



GLOBAL JOURNAL OF SCIENCE FRONTIER RESEARCH: A
PHYSICS AND SPACE SCIENCE

Volume 23 Issue 6 Version 1.0 Year 2023

Type: Double Blind Peer Reviewed International Research Journal

Publisher: Global Journals

Online ISSN: 2249-4626 & Print ISSN: 0975-5896

Holographic Phenomenon of the Fifth Cosmic Force

By Yang I. Pachankis

Abstract- The letter reviews existing literature on fundamental particle processes in fusion, fission, and annihilation to reconstruct the causal inference from phenomenological evidence of the fifth cosmic force. The review is interlaced with the evidence obtained on the fifth cosmic force between the non-rigid bodies of black holes and white holes. The causal inference and evidence assessment use the Conformal Cyclic Cosmology as a framework, which is considered to be the most promising cosmological theory currently to incorporate the fifth cosmic force.

Keywords: annihilation; exotic fission; exotic fusion; grand unified theory; nuclear magnetic resonance; *t*-violation.

GJSFR-A Classification: FOR: 0201



Strictly as per the compliance and regulations of:



© 2023. Yang I. Pachankis. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

Holographic Phenomenon of the Fifth Cosmic Force

Yang I. Pachankis

Abstract- The letter reviews existing literature on fundamental particle processes in fusion, fission, and annihilation to reconstruct the causal inference from phenomenological evidence of the fifth cosmic force. The review is interlaced with the evidence obtained on the fifth cosmic force between the non-rigid bodies of black holes and white holes. The causal inference and evidence assessment use the Conformal Cyclic Cosmology as a framework, which is considered to be the most promising cosmological theory currently to incorporate the fifth cosmic force.

Keywords: annihilation; exotic fission; exotic fusion; grand unified theory; nuclear magnetic resonance; *t*-violation.

I. INTRODUCTION

Grand Unified Theory (GUT) looks to bridge the electromagnetic (EM) force with the weak force and strong force, so that the phenomenon of gravity can be properly explained. In theory, a GUT can deepen the causal explanations of quantum jump and quantum entanglement methodologically, and therein intersects particle physics and cosmology.

Black and white holes are often contextually understood as rigid bodies, but cosmological thermodynamics could have implied otherwise (Glazebrook, 1935; Penrose, 2006). The research with data analysis by nucleon recombination obtained evidence on the non-rigid body nature of the black hole and white hole asymptotic momentum (Pachankis, 2022a).

Inferentially from the non-imaging false-positive result from the experiment with the fifth cosmic force (Pachankis, 2022d), the missions behind the holographic raw data could have used thermonuclear-safe EM LASERs to induce the basic data collection and destructively interfered with the non-rigid body imaging with electrode data collection from cryogenic plates (Bardeen et al., 1973).

Albeit evidence on the fifth cosmic force is non-definitive, the holographic data have definitively and conclusively recorded the phenomenon ample for causal inference. The first question arises: does the fifth cosmic force separate electrons from positrons, shaping the fundamental asymmetry in the EM force? If strong force is exchanged between quarks, how it differs in protons and neutrons in relation to gluons and

positrons? This led to the review and analysis of electron and positron conversion in pair production and pair conversion in cold fusion and hot fission behind the phenomenon of black hole and white hole thermonuclear binding (Pachankis, 2022c).

II. REVIEW

a) *Electron-Positron Annihilation in Fusion And Fission*

Glazebrook (1935) proposed measuring heat as energy for non-rigid EM quantities. The quantity of electrostatic EM force $\frac{mm}{r^2}$ was found to have a linear correlation $h\nu = 2mc^2$ with γ -quantum conversion (Wang, 1948), implying the Coulomb force is non-fundamental and hidden in the form of thermodynamics. The homogenous phenomenon was theorized in β -decay with the universal constant equivalent to gravitation, with implications in chiral anomaly during electron-positron annihilation by bombarding the former with protons (Bloch & Møller, 1935). The violation of time reversal invariance (T-violation) is implied in Standard Model (SM)-forbidden neutrinoless double β -decay (Dolinski et al., 2019; Vaccaro, 2011) with the detailed mechanisms of D-T fusion. If T-violation needs to be present with parity (P) violation for an elementary particle to possess electric dipole moment (EDM) (Commins), there must be a causal correlation between EM force and gravity by antimatter, except for positrons.

Modern neutron EDM experiments' use of ultra-cold neutrons in spin-dependent charge (C) violation inside EM field demonstrated plausible chirality between matter and antimatter (Dolinski et al., 2019). The chirality may be not only particulate but also cosmic, whereby the critical behavior of the 1d annihilation fission process was observed to differ by particle concentration in the directed percolation class (Odor, 2000). Conformal Cyclic Cosmology (CCC) inherited the cosmic geometry of the Big Bang (BB) theory, adding the chirality to the achiral presumptions of the BB (Gurzadyan & Penrose, 2016; Penrose, 2006, 2018), but just as the toroidalvortices experiment design in strong force pinch effect demonstrated, for the EM force to diffuse in space and function causally relevant in time, the strong force will have to connect both the past and future directions (Bostick et al., 1972), underlying the closed time curve in CCC. Strong force becomes the chiral basis of the EM force in CCC, and an achiral dimension is presumed in

Author: S for Science, Current Address: 1001 Biqing N Rd, Chongqing, 402762, PRC e-mail: ypach@yangpachankis.us

the CCC to close the time curve between the past and the future. Weak force's intervention in the strong and EM forces causes gravity in the CCC model, with an unanswered question on the chirality of time between matter and its essential concept in the GUT.

b) *Spin in the Fifth Cosmic Force*

The chirality of matter and antimatter is best characterized by Rindler spacetime to the spin-

mediated CCC model (Dabholkar, 2022). Figure 1 illustrates the infinitely extended chirality question in the CCC GUT with the geometric symmetry from the BB. However, the concentrated model of a GUT is beneficial for the focused discussions and inference on the fifth cosmic force concerning the cohesive heat flows by the second law of thermodynamics (Penrose, 2006).

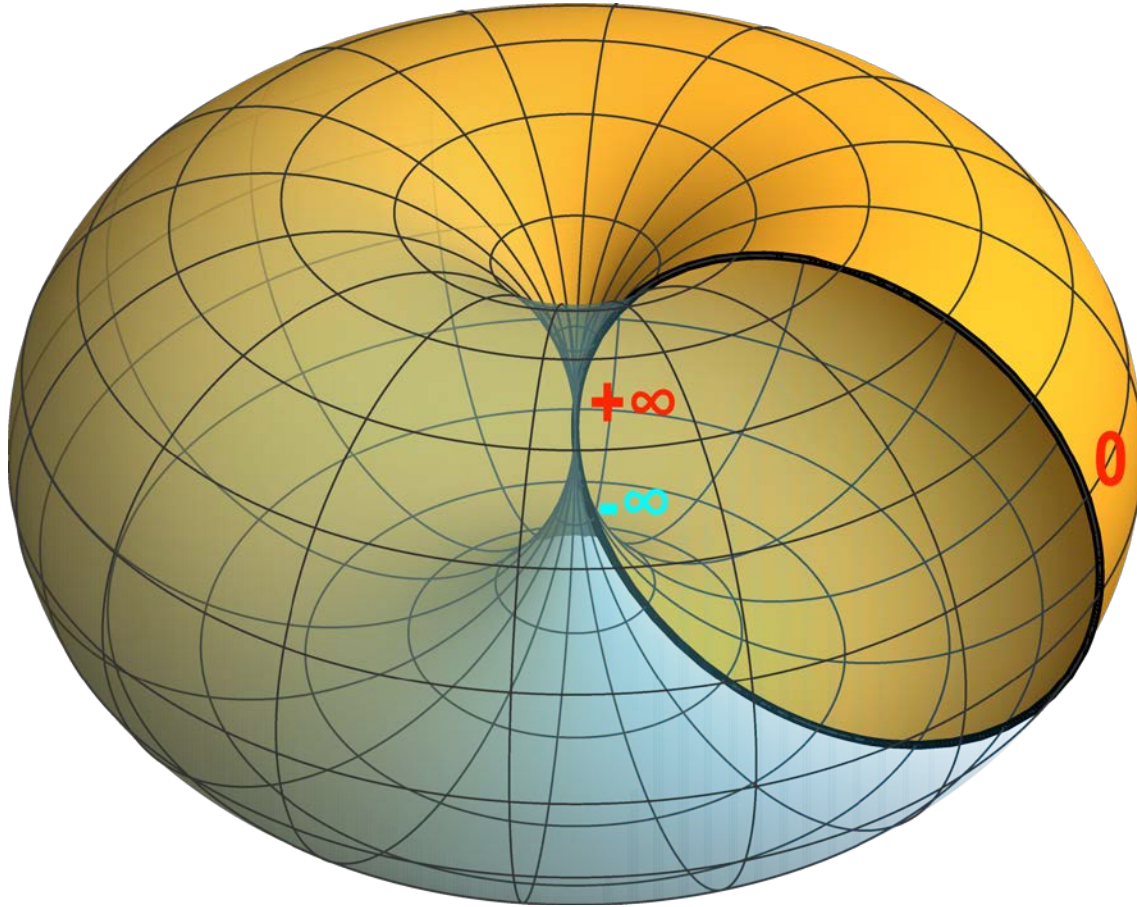


Figure 1: The geometric illustration of the CCC in Rindler spacetime

The spin-dependent chirality between $+\infty$ and $-\infty$ can be simplified to Hamiltonian 0 (Pachankis, 2022b), effectively explaining T-violation in the cosmological context in post-BB discussions (Vaccaro, 2011). It was experimentally observed that the spin torque effect facilitates nucleation in annihilation by vortices density with the EM force (Kläui et al., 2006). PT violation is then inferably regulated by bremsstrahlung in the Higgs mechanism, where temperature dependence has been observed in various settings (Hsu et al., 2000; Pasechnik et al., 2015; Wilson, 2014). Between the spin factor and chirality, the energy source can only come from the fifth cosmic force. The inferences are conformable with the evidence obtained on the antimatter-saturated plasmas on the Kerr-Newman

black hole and white hole surfaces seen in Figure 2 (Pachankis, 2022b).

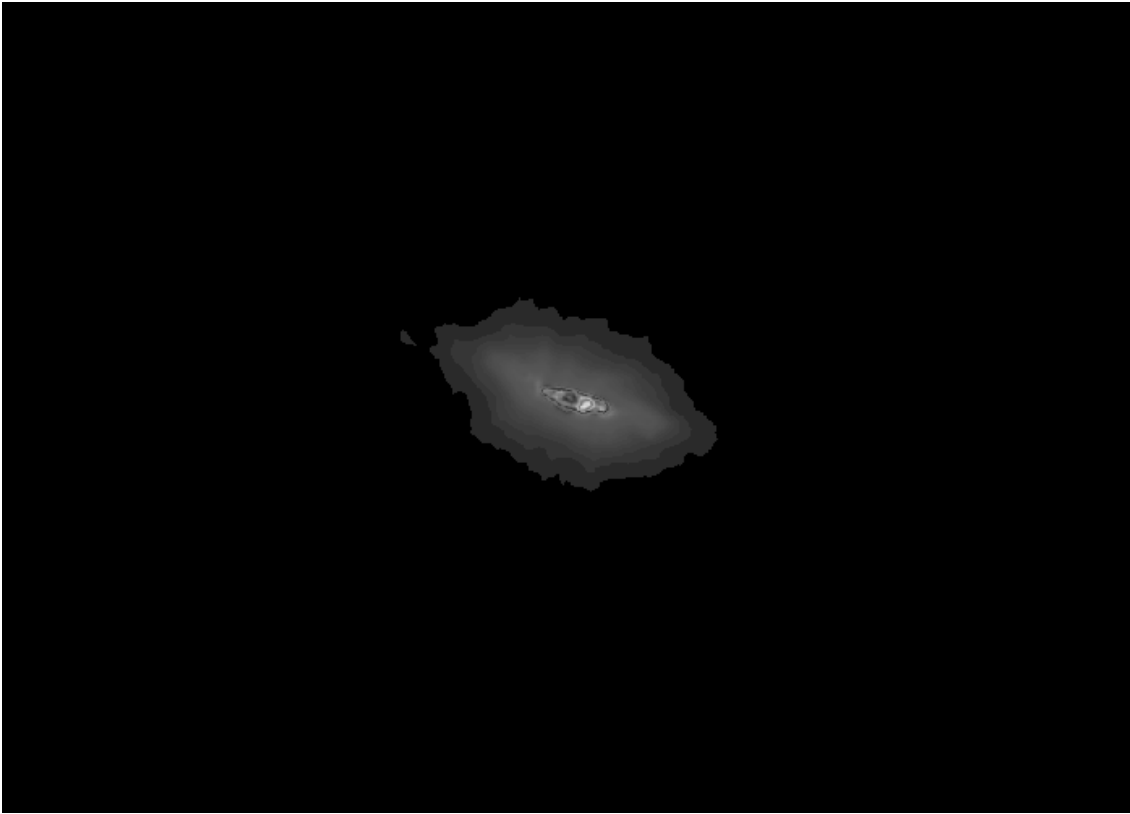


Figure 2: The monochrome multispectral recombination on the black hole and white hole on NGC 3034

Light seeds, namely the white hole seed seen in Figure 3, were predicted, but their cosmological relevance and implications with the CCC were not discovered (Ricarte & Natarajan, 2018). The CCC model concerning the $+\infty$ and $-\infty$ points effectively described the inverse correlations of the fifth cosmic force regarding the cosmic spins in String Theory, and aeons described the exotic metal-insulator formation from the collision momentum (Pachankis, 2022e). Therefore, the CCC is more astrophysical than cosmological, discarding its inheritance from the BB. However, it can also be transformed into observational cosmology with the astrophysical question on the formation of cosmic fields and resonance propagation, which puts the theoretical question on pair production in the cosmic context.



Figure 3: The black hole seed and white hole seed on NGC 3034.

Rainbowed flavor surrounding the Kerr-Newman Supermassive Compact Object (KNSCO) on NGC 3034 is observed on space-based and ground-based telescopes (Pachankis, 2021, 2022b). T + D muon-induced (catalyzed) fusion is effective in the description of the cold fusion process in the mix intersected by the fifth cosmic force (Holmlid, 2022). PT violation on the black hole front is effectively explained by bremsstrahlung between the muon and the electron in the electroweak interaction (Holmlid, 2022). With the differences in diffractive excitation between the space-based and ground-based observation data (Pachankis, 2021, 2022b), it is inferred that the strong force is elastic (Pasechnik et al., 2015; Penrose, 1965), and inelastic diffraction can only be induced by the fifth cosmic force with the boson, hadron, and fermion sets.

Quantum entanglement and Bell's inequality become the phenomenon of the fission interaction in the fifth cosmic force (Ruzbehani, 2021). T-violation is deterministic in the context of vortex annihilation and P violation (Bloch & Møller, 1935; Bostick et al., 1972; Hossenfelder & Palmer, 2020; Odor, 2000). Hot fission and cold fusion are both temperature-dependent by the involvement of positrons in the process (Hsu et al., 2000; Pachankis, 2022b), and nuclear magnetic resonance not only serves as the exterior current for nucleation (Kläui et al., 2006), but also serves for the cooling effect on the KNSCO (Wilson, 2014). Therefore, if the false-positive result seen in Figure 4 was not

contributed by EM LASER, it could have been caused by T-violation in the momentum (Pachankis, 2022d).

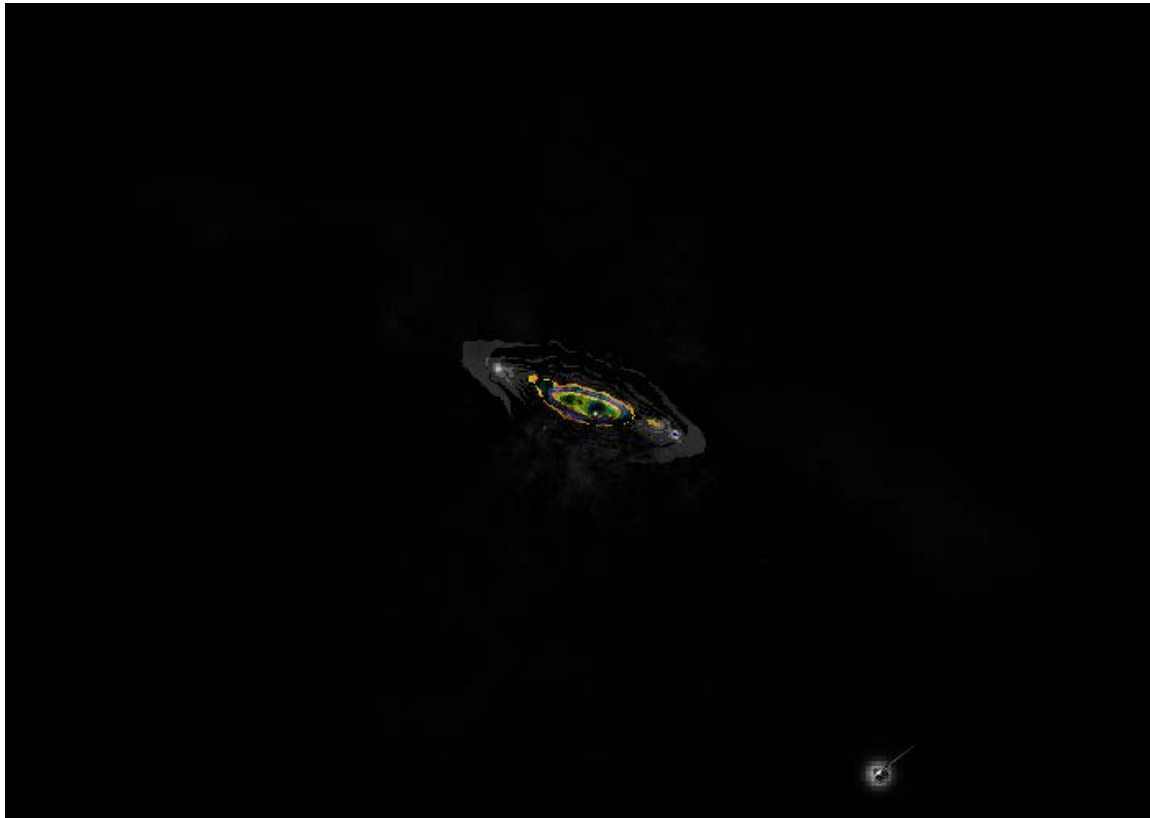


Figure 4: Multispectral material field recombination on the KNSCO on NGC 3034 with the outline of the fifth cosmic force

III. CONCLUSIONS

The holographic phenomenon of the fifth cosmic force falsifies all existing mainstream cosmological theories. T-violation concerning the second law of thermodynamics is key to the physical cause of falsification, and there is uncertainty if the law still holds in the fifth cosmic force. If not, the CCC can be the tested existing cosmological theory for further empirical validation and refinement.

Recently, Fermat's Library (2023) tweeted a logically and mathematically flawed equation seen in Figure 5. Proof that follows is a perfect demonstration of the mathematical basis of the falsification of the BB and CCC.

$$1 = \lim_{n \rightarrow 0} \sqrt{n + \sqrt{n + \sqrt{n + \dots}}}$$

Figure 5: The inequality is listed as equality in the tweet

Almost all proofs follow the logic that:

$$\lim_{n \rightarrow 0} \sqrt{n + \sqrt{n + \sqrt{n + \dots}}}$$

$$\text{Let } m = \sqrt{n + \sqrt{n + \sqrt{n + \dots}}}$$

$$\Rightarrow m^2 = n + \sqrt{n + \sqrt{n + \sqrt{n + \dots}}}$$

Note that there is no proof that m^2 is a positive number, and the presumption followed, even with L'Hôpital's Rule, all added to the predisposition that the sequence is convergent. My revised proof follows:

$$\Rightarrow m^2 = |m + n|$$

$$\Rightarrow m^4 = (m + n)^2$$

$$\Rightarrow m^4 - m^2 - 2mn = n^2$$

$$\left\{ \begin{array}{l} m \neq 0 \Rightarrow \left(\frac{n}{m} + 1\right)^2 = m^2 \Rightarrow \lim_{n \rightarrow 0} m = \pm 1 \\ m = 0 \Rightarrow \left\{ \begin{array}{l} n = 0 \Rightarrow \text{contradicts with the definition } n \rightarrow 0 \\ \text{the limit diverges} \Rightarrow \text{null result} \end{array} \right. \end{array} \right.$$

Therefore, in a closed logic form, the inequality can only be expressed as:

$$1 \Leftrightarrow \lim_{n \rightarrow 0} \sqrt{n + \sqrt{n + \sqrt{n + \dots}}} \Leftrightarrow -1$$

which can be the mathematical conceptual limit on the negative and positive cosmological constant; or else, the limit itself is the limit of the current dimensional construct. "Before" or infinitely many big bangs are mathematically no different from a singular big bang. As expressed from the derivation of the original form:

$$\lim_{n \rightarrow 0} \sqrt{n + \sqrt{n + \sqrt{n + \dots}}} =$$

$$\lim_{n \rightarrow 0} \sqrt{n} \sqrt{\pm n^{1-2^0} + \sqrt{\pm n^{1-2^1} + \sqrt{\pm n^{1-2^2} + \sqrt{\pm n^{1-2^3} + \sqrt{\pm n^{1-2^4} + \dots}}}}$$

T-violation does not necessarily imply the unidirectionality of time but only the foundation of Bell's inequality. The physical equivalence of the concept of time is challenged by the fifth cosmic force and the hot fission process. There is a possibility that the organic and inorganic chemistry divide can be bridged by further knowledge in the fifth cosmic force or vice versa.

The fifth cosmic force is materialized by the exotic metalinsulator, possibly with the same connotation asaeons. Its materialization is closely associated with P violation and isospin, linking to the strong force. Fundamental (a) symmetry in the BB framework is astrophysically caused by the fifth cosmic force and may be related to the differentiation component of protons and neutrons.

Pair production in the known universe originates from the fifth cosmic force, and there is an uncertainty in the possible fundamental particle therein. The possibility is rendered by the non-quadruple structure with the fifth cosmic force and the KNSCO. Measurement bias in fermionic quantum jumps cannot be fully excluded without antimatter materials for instrumentation upgrades.

ACKNOWLEDGMENTS

Yang I. Pachankis thanks NASA and the University of Arizona in their public outreach efforts that made the experiments possible. Yang deeply appreciates professor Chris D. Impey and his colleagues during the whole process. It is with the Global Journals Organisation the research is made available to the public, and Yang I. Pachankis thanks them for the publication support. Last but not least,

Yang thanks the Fermat Library and the new math pal Steve Konrad met under the tweet. The discussions substantially helped the formation of the mathematics simplifying the argument.

FUNDING

There are no sources of funding to declare.

CONFLICT OF INTEREST

The author receives royalties from Eliva Press by the book *The Lenses of Quantum Physics on Earth to the Cosmos: From the Humanities to the Apocalyptic Inevitability* cited.

DATA AVAILABILITY

The raw data analyzed in the research was obtained from the publicly available NASA Data Challenge archive with the URL: https://waps.cfa.harvard.edu/eduportal/js9/softwareChallenge_Archive.php.

The processed data and observational experiment data are publicly available on Open Science Framework with the DOI: 10.17605/OSF.IO/WT5Z2.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Bardeen, J. M., Carter, B., & Hawking, S. W. (1973). The four laws of black hole mechanics. *Communications in Mathematical Physics*, 31(2), 161-170. <https://doi.org/10.1007/BF01645742>
2. Bloch, F., & Møller, C. (1935). Production of Neutrons by Annihilation of Protons and Electrons According to Fermi's Theory. *Nature*, 136(3451), 987-987. <https://doi.org/10.1038/136987a0>
3. Bostick, W. H., Nardi, V., & Prior, W. J. (1972). *Study of Vortex Annihilation and Neutron Production*.
4. Commins, E. D. *CP Violation in Atomic and Nuclear Physics* <https://www.slac.stanford.edu/gen/meeting/ssi/1999/media/commins.pdf>
5. Dabholkar, A. (2022). Quantum Entanglement in String Theory. In I. C. f. T. Physics (Ed.), *arXiv: arXiv*.
6. Dolinski, M. J., Poon, A. W. P., & Rodejohann, W. (2019). Neutrinoless Double-Beta Decay: Status and Prospects. *Annual Review of Nuclear and Particle Science*, 69(1), 219-251. <https://doi.org/10.1146/annurev-nucl-101918-023407>
7. Glazebrook, R. T. (1935). Meaning of Certain Constants in Use in Physics. *Nature*, 136(3451), 986-987. <https://doi.org/10.1038/136986b0>
8. Gurzadyan, V. G., & Penrose, R. (2016). CCC and the Fermi paradox. *The European Physical Journal Plus*, 131(1). <https://doi.org/10.1140/epjp/i2016-16011-1>
9. Holmlid, L. (2022). Muon-catalyzed fusion and annihilation energy generation will supersede non-sustainable T + D nuclear fusion. *Energy*,

- Sustainability and Society*, 12(1). <https://doi.org/10.1186/s13705-022-00338-4>
10. Hossenfelder, S., & Palmer, T. (2020). Rethinking Superdeterminism. *Frontiers in Physics*, 8. <https://doi.org/10.3389/fphy.2020.00139>
 11. Hsu, F. H., Choi, Y. J., & Hadley, J. H. (2000). Temperature dependence of positron annihilation lifetime spectra for polyethylene: positron irradiation effects. *Radiation Physics and Chemistry*, 58(5-6), 473-477. [https://doi.org/10.1016/s0969-806x\(00\)00202-4](https://doi.org/10.1016/s0969-806x(00)00202-4)
 12. Kläui, M., Laufenberg, M., Heyne, L., Backes, D., Rüdiger, U., Vaz, C. A. F., Bland, J. A. C., Heyderman, L. J., Cherifi, S., Locatelli, A., Mentis, T. O., & Aballe, L. (2006). Current-induced vortex nucleation and annihilation in vortex domain walls. *Applied Physics Letters*, 88(23). <https://doi.org/10.1063/1.2209177>
 13. Library, F. s. [@fermatlibrary]. (2023, July 05). *The Square Root of Zero* Twitter. <https://twitter.com/fermatlibrary/status/1676578178297364481>
 14. Odor, G. (2000). Critical behavior of the one-dimensional annihilation-fission process $2A \rightarrow O$, $2A \rightarrow 3A$. *Phys Rev E Stat Phys Plasmas Fluids Relat Interdiscip Topics*, 62(3 Pt A), R3027-3030. <https://doi.org/10.1103/physreve.62.r3027>
 15. Pachankis, Y. I. (2021). Research on the Kerr-Newman Black Hole in M82 Confirms Black Hole and White Hole Thermonuclear Binding. *Academia Letters*, Article 3199. <https://doi.org/10.20935/al3199>
 16. Pachankis, Y. I. (2022a). Data-Driven Insights to Cosmology in the Dark Universe. *Journal of Plasma Chemistry and Plasma Processing Research*, 3(1), 43-50. <https://doi.org/10.33140/jpcppr.03.01.05>
 17. Pachankis, Y. I. (2022b). *The Lenses of Quantum Physics on Earth to the Cosmos: From the Humanities to the Apocalyptic Inevitability*. Eliva Press.
 18. Pachankis, Y. I. (2022c). A Multi-wavelength Data Analysis with Multi-mission Space Telescopes. *International Journal of Innovative Science and Research Technology*, 7(1), 701--708. <https://doi.org/10.5281/zenodo.6044904>
 19. Pachankis, Y. I. (2022d). Physical Signals and Their Thermonuclear Astrochemical Potentials — A Review on Outer Space Technologies*. *International Journal of Innovative Science and Research Technology*, 7(5), 669--674. <https://doi.org/10.5281/zenodo.6618334>
 20. Pachankis, Y. I. (2022e). White Hole Observation: An Experimental Result. *International Journal of Innovative Science and Research Technology*, 7(2), 779--790. <https://doi.org/10.5281/zenodo.6360849>
 21. Pasechnik, R., Kopeliovich, B., & Potashnikova, I. (2015). Diffractive Bremsstrahlung in Hadronic Collisions. *Advances in High Energy Physics*, 2015, 1-20. <https://doi.org/10.1155/2015/701467>
 22. Penrose, R. (1965). Gravitational Collapse and Space-Time Singularities. *Physical Review Letters*, 14(3), 57-59. <https://doi.org/10.1103/PhysRevLett.14.57>
 23. Penrose, R. (2006). Before the Big Bang: An Outrageous New Perspective and Its Implications for Particle Physics. European Particle Accelerator Conference, Edinburgh, Scotland.
 24. Penrose, R. (2018). The Big Bang and its Dark-Matter Content: Whence, Whither, and Wherefore. *Foundations of Physics*, 48(10), 1177-1190. <https://doi.org/10.1007/s10701-018-0162-3>
 25. Ricarte, A., & Natarajan, P. (2018). The observational signatures of supermassive black hole seeds. *Monthly Notices of the Royal Astronomical Society*, 481(3), 3278-3292. <https://doi.org/10.1093/mnras/sty2448>
 26. Ruzbehani, M. (2021). Simulation of the Bell inequality violation based on quantum steering concept. *Scientific Reports*, 11(1). <https://doi.org/10.1038/s41598-021-84438-9>
 27. Vaccaro, J. A. (2011). T Violation and the Unidirectionality of Time. *Foundations of Physics*, 41(10), 1569-1596. <https://doi.org/10.1007/s10701-011-9568-x>
 28. Wang, M. H. (1948). Internal Pair Conversion. *Nature*, 162(4111), 264-264. <https://doi.org/10.1038/162264b0>
 29. Wilson, R. M. (2014). Nuclear magnetic resonance takes a reaction's temperature. *Physics Today*, 67(1), 12-14. <https://doi.org/10.1063/pt.3.2231>