the future.

What would you think if your offspring would live in these conditions for decades?

Aren't you happy that the modern democracy we have build has tried to eliminate the greatest mind of humanity ever?...

…..and no one is guilty!

Is someone in a hurry to unveil another commemorative plaque for me and I did not know ?

This is not a new thing in history. The first democracy in Athens, succeeded in killing one of the most outstanding personality of that time and of course no one was charged guilty.

In the meantime they have learned to keep secret these things though!

The purpose of this theory is to change a lot of things in the world, starting with environmental aspects, education, research and development, sound and sustainable economic rules and up to some social aspects. Do not worry, it is not the purpose of this theory to change a political system!

As Romanian, it is going to be a priority to buy my country back for Romanians and to make it entire.....

Now, my country is chopped and has become only a colony for the mercantilism of a mad society.

I hope that God is going to help me to transform my nation in an example to be followed by others, in their way toward progress and spirituality.