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A CONCEPTION REGARDING SUPERMASSIVE BLACK HOLES AND ELEMENTARY PARTICLES.

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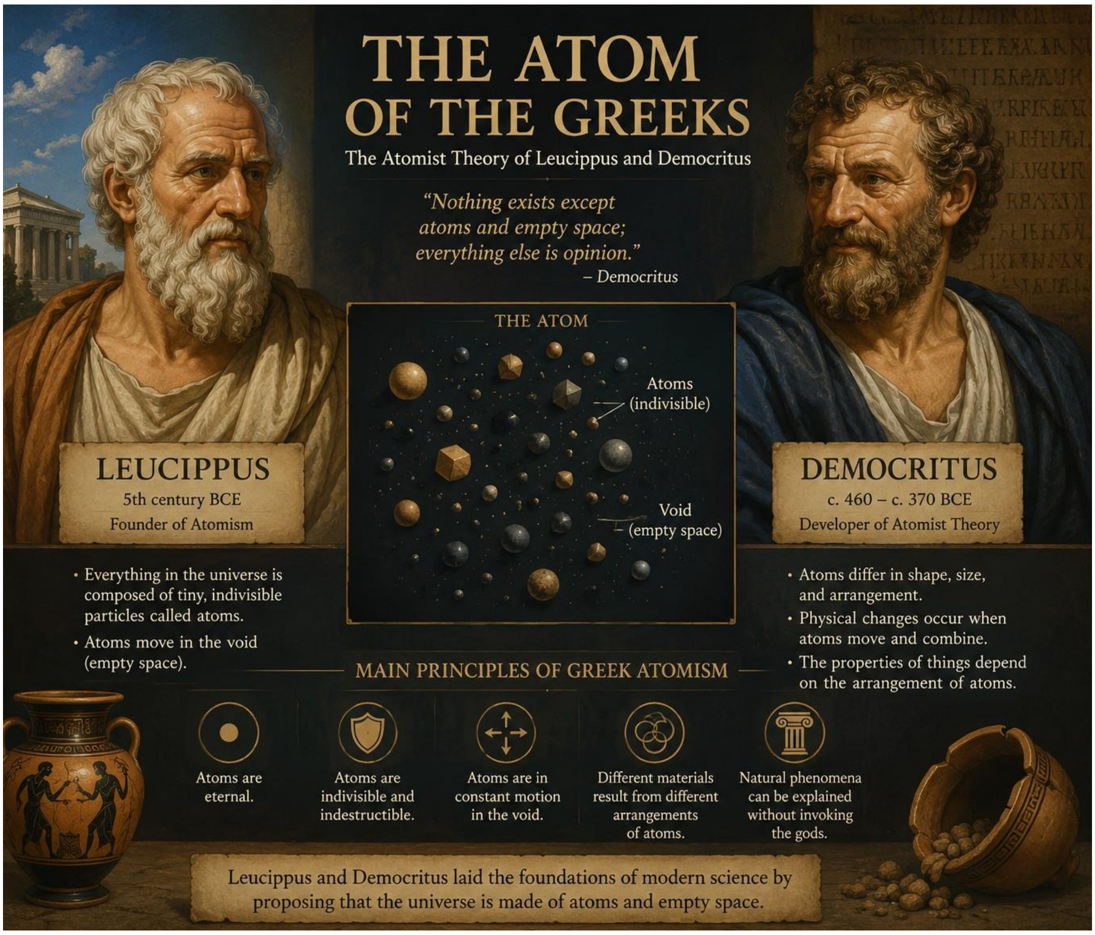
SUMMARY

This article addresses the theory. of the Black Holes: How could they be understood from the perspectives of Conceptual Physics and Astrophysics, emphasizing, according to what is...has proven the Black Hole Theory and the Big Bang. Remembering the Theory...The Structure of Scientific Revolutions by Thomas Kuhn, as well as the Teaching Theories of Piaget and Vygotsky for Early Childhood, Youth and Adult Education, as well as Stephen Hawking's approach in his doctoral thesis on the Big Bang and how Albert Einstein wrote his books on the Theory of General Relativity in 1916 and 1920 and an approach such as these theories would be verified and validated in the scientific and academic world. The concepts addressed are the interior of massive and supermassive black holes and elementary particles, as an example of raising concepts such as atomic radius, the size of the atom, the electron cloud of the atom from the Schrödinger equation, and the mass collapse threshold of a black hole, such as Hawking radiation. In addition to the idea of an approach to basic physics for young people. and Universities of the Atom of Leucipius and Democrit and PhilosophyNatural of Aristotle.

INTRODUTION

Currentunderstandingsofblackholesrequirethoroughanalysis.InunderstandingConceptual Physics.For an analysis of conceptual physics, as Piaget stated, it is understood that physics is biologically immature at the adult stage of a student of exact sciences and physics. In secondary physics education, at a young age, textbooks address topics of conceptual physics such as...Pre-Socraticsand Aristotle's Natural Philosophy in the Introduction to Physics and even in University Teaching as defined below the Pre-Socratic Philosophy:

LeucippusandDemocritus:AtomistTheory(Summary)[8]



Leucippus

Leucippus (5th century BCE) is considered the founder of **Atomism**, one of the earliest theories about the nature of matter. He proposed that everything in the universe is composed of tiny,indivisible particles called **atoms** moving through empty space, known as the **void**.difference between vigostky and piaget

Democritus

Democritus(c.460–370BCE),astudentofLeucippus,expandedanddevelopedatomisttheory.

According to Democritus:

- Allmatterismadeofatoms andemptyspace.
- Atomsareeternal,indivisible,andindestructible.
- Atomsdifferinshape,size,andarrangement.
- Physicalchangesoccurbecauseatomsmoveandrearrangethemselves.
- Thepropertiesofsubstancesarisefromthearrangementofatoms.

MainPrinciplesofAncientAtomism

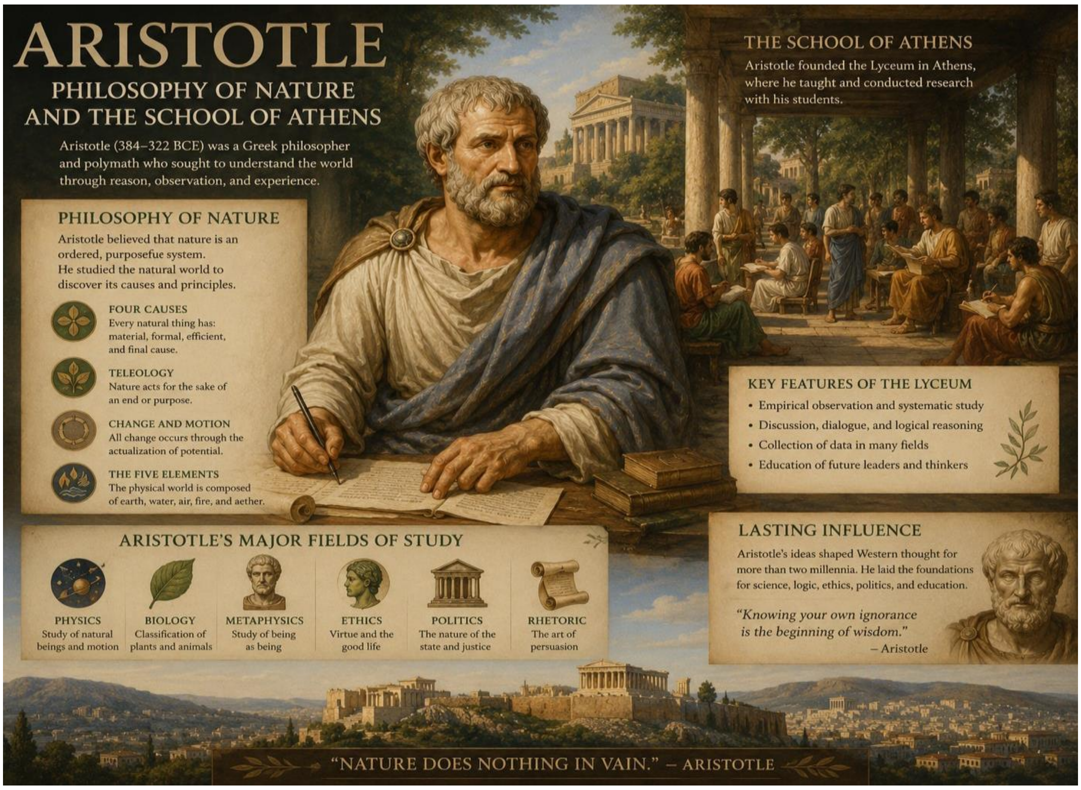
1. Matterconsistsofatoms and void.
2. Atomscannotbedividedordestroyed.
3. Atomsareconstantlymoving.
4. Differentmaterialsresultfromdifferentatomicarrangements.
5. NaturalVygotsky, L. S., & Luria,A. (1994). Tool and Symbol in Child Development. In R. Van Der Veer, & J. Valsiner (Eds.), The Vygotsky Reader. Oxford: Blackwell Publishers. phenomena can be explained without supernatural causes.

HistoricalImportance

Although ancient atomism lacked experimental evidence, it introduced the idea that matter is composed of fundamental particles. More than two thousand years later, modern atomic theory developed by scientists such as John Dalton confirmed that matter is indeed made of atoms, although modern atoms are not indivisible as Leucippus and Democritus believed.

Conclusion

Leucippus andDemocritusproposedthattheuniverseis madeoftinyparticles calledatoms moving through empty space. Their atomist philosophy became one of the foundations of modern physics and chemistry.



The principle of Conceptual Physics with Aristotle, to advance the teaching of Piaget and Vygotsky.comparison of the cognitive development theories of Jean Piaget and Lev Vygotsky. The research highlights their fundamental differences in how children learn, the role of language, andthe influence of social context.

Key differences include:

- **Individualvs.Social:**Piagetfocusedontheindividualchild'sindependentexploration, while Vygotsky emphasized social interaction and cultural tools.
- **Development vs.Learning:**Piagetbelieved developmentmustprecede learning (readiness), whereas Vygotsky argued that learning pulls development forward.
- **Language:**Piaget saw language as a byproduct of thought, while Vygotsky viewed it as aprimary tool that shapes thought.

The Role of Signs and Symbols [10]

- **PsychologicalTools:**Vygotskycomparedphysicaltools(whichmasternature)topsychological tools/symbols (which master internal human behavior).
- **Mediation:**Humansdonotjustreacttoenvironmentalstimuli.Weusesymbolsto**mediate**and interpret our actions.
- **Cultural Transmission:**Symbols are created by society and passed down through generations toshape how we see reality.

LanguageasthePrimarySymbolicTool

- **SocialtoInternal:**Languagebeginsasasocialtoolforcommunication.Itlaterinternalizesto become the primary vehicle for individual thought.
- **EgocentricSpeech:**Children talk outloud to themselveswhileplaying.Thisis notrandom;itis the child using**symbolic language to regulate their own behavior**and solve problems.
- **InnerSpeech:**Eventually,thisloudtalkingmorphsintosilent,internalthought,structuringcomplex mental processes.

SymbolisminPlay

- **Object Substitution:**During play, a child uses a stick to represent a horse. The stick becomes a**symbol**.
- **Meaning Over Action:**This symbolic substitution allows the child to separate the real-

world meaning of an object from its physical properties, which is a massive step forward in abstract thinking.

Jean Piaget views the child as a"natural scientist" who constructs knowledge through spontaneous, biological interactions with the environment. Rather than seeing development as something dictated by society, Piaget argued that cognitive growth follows a natural, universal sequence driven by internal biological mechanisms[9].
Hereishowthe"natural"aspectoperatesinPiaget'sgeneticepistemology:

NaturalCognitiveMechanisms

- **Biological Adaptation:**Piaget viewed intellectual growth as an extension of biological adaptation. Just as the body physically adapts to its environment, the mind adapts through two natural processes:**assimilation**(fitting new information into existing mental frameworks) and**accommodation**(changing mental frameworks to fit new experiences).
- **Equilibration:**This is the natural self-regulating drive to achieve mental balance. When a child encounters something confusing, they experience cognitive conflict (disequilibrium) and naturally alter their thinking to restore balance.
- **Spontaneous Learning:**Children do not need to be forced to learn; they possess a natural curiosity to explore, manipulate objects, and discover physical laws on their own.

The Child's View of Nature (AnimismandArtificialism)

Piaget also heavily researched how children naturally conceptualize the physical world and nature during the preoperational stage (ages 2–7):

- **Animism:**The natural tendency of young children to believe that inanimate objects are alive and have feelings (eg, "The sun is angry because it is raining").
- **Artificialism:**The belief that all natural phenomena (like mountains, rivers, or clouds) were intentionally made by humans or a human-like creator (eg, "People built the mountains with giant shovels").
- **Realism:**The psychological tendency where mental experiences (like dreams or thoughts) are treated as physical, natural entities existing in the real world.

Piagetvs.Vygotsky:TheRoleofthe"Natural"

Theconceptofwhatis"natural"highlightsthecoredifferencebetweenPiagetandVygotsky:

Feature	JeanPiaget	LevVygotsky
Developmental Focus	**Natural, biological readiness**precedeslearning.	Social learning and cultureprecedes development.
TheChild'sRole	THE**lonely, natural scientist**exploringthephysicalworld.	Asocial partner interacting with mentorsandtools.
Language	Egocentricspeechisanaturalside-effectofegocentricthought.	Language is a cultural tool that transformsnaturalthinking.

Theneedforunderstandingishighlighted.**TheConceptualPhysicsofHighGravity of Black Holes in the Conceptions of Children, Young People, and Adults in Physics and Astrophysics Education**. Understanding the Singularity of Massive and Supermassive Black Holes, as well as the Singularity ofThe Big Bang, studied and analyzed in Stephen Hawking's doctoral thesis[1], is known to need to be proven, and in the sense of being proven for the Big Bang Theory to be true, in addition to the Big Bang Theory, there are the mathematical proofs it needs to be accepted by the scientific community and in academic circles around the world, just as Stephen Hawking's calculations need to be accepted, Albert Einstein's calculations also need to be proven for the Theory of Relativity to be verified and accepted by the scientific community and in academic circles with verifiable and true validity. The calculations would be advanced, including in the theoretical physics of astrophysics, which would require computers.probably with dozens of processors, thinking like that just to reproduce the Cosmologyof the Big Bang and the Theory of Black Holes, whether it's the reproduction of theoretical calculations or the graphical reproduction of cosmology, in which much progress has been made since Albert Einstein became a refugee.Albert Einstein in Princepton and his friendship with Kurt Gödel. From 1933 andinto the mid-1940s and 1950s,Albert Einstein inPrincepton.The Cosmology of the Theory of General Relativity advanced and culminated in Stephen Hawking's thesis in 1966, the same scientist in Cambridge references the main Physicists and Mathematicians who advanced the Theory of

General Relativity in his thesis in [1] such as the Theory of Black Holes and the Theory of the Big Bang.The intention of this article is a brief discussion of the Conceptual Physics andAstrophysics approach to the analysis of the supergravity of a black hole trapping all the matter that this black hole absorbs, as well as an analysis of Hawking radiation and the constant loss of mass by the black hole.**Concepts for young people, children, and adults should start from the premise of the atomic radius, the size of the atom, and the electron cloud of the atom as defined in quantum mechanics.** Of those who teach have encountered these subjects in their University Graduation, for example,**defined using the Schrödinger equation in Quantum Mechanics** As well as an understanding of Quantum Field Theory forElementary particles are necessary for a better understanding and a betterAn approach to massive and supermassive black holes with their high gravity for the survey of astrophysicsconcepts ofblackholes.andtheElementaryParticles ofQuantumFieldTheory,aswell asHawking Radiation and Mass Loss by Black Holes. Stephen Hawking published some articles in the journal Nature; his doctoral thesis is available online at [1].

The needagefrom the survey ofAstrophysics Conceptions of Black Holes, as well as the Big BangTheory,It is a reference forTheoryAnalysis.ofPhysicsThe theory that exists today, as defined by Thomas Kuhn in The Structure of Scientific Revolutions[11]fundamentally altered our understanding of how science progresses. He famously argued that science does notmoves forward in a smooth, linear accumulation of knowledge, but rather through a series of radicaltransformations called **scientific revolutions**.

The Definition of a Paradigm

Kuhn defines a **paradigm** as the "entire constellation of beliefs, values, and techniques" shared by a scientific community. It acts as a lens through which scientists view the world, determining what questions are worth asking and what methods are valid for answering them. He distinguishes between two primary meanings:

- **Disciplinary Matrix:**The broad framework of theoretical assumptions and methods that guide a field.
- **Examples:**The concrete "puzzle-solutions" or classic experiments (like Newton's laws) that serve as models for how to do science.

TheKuhnCycle:HowScience Evolves

Kuhnproposedthatsciencemovesthroughacycleofdistinctphasesratherthanacontinuous upward path.

Phase	Description
Pre-Science	Aperiodofdisorganizedresearchwithnoconsensusonbasictheoriesor methods.
Normal Science	Scientists work within an established paradigm, focusing on "puzzle-solving" and refining existing theories.
Crisis	"Anomalies"(observationsthatdon'tfitthetheory)accumulateuntilthe paradigm's foundations are questioned.
Scientific Revolution	A"ParadigmShift"occurswheretheoldframeworkisoverthrownand replaced by a new, more effective one.
New Normal	Thenewparadigmbecomesthestandard,andthecyclebeginsagain.

Science

The Nature of Revolution and Incommensurability

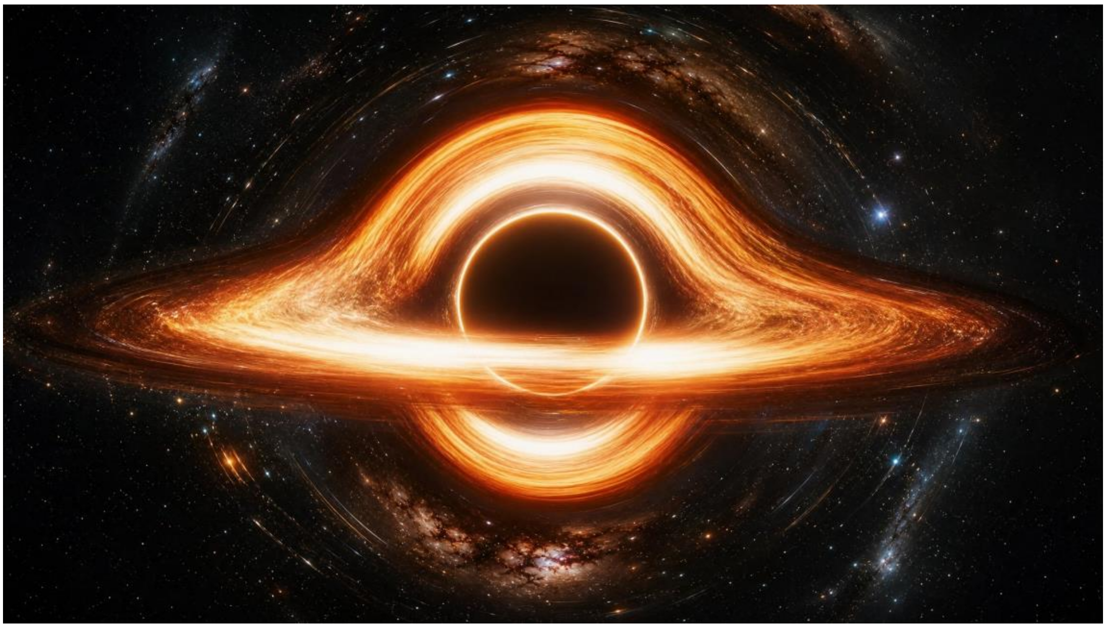
One of Kuhn's most controversial claims is **incommensurability**. He argued that different paradigms are so fundamentally different that they cannot be directly compared using a neutral standard. When a revolution happens, the scientific community doesn't just get more data; they adopt a completely new worldview. This shift is often as much social and psychological as it is logical, involving a "conversion" of the scientific community to a new way of seeing.

I have attached a detailed report that expands on these concepts, including historical examples like the Copernican and Einsteinian revolutions.

References to Astrophysics are placed at the end of the article. Most are from university physics textbooks; the article presents an introduction to the theories of Elementary Particles and Holes.Black people and how a survey of Astrophysics Conceptions in the world could be carried out.ConceptualPhysics,primarilyasitrelatestotothetheoriesofPiagetandVygotsky'steachingsfor understandingandabetterAnapproachtoadvancedtheoriesinAstrophysics.EmphasizingBasedon what we have currently proven about these theories. And remember that they need to be validated and proven in order to be accepted in the scientific community. and in the academic world.

TheoreticalFramework:

Stephen Hawking did **not directly prove** that the Big Bang singularity exists. Instead, he helped develop mathematical theorems showing that, under reasonable assumptions, the universe describedbyGeneralRelativitymusthavebegunfromastatewherespacetimebecomesincomplete—whatphysicistscalla **singularity[1]**.



Thekeyidea

BeforeHawking'swork,manyphysiciststhoughtthesingularitiesfoundinEinstein'sequations might be artifacts caused by idealized assumptions. WorkingwithRogerPenroseinthe1960s,Hawkingusedadvancedgeometrytoshowthat singularities arise quite generally in general relativity.

WhattheHawking–Penrosetheoremsshowed

Thetheoremsdemonstratedthatif:

1. Gravityisalwaysattractiveonlargescales.
2. Generalrelativityiscorrect.
3. Theuniverseisexpanding.
4. Certainreasonableenergyconditionshold.

thentracingtheuniversebackwardin timeleadstoapoint wherespacetimegeodesicscannot be extended further. In other words, the history of the universe has a boundary in the past.

ThisresultisofteninterpretedasevidenceforaBigBang **Singularity**.

What is a singularity?

A singularity is not necessarily a tiny point of matter. In mathematics, it means that quantities such as density or spacetime curvature become infinite, or that the theory itself breaks down.

Hawking'sworksuggestedthat:

- Spaceandtimethemselveshadabeginning.
- Theuniversecouldnotbeextendedindefinitelyintothepastwithinclassicalgeneralrelativity.

DidHawkingprovetheBigBanghappened[1]?

Not exactly.

His theorems showed that **classical general relativity predicts a beginning of spacetime**. However, near that beginning, quantum effects should become important, and general relativity alone is no longer sufficient.

Later in his career, Hawking explored ideas from quantum gravity, including the **no-boundary proposal**, which suggested that the earliest universe may not have contained asingularity in the traditional sense.

Simpleanalogy[1]

Imaginerewindingamovieoftheexpandinguniverse:

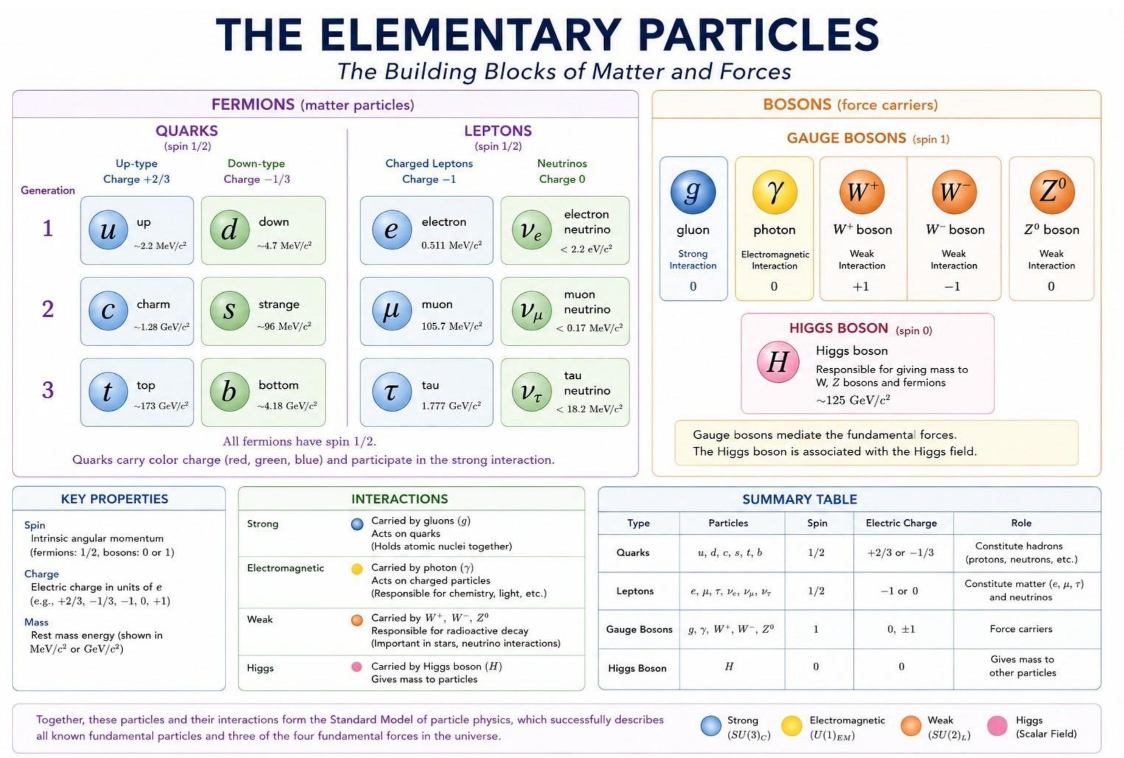
- Galaxiesmovecloser together.
- Densityincreases.
- Temperaturerises.

Hawking's mathematics showed that, according to general relativity, this rewind cannot continue forever; it reaches a boundary where the theory predicts a singularity.

So Hawking's achievement was not observing the Big Bang directly, but proving mathematically that Einstein's theory implies a beginning of spacetime under very general conditions.

AtomicRadiusandAtomSize[2][3]

Atomsandelementaryparticlesareincrediblysmall,buttheydiffergreatlyinsize.



Typical Atom Size

Atypicalatomhasaradius ofabout:

- **0.05–0.3nanometers(nm)**
- **5×10^{-11}to3×10^{-10}meters**

For example:

Atom Atomic Radius Hydrogen~53picometers(pm) Carbon ~70 pm

Oxygen ~60 pm Cesium ~265 pm

(1picometer=10^{-1}Zm)

VisualScale

Ifanatomwereenlargedtothesizeofafootballstadium:

- Thenucleuswouldbeaboutthesizeofamarblenearthecenter.
- Theelectronswouldoccupyacloudextendingthroughoutthestadium.
- Mostoftheatomisemptyspace.

Atomic Nucleus

Thenucleusismuch smaller:

- Radius≈**1–10femtometers (fm)**
- 1fm=10^{-15}m

Anucleusisroughly **100,000timessmaller**thantheatom itself.

Elementary Particles

Someelementaryparticlescurrentlyappeartohavenomeasurable size:

ParticleApproximateSizeLimit Electron< 10^{-18} m

Quark<10^{-19}m Muon<10^{-18}m Neutrino<10^{-18}m

IntheStandardModel,electronsandquarksaretreatedas**pointparticles**withnointernal structure.

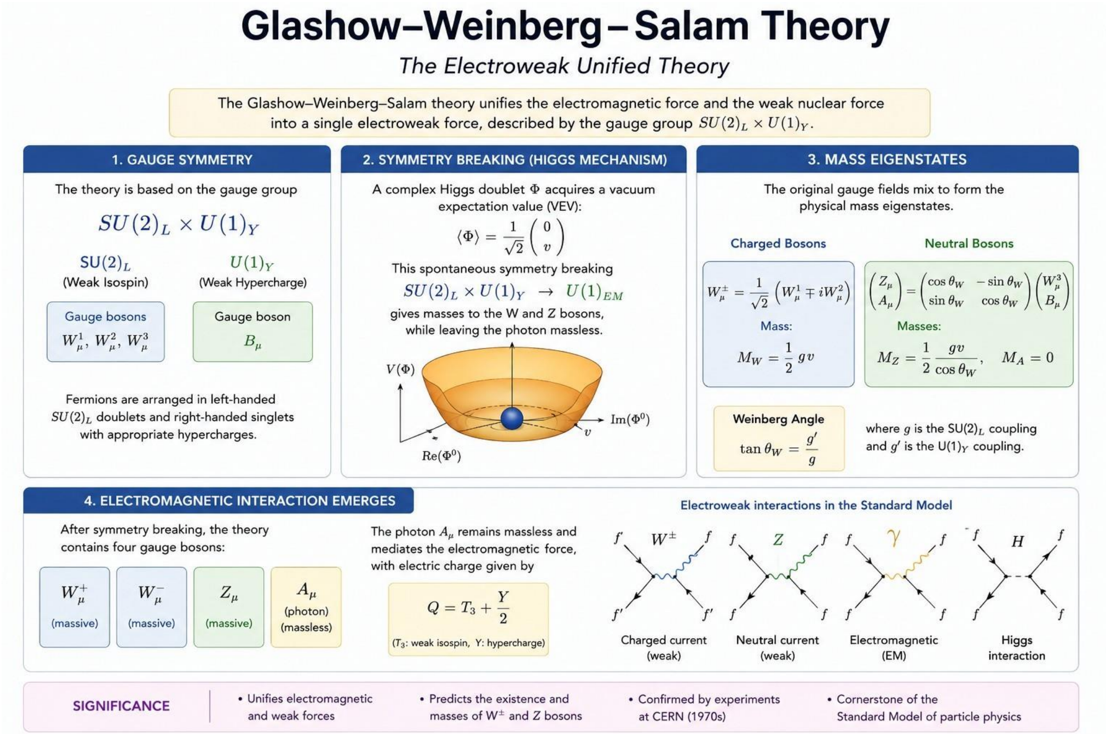
ScaleComparison

Object	**TypicalSize**
Human	1 m Hair width10^{-4} m Cell 10^{-5}m
Virus	10^{-8}m
Atom	10^{-10} m Nucleus 10^{-15} mProton 0.84×10^{-15}m Electron < 10^{-18} m

Illustration of Relative Sizes

The gap between an atom (~10^{-10}m) and a proton (~10^{-15} m) is about**100,000 times**, similar to the difference between a football stadium and a marble.

The principle of massive and supermassive blackholes and the theory of Glashow–Weinberg–Salam Theory[4][5]



Notallblackholesaresupermassive.Astronomershavediscoveredseveralclassesofblackholes:

Type Typical Mass

Stellar-mass black holes ~3–100 times the mass of the Sun Intermediate-mass black holes~100–100,000 solar masses Supermassive black holes Millionstobillionsofsolarmasses

Evidencethatsomeblackholesaresupermassive

Thestrongestevidencecomesfromobservingstarsorbitinginvisibleobjectsatthecentersof galaxies.

TheMilkyWay'scentralblackhole

AtthecenterofourgalaxyisSagittariusA*. Astronomerstrackedstarsorbitingthisobjectfordecades.Onestar,calledS2,completesanorbitin about 16 years.

From its orbit, scientists calculated that about **4 million solar masses** are concentrated in a region smaller than the Solar System. No known cluster of stars or other objects could remain stable atsuch density, strongly indicating a supermassive black hole.

Directimaging

In2019,theEventHorizonTelescopeCollaborationreleasedthefirstimageofablackhole's shadow: M87*

Itsmassisabout **6.5billiontimesthemassofthe Sun**.

In2022,thecollaborationalsoreleasedanimageofSagittariusA*.

Whyarescientistsconfident?

Severalindependentobservationsagree:

1. **Stellarorbits**aroundaninvisiblecompactobject.
2. **Gasmotion**neargalactic centers.
3. **Gravitationallensing**predictedbygeneralrelativity.
4. **EventHorizonTelescopeimages**showingtheshadowexpectedfromablackhole.
5. **Relativisticeffects**innearbystarorbitsmatchingEinstein'stheory.

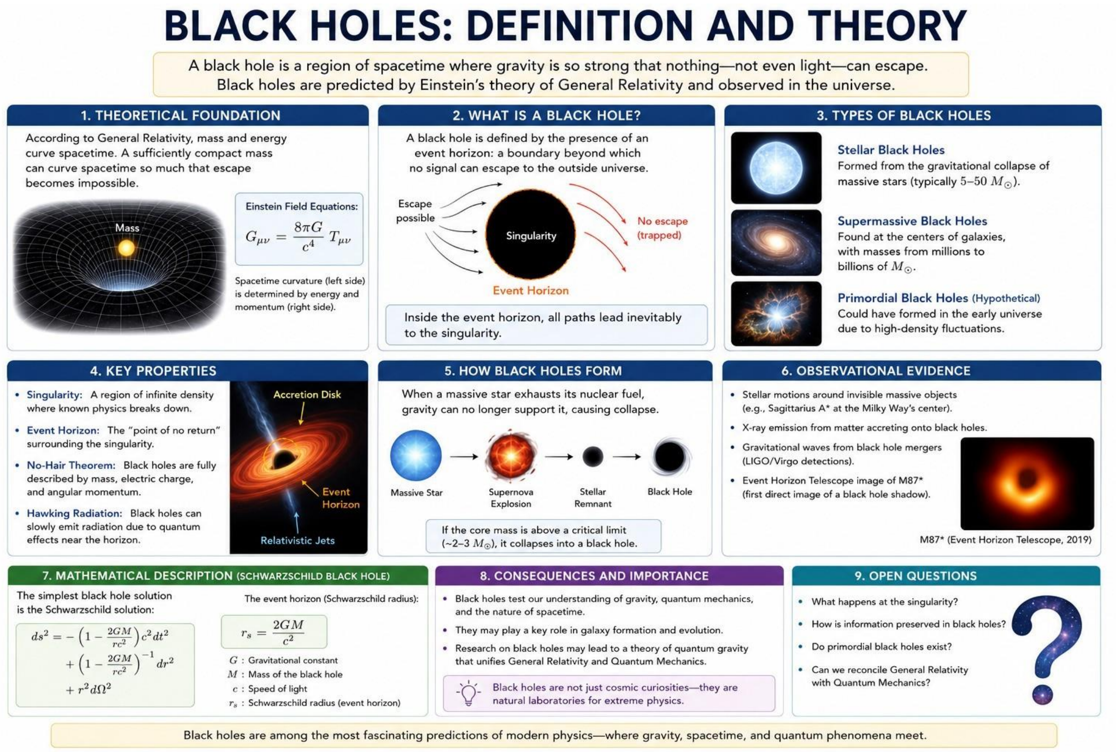
Important clarification

Scientists have not mathematically "proven" black holes are supermassive in the way one proves a theorem. Instead, observations provide overwhelming evidence that some black holes contain millions or billions of solar masses and are therefore classified as

Supermassive black holes.

A useful comparison: if the Sun were replaced by Sagittarius A*, the black hole's mass would be about **4 Million Suns**, yet its event horizon would still fit well inside the orbit of Mercury. This combination of enormous mass and compact size is exactly what astronomers observe for a supermassive black hole.

Black Holes, Theory



Black Hole Theory: Definition and Main Aspects[4] Definition

Ablack hole is a region of spacetime where gravity is so intense that nothing—not even light—can escape from it. Black holes are predicted by Einstein's General Theory of Relativity, which describes gravity as the curvature of spacetime caused by mass and energy.

A black hole forms when a sufficient amount of mass is compressed into an extremely small volume, creating a gravitational field strong enough to trap all matter and radiation within a boundary known as the event horizon.

Theoretical Foundation

Black hole theory originates from General Relativity, proposed by Albert Einstein in 1915. The theory predicts that under certain conditions, massive stars can collapse under their own gravity after exhausting their nuclear fuel. If the remaining core is massive enough, the collapse continues until a black hole is formed.

MainAspectsofBlackHoles

1. Event Horizon

Theeventhorizon istheouter boundaryofablackhole. Itrepresents thepointofnoreturn:oncean object crosses this boundary, it cannot escape the black hole's gravitational pull.

2. Singularity

At the center of a black hole lies the singularity, a region where matter is compressed to an extremely high density and spacetime curvature becomes enormous. Current physical theories cannot fully describe the conditions at the singularity.

3. Gravitational Effects

Black holes strongly affect nearby matter and spacetime. They can bend light, distort time, and influence the movement of stars and gas clouds around them.

4. Accretion Disk

Matter falling toward a black hole often forms a rapidly rotating disk called an accretion disk. Friction within the disk heats the material to very high temperatures, producing intense electromagnetic radiation.

5. Hawking Radiation: According to the theory proposed by Stephen Hawking, blackholescanemitasmallamountofthermalradiationduetoquantumeffects nearthe event horizon.This process, known as Hawking radiation, suggests that black holes may lose mass slowly over time.

According to the theory proposed by Stephen Hawking, black holes may emit a small amount of thermal radiation due to quantum effects near the event horizon. This process, known as Hawking radiation, suggests that black holes can slowly lose mass over time.

Types of Black Holes

- **StellarBlackHoles:**Formedfromthecollapseofmassive stars.
- **Intermediate-MassBlackHoles:**Largerthanstellarblackholesbutsmallerthan supermassive ones.
- **SupermassiveBlackHoles:**Foundatthecentersofgalaxiesandcontainingmillionsor billions of solar masses.
- **Primordial Black Holes:**Hypothetical black holes that may have formed shortly after theBig Bang.

Scientific Importance

Black holes are among the most important objects in modern astrophysics. They provide a unique environment for studying gravity, quantum mechanics, spacetime, and the evolution of galaxies. Understanding black holes may help scientists develop a unified theory that combines General Relativity with Quantum Physics.

Conclusion

Black hole theory describes some of the most extreme phenomena in the universe. These objects demonstrate how gravity can shape spacetime and challenge our understanding of the fundamentallaws of nature. Research on black holes continues to play a central role in modern physics and cosmology.

DISCUSSION

Knowing the definition that "a black hole forms when a sufficient amount of mass is compressed into an extremely small volume, creating a gravitational field strong enough to trap all matter and radiation within a boundary known as the event horizon," this brings to mind the theory of elementary particles to raise questions about conceptions regarding the understanding of Black Holes in Astrophysics education.As shown in the Theoretical Framework, a Black Hole creates a very strong gravitational field, such that all matter is compressed into an extremely small volume, trapping all matter. And the radiation known as the eventhorizon. This relates to the analysis of black holes. **Analysis of Elementary Particles** in a body with a lot of compressive matter that creates an extremely strong gravitational field, as well as **The Theory Glashow–Weinberg–Salam Theory.** What would be the conceptions of Black Hole Singularity Analysis in relation to...Atomic Radius and Size ofAtom? This question is thebasis for understanding Black Holes in Conceptual Physics, although it emphasizes that the Theory of Elementary Particles would have to be proven within the Theory of Black Holes.Therefore, conceptual physics requires an understanding of the behavior of elementary particles inside a black hole with its strong gravity. So, what would be the behavior of elementary particles inside a black hole?If, according to the Conceptual Physics framework, we consider the size of the atomic radius and the size of the atom, then this answer...I cannot give an answer in this article; I raise a concept, and to give that answer I would have to calculate the Theory of Elementary Particles. However, the concept raised provides a basis for reasoning for understanding and the Quantum Philosophy of Black Holes.Astrophysics. Furthermore, another line of reasoning in the Conceptual Physics of Black Holes is Hawking Radiation. According to the theory proposed by Stephen Hawking, black holes can emit a small amount of thermal radiation due to quantum effects near the event horizon. This process, known as Hawking radiation, suggests that black holes may lose mass slowly over time.Noting, as a prime example, Chemistry and

MechanicsQuantica The atomic radius is ameasure of the size of an atom. It is generally defined as the distance from the nucleus to the outermost region of the electron cloud. Because electron clouds do not have sharp boundaries, atomic radius is usually determined indirectly through measurements of chemical bonds.Knowing that **A threshold that much of Physics Theory needs to exist.** The black hole threshold for collapse also needs to be analyzed for collapse, for example, mass thresholds in exponential functions or, for example, concentration and parts per million or parts per billion in chemistry.Theapproachofananalysis andasurveyofconceptions **TheThresholdofMassin the Collapse of Black Holes** This would be very fruitful for the study and analysis of Advanced Astrophysics, with diverse possibilities for understanding black holes, given the variety of black holes existing in the Universe and even predicted by Albert Einstein's Theory of General Relativity. In calculationsComputational methods based on the Theory of General Relativity allow forthesimulationofcertainBlackHoleswiththeircharacteristics,emphasizingthatobservationsof Black Holes...Real Blacks have only recently begun to be realized, although they have been predicted since 1916 in the Theory of General Relativity [6][7].

CONCLUSION

Therefore, the conclusion of this article is that it exemplifies how an approach toAdvanced University Conceptual Physics can be implemented, as presented here in the AdvancedAstrophysics course. It serves as an example of how one can think about an Advanced Theory of Physics, that is, a teaching approach for young people and adults, and especially for children. It's important to emphasize that young people, adults, and especially children, have their own specific conceptions,or rather, encounter difficulties in absorbing andunderstanding ConceptualPhysics, as is the case with all disciplines for human beings. It is emphasized that at each age and stage of life, there are specific conceptions and difficulties, just as young people and adults, depending on their age, already have conceptions from other disciplines and from their daily lives experienced throughout their academic and real-life experiences.in their daily activities, whether for a young person of 12 or 15 years old or an adult of 21 or 35 years old orFurthermore, this differs from the everyday experience and intellect of a child, and from the conceptions of a child in the study that was addressed by Jean Piaget.And Vygotsky. As an example, what is the proper preparation for children to reach adulthood? Wouldn't a universal form of teaching and constructing children's conceptions always be correct? Thus, a universal way of teaching conceptions would lead to adulthood with conceptions adequately constructed, understanding, and preparedness for understanding conceptual physics and astrophysics. Or would they be better prepared for specific areas of science, selected for each group of children in the World Wide Web during childhood? Piaget and Vygotsky demonstrated this construction of knowledge in their theories. Therefore, the article presents an idea of what knowledge construction is, and not an anarchy of teaching. The theory discussed, such as black holes, is difficult to access conceptually and even more difficult mathematically, whether in academic or online settings (WWW), just as all physics is difficult to access in terms of mathematical calculations and especially conceptual physics, even more so in the first contact with the discipline of physics and astrophysics. The example in this article aims to facilitate access to understanding and knowledge of advanced physics and astrophysics, regarding the difficulties and time expenditure involved in studying these subjects at the secondary and university levels. It is intended for young and adult students.They waste a lot of time studying Physics and Astrophysics, and in an exam, the time dedicated to studying becomes completely wasted, both for the exam itself and for the student's future.not benefiting from the absorption of adequate content from the theory of Theoretical Physics.This factor and this account prove that for achildItwould be extremely productiveif theproper approach were implemented in the early years as proposed.Piaget and Vygotsky.As discussed in the article, an example of Elementary Particles and Black Holes is given, focusing on the High Gravity of a Massive Black Hole and Hawking Radiation, where the Black Hole Loses Mass.

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