



ISSN : 2350-0743



Vol. 12, Issue 05, pp.11187-11189, May, 2025
<https://doi.org/10.64485/ijramr.5885.05.2025>



RESEARCH ARTICLE

BLACK HOLES REVIEWED BY QUANTUM MECHANICS

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ARTICLE INFO

Article History

Received 20th February, 2025
Received in revised form
27th March, 2025
Accepted 26th April, 2025
Published online 30th May, 2025

Keywords:

Black Holes, Big Bang, Pauli's Exclusion Principle, Schwarzschild radius, the Heisenberg Uncertainty Principle, Compactness, Extreme Density, Gravitational Singularity, Collapsing.

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ABSTRACT

To understand the internal structure of a black hole, we must understand the concept of "state of compactness" of matter, that is to say a very high level of mass/energy potential in space (GeV/cm³). This level is in the black holes and at the beginning of the universe (Big Bang). In the first case, it is a collapse of matter from gravitational fields and in the second, an expansion of space due to repulsive fields. Thus, even if the state of compactness is reached in both cases, the circumstances are not the same, nor are the related phenomena since one speaks of a gravitational centre and the other of a homogeneous and isotropic universe,... which is not the case for a black hole (homogenous) since it is oriented towards a gravitational centre. However, this state of compactness establishes itself as soon as there is an extreme collapse of matter. The quest is therefore to understand it in order to represent it and possibly calculate it. In short, what is the state of compactness of matter?

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Citation: Pascal Wery. 2025. "Black holes reviewed by quantum mechanics.". *International Journal of Recent Advances in Multidisciplinary Research*, 12, (05), 11187-11189.

INTRODUCTION

The state of compactness of matter appears as soon as the Schwarzschild radius is reached. It is a state of extreme compression of matter. However, the points of view of general relativity and quantum mechanics are opposed because one considers a malleable space at will and the other focuses on a minimum space necessary for matter. One speaks of certain effects with a precise space-time and a predictable reality (realism) while the other speaks of probabilistic effects with an evolutionary space-time dependent on a tangle of superimposed realities (surrealism). The systems being of different natures by essence, it becomes difficult to associate them with mathematics since the calculations are equally different. Therefore nothing seems to be able to reconcile the infinitely large with the infinitely small. Yet what is improbable and illogical can already be eliminated... As an existing matter without space-time (impossible) since matter needs space to express itself (Big Bang)! Indeed, according to quantum mechanics, matter and energy are probabilistic perturbations in the different quantum fields that interact with each other. No space = no quantum fields, so no disturbances, which is to say, no matter or energy either. It takes a minimum space for these disturbances to exist. But the gravitational singularity doesn't allow that.

Instead it speaks of a space-time, without space or time! A phenomenon still incomprehensible. As I previously quoted in an earlier publication (the Big bang reviewed by quantum mechanics), it is necessary to distinguish between gravitational phenomena and the laws of physics that govern them. Gravity changes space-time. But this space-time must nevertheless meet certain conditions. First, the Planck length imposes a minimum measurable space (1.6×10^{-35} m) for quanta's of energy to exist. Then the Pauli's exclusion principle puts a limit to the collapse of matter. At some level, it becomes incompressible. Similarly, the Heisenberg uncertainty principle must also play at the core of a black hole. But how does all this fit together?

RESULTS

Inside a black hole, the strong force should be defeated as well as the weak or electromagnetic forces. This means that particles no longer know how to organize themselves into geometric structures. Whether atoms or even simple nuclei, no composite form holds any longer. In short, matter is reduced to particles. This produces an intense release of energy (gammas) that will move towards the gravitational centre with the rest of matter. However, while collapsing, they are jostling in a space-time that is shrinking. They do until it no longer allows

particles to coexist. And that's where the problem is: matter is not so docile! This is even in its physical properties: as previously explained, the exclusion of Pauli's principles forbids the fields of fermions with same attributes to coexist in the same space-time in no quantum reality whatsoever! Thus the inevitable confronts the impossible. But what cannot exist cannot be imposed, as evidenced by the undulatory pattern of Young's double-slit experiment, where some realities are impossible... which seems surprising! Thus Gravity must bend before a new constant. The constant interaction of gravity (consequence) comes from fundamental forces while the Pauli's exclusion principles, constantly opposing, comes from the unavoidable laws of physics (causes), such as the permeability of space (example). It cannot be defeated by any fundamental forces since it reigns!

Thus, identical matters begin to form different fields of particles having the same attributes and therefore incompressible. In there, every particle is stuck in its own field with its peers (undistinguishable). The set forms many different volumes made of identical matters with same attributes. These volumes occupy the same space-time (the central area of the black hole) since they do not suffer from the Pauli's exclusion principle between them. They create plugs that do not allow the total collapse of space and thus prevent the gravitational singularity from appearing. However, the fermions in the centre should be confined on all sides by gravity and pressure, thus reducing the field of their positions to their own fields. Fields based on particle probability densities coexisting close to each other such as Higgs's fields. This state of matter reduces fermions to their beginning by annihilating their evolution (structures). This should release a large amount of energy (gammas).

However, the energy that also constitutes the information is undifferentiated. So, unlike matter, it can concentrate in one point, the central zone! These are conveyed by bosons forming a sort of torus passing through the centre. A centre that is itself gravitationally neutral since all the masses are around it, but a centre that still attracts all the particles. Bosons focuses there, bringing infernal temperatures worthy of the beginnings of the universe (Grand Unified Theory). It is nevertheless doubtful that the theory of everything exists: the union of forces leads them to have the same intensities. Thus the gravity which is the smallest should seriously change. However, a quasar always responds to the laws of general relativity as described by Einstein. This suggests that even in extreme temperatures, gravity remains true to itself. Nevertheless gravity should prevent these temperatures to express in the centre of the black hole through a dynamism since its fermions are stuck to the extreme. The dynamism conveyed by the heat should however begin to be felt as soon as we depart from the centre. It will begin with a greater probability of possible positions, which will cause the fields to adhere to larger and larger isosurfaces as we moves away from the centre. But it is only on the surface of the volumes that the matter will finally agitate due to the temperatures.

DISCUSSION

Usually, matter is coupled into geometric shapes (molecules) consisting mainly of quantum vacuum (99%). The electromagnetic degeneration pressure, which is due to the Pauli's exclusion principle, prevents elements from passing

through, allowing matter to withstand pressure and gravity in a white dwarf. In a neutron star, electromagnetism no longer holds, but Pauli's exclusion principle does. Through the degenerative pressure of the strong force, it still resists gravity and pressure. However the gravity of a black hole prevails against the strong force which is an energetic phenomenon but not against the Pauli's exclusion principle which remains what it is: an impossible quantum reality! Therefore it is the pressure of degeneration that varies but not the Pauli's exclusion principle since this one is part of the unavoidable laws of physics. The pressure of degeneration is only a phenomenon (consequence) resulting from the Pauli's exclusion principle (cause) but governed by different forces. Gravity can prevent phenomena from expressing themselves such as quark confinement, but it cannot change the laws of physics. So, it cannot prevent the Pauli's exclusion principle from manifesting. Thus black holes cannot create a reality that can't exist. Quantum mechanics only allows possible realities, not the unwanted ones (wave interferences). So the Pauli's exclusion principle does not allow a total collapse of identical matter with similar attributes.

CONCLUSION

In a black hole, matter is in a state of extreme compactness, that is to say that there is no more room for the quantum vacuum since gravity crushes everything. They are just particles arranged on top of each other with their isosurfaces (indeterminism) and whose movements are reduced as we get closer to the centre. A centre that must support all the information (mainly gamma ray) that keeps turning in loop towards its fermions and heating them terribly but the material particles are unable to express their dynamism because of gravity. It is therefore a centre that bears enormous pressure that gravity traps. Nevertheless the mass leaks by evaporation according to Stephen Hawkins. The mass escaping without releasing the information (heat), gravity decreases... but not the pressure! There will come a time when it will eventually overcome gravity... in time immemorial! At that time, the pressure will prevail over gravity and the phenomenon will reverse: matter and information will be spit out of the black hole. This will give rise to a white hole: the matter emerges from a concentrated space to spread violently in the environment. It should be noted that the bosons of a black hole (which constitute its information) are energetic enough to create matter but without quantum vacuum, there is no creative interaction. However, when the black hole turns into a white hole, the quantum vacuum finally appears, allowing these creative interactions. Thus many matters are ejected while others are still constituted with in the white hole. This must give an impressive phenomenon but beyond our reach since these events will be among the last of the cosmos.

Conflict of Interest: This theory is related to a book: "The origin of matter". This translated book is part of a French catalogue named "Les Enseignements de l'Ange" (www.pascalwery.com). This collection got a lot of theories including the start of life in the second tome (Les origines de la vie). So, there is conflict of interest: being right makes sales while being wrong makes idiots! This can lead to human blunders. This is why we must exercise caution: because conflict is unavoidable, information can only be validated if it is confirmed by peers.

The Debate

Science is strange: we make extraordinary discoveries but since we do not understand them, we often miss out on little wonders. Here is an example:

Gravitational singularity + Pauli's exclusion principle = quantum fields of fermions. In other words; different volumes made of identical matters with a unique centre!

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