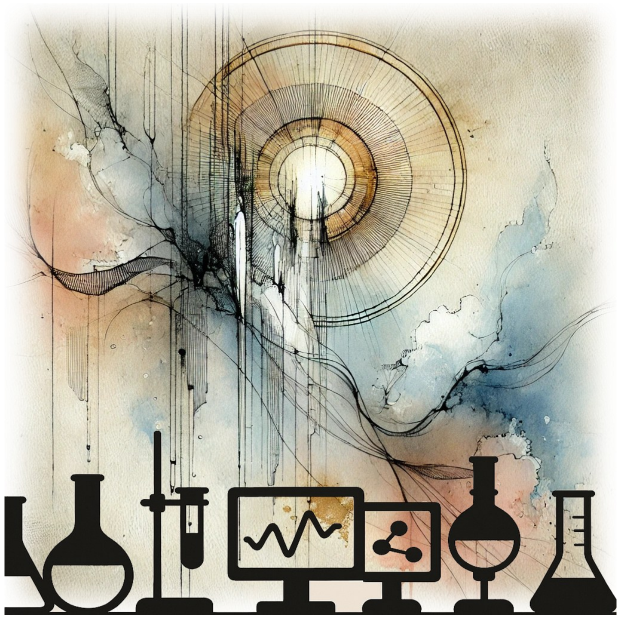
Series:

Unfolding Wholeness

Episode:

Modern Physics and God

Tony Macelli



Contents:

Contact: chat, comment, ask, suggest, correct: imaginetony@gmail.com

Earlier in this Series...

Introduction to this series

1. When the Universe Speaks

2. Is Meaning Divinely Woven Into Reality?

3. A Reality of Infinite Reflection

Series Link: https://laikosblog.org/category/unfolding_wholeness/

Has Modern Physics Affirmed the Existence of God?

Introduction

You've probably come across the argument. Someone – perhaps in an online debate, perhaps in a popular science book – confidently announces that quantum mechanics has proved the existence of God. Or, equally confidently, that modern physics has made God entirely unnecessary. These claims get shared widely. They sound authoritative. And they're almost always more than a little misleading.

Here we aren't trying to use science to defend faith, or to attack it. Faith, in the classical sense, isn't really about intellectual certainty derived from laboratory results – it's trust grounded in vulnerability, encounter and reflection. Science and faith aren't playing the same game.

But when bold claims are made about what physics supposedly proves, those claims deserve to be examined carefully. Clarifying what physics actually says – and what it doesn't – is simply an act of intellectual honesty. So let's take a look.

What Modern Physics Actually Claims

Here's something worth knowing about physics: it doesn't deal in meta-physical (beyond-the-physical) statements or slogans. It works through mathematics, experiment and carefully tested prediction. Its theories describe how physical systems behave, and they allow scientists to anticipate measurable outcomes with extraordinary precision.

In the early twentieth century, quantum mechanics replaced the older picture of matter that everyone had inherited from classical physics. At very small scales, the tidy image of tiny solid particles moving predictably through space – like miniature billiard balls – simply didn't hold up. Matter had to be described in terms of probabilities and interactions instead.

Three features of quantum physics tend to come up most often in discussions about God, so it's worth being clear about what they actually mean.

Indeterminacy. At the subatomic level, physics predicts probabilities rather than exact outcomes for individual events. You can know the odds; you can't always know the result in advance.

Measurement dependence. The physical conditions under which you measure a system affect the pattern of results you observe. The act of measurement isn't neutral.

Entanglement. Certain particles become linked in such a way that they must be described as a single system, even when they're separated by vast distances.

These are genuinely remarkable discoveries – they've reshaped modern technology and deepened our understanding of nature in ways that are hard to overstate. But notice what they don't do. They describe patterns in the physical world with extraordinary accuracy. They don't deliver metaphysical conclusions. Quantum mechanics tells you how the universe behaves when you investigate it. Questions about whether ultimate reality is material, mental or divine lie beyond the scope of the experiments themselves.

What Modern Physics Does Not Claim

Because quantum mechanics so dramatically challenged older ideas about matter, it gets drafted into all sorts of wider debates. But several popular claims go considerably further than the science itself.

Physics does not claim that human consciousness creates reality. In quantum theory, "observation" simply means a physical interaction that produces a definite outcome. Detectors and measuring instruments count as observers. No human mind is required.

Physics does not claim that matter is an illusion, or that mind is the only real substance in the universe. Quantum theory changes our understanding of matter; it doesn't dissolve it.

And physics does not affirm or deny the existence of God. Scientific methods investigate repeatable physical processes. Questions about ultimate cause, meaning or divine agency belong to a different level of inquiry altogether.

So when believers claim that quantum mechanics has proved God, they're making a philosophical move that goes beyond the science. And when sceptics claim that physics has eliminated God, they're making exactly the same kind of move in the opposite direction. The scientific evidence is identical in both cases; only the interpretations differ.

From Quantum Theory to Metaphysics – Where the Leap Happens

You might wonder: if the science doesn't settle the question, how do people end up arguing so confidently that it does? Usually, the move from physics to metaphysics follows one of a few familiar routes.

Some argue that quantum indeterminacy undermines materialism. Because the universe is no longer strictly deterministic, the door to spiritual explanations seems to open. But rejecting nineteenth-century determinism doesn't automatically land you in idealism or theism. The door opens; it doesn't tell you what's on the other side.

Others focus on the language of observation. Because measurement affects experimental outcomes, some conclude that consciousness must be fundamental to reality. But this introduces a philosophical assumption that the experiments themselves simply don't require.

A third route appeals to the sheer strangeness of the quantum world. Because reality at very small scales defies everyday intuition, some take this as evidence that the universe must be spiritual at its core. But conceptual difficulty isn't the same thing as theological proof. Strange doesn't mean divine.

In each case, the same scientific findings are compatible with multiple philosophical interpretations. The same physics can coexist with physical-

ism, dualism, idealism or theism. Choosing between those views requires philosophical reasoning that extends well beyond what physics alone can deliver.

Recognising this boundary doesn't weaken faith. It simply clarifies what each kind of inquiry can actually do.

Has Physics Disproved God?

The opposite claim comes up just as often, and it's worth addressing directly. Some argue that modern science has made belief in God unnecessary. If natural processes can be fully explained through physical laws, then divine action seems redundant — an extra wheel that isn't doing anything.

This conclusion rests on a misunderstanding of what classical theology actually means by God. Within Christian theology, God is not a competing causal agent among other forces but the Creator who sustains the universe in being and gives it its intelligible structure. God, in traditional theism, is not a mechanism inside the universe competing with gravity or electromagnetism. God is the ground of existence itself – the reason anything exists at all, rather than nothing.

Physics explains how events unfold within the universe. Theology asks why there is a universe with ordered processes in the first place.

It's therefore not surprising that physics doesn't mention God in its equations. Scientific theories describe patterns within nature. They weren't designed to address the ultimate source of those patterns – and you wouldn't expect them to.

Two symmetrical exaggerations keep circulating: that physics proves God, and that physics has eliminated God. Both go beyond what science itself establishes.

Logos and Intelligibility – A Classical Christian Perspective

Christian theology has a concept that speaks directly to the question of intelligibility: the Logos – the divine Word through whom all things were made.

In Genesis, creation unfolds through divine speech: "And God said…" The world doesn't appear as chaos but as ordered reality, shaped through successive creative acts.

The Gospel of John deepens this picture by identifying that creative Word with the Logos: "All things came into being through him." The Logos is also described as the light that enlightens human beings. Creation and understanding are bound together. The world is made through the Word and known through the light of the Word.

Early Christian thinkers drew a striking conclusion from this*: the intelligibility of nature reflects its origin in divine wisdom.* Because creation arises from Logos, it carries structure that can be discovered and studied. Human reason can grasp aspects of that structure because both mind and world share a common source.

This doesn't mean everything is transparent to us. It simply means that reality isn't brute, formless chaos – it's patterned in ways that allow genuine knowledge to grow.

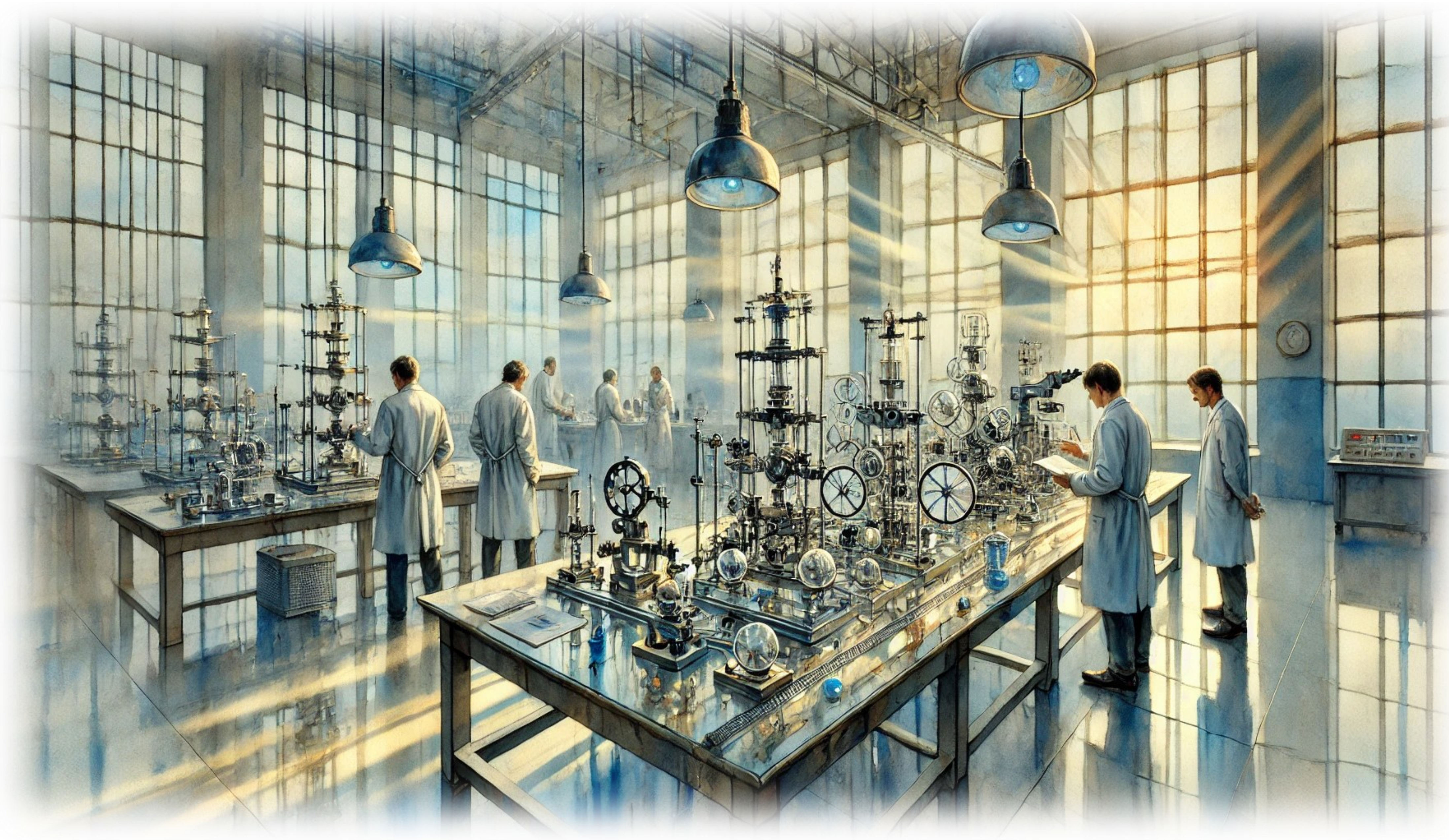
Modern physics, with its profound mathematical descriptions of nature, can be seen as uncovering aspects of that structure. Mathematics doesn't prove the Logos. But its remarkable success fits naturally within a worldview that expects creation to be intelligible in the first place.

Avoiding Two Distortions

Two opposite distortions tend to show up whenever science and theology are brought together.

The first tries to use physics as proof of God. Quantum theory gets presented as scientific confirmation of divine action or cosmic consciousness. The risk here is real: if your faith is tied to particular scientific interpretations, it becomes vulnerable whenever those interpretations change – and in physics, they do change.

The second assumes that successful scientific ex-



Whimsical rendering of a quantum optics experiment planation leaves no room for God. Because physics describes natural processes so well, reality is taken to be entirely self-explanatory.

Both distortions arise from the same mistake: confusing different levels of explanation. Physics investigates patterns within the natural world. Theology reflects on the ultimate source of that world. When you keep those levels distinct, science and theology don't need to compete. Physics describes the behaviour of created reality. Theology asks why there is such a reality to describe in the first place.

Intelligibility and the Question of Transcendence

One philosophical question here is worth sitting with, because it's genuinely striking.

The universe is not just there – it's intelligible. It possesses patterns that can be expressed mathematically and explored through experiment. Human beings, remarkably, are able to discover those patterns. Mathematical ideas developed in the abstract, with no practical application in mind, very often turn out to correspond closely to physical reality.

You might try to explain this through evolution: minds that survive are those that can recognise patterns in their environment. That's plausible as far as it goes. But it doesn't fully account for why highly abstract mathematics – the kind developed without any practical purpose – so reliably maps the deep structure of nature.

Others see this intelligibility as pointing toward something deeper: a rational ground underlying all of reality. If the universe arises from divine Logos, then a structured and knowable world is precisely what you'd expect to find.

This observation doesn't prove theism. But it raises a philosophical question that science alone cannot answer – and it's worth taking seriously.

Conclusion

So: has modern physics affirmed the existence of God? No. Has it disproved God? No. It has transformed our understanding of the physical world, challenged certain older assumptions, and opened up profound new questions about the nature of reality. It has not resolved the deeper question of ultimate ground.

Perhaps the search for scientific proof was always slightly misconceived. Faith, in the Christian sense, has never rested on laboratory demonstration. It isn't the possession of airtight intellectual certainty. It's trust in the One believed to be the source and sustainer of all that exists.

Reason has its rightful place – and when claims about science are exaggerated, they should be called out. Intellectual honesty is part of spiritual integrity. But reason isn't the final ground of faith.

For some, spiritual life deepens through prayer and interior attentiveness. For many others, it unfolds through ordinary faithfulness – worship, ethical commitment, perseverance within a community. In both cases, certainty isn't the measure of spiritual depth. Trust is.

Modern physics invites awe at the subtlety of the created order. Theology invites trust in its Creator. The two don't need to compete. But neither replaces the other. The desire for proof is understandable – the call of faith is quieter. It doesn't ask for mathematical demonstration. It asks for a humble and trusting confidence that reality rests in a source greater than our understanding.

Many people encounter terms from modern physics in popular discussions of science and religion and understandably feel unsure what they actually mean. The ***glossary*** *that follows is offered as a gentle guide – explaining the key scientific and philosophical terms used in these debates in clear language and in a gradual sequence. Reading through it won't turn you into a physicist, but it should make it easier to recognise what is genuinely being claimed – and when claims about science are being stretched beyond what the science itself supports.*

-o-

Niels Bohr and Albert Einstein — Two of theNobel Laureates who made significant controbutions to quantum physics

Friendly Glossary

How to Read This Glossary

Never studied physics? Don't worry – you're exactly who this glossary is written for. The aim here is simple: to help you understand what people are actually claiming when they talk about science and God, and just as importantly, what they are not claiming – even when they sound very confident.

The entries are arranged in a progressive learning sequence, starting with everyday physical concepts and working up gradually toward the bigger philosophical and theological ideas. If you read them in order, each entry will prepare you for the next one – no sudden leaps, no assuming you already know things you don't. If you read straight through from Atom to Faith, you will move gradually from the physical description of the world to the larger questions people often attach to it.

There's also an alphabetical list if you want to look something up quickly.

Before you dive in, two things are worth keeping in mind: *Scientific terms* describe measurable things happening in the physical world. *Philosophical and theological terms* ask what – if anything – those physical happenings mean at a deeper level.

A lot of confusion in these debates comes from mixing these two levels together without noticing. This glossary tries to keep them clearly separate, while also showing you how they genuinely do connect.

Alphabetical	Progressive Learning Sequence
Atom	**Atom**
Classical Theism	**Wave-Particle Duality**
Double-Slit Experiment	**Double-Slit Experiment**
Entanglement	**Measurement (Quantum)**
Faith	**Wave Function**
God of the Gaps	**Indeterminacy**
Idealism	**Entanglement**
Indeterminacy	**Materialism (Physicalism)**
Intelligibility	**Idealism**
Logos	**Classical Theism**
Materialism (Physicalism)	**Logos**
Measurement (Quantum)	**Intelligibility**
Wave-Particle Duality	**God of the Gaps**
Wave Function	**Faith**

Glossary

Glossary entries are in a progressive learning sequence.

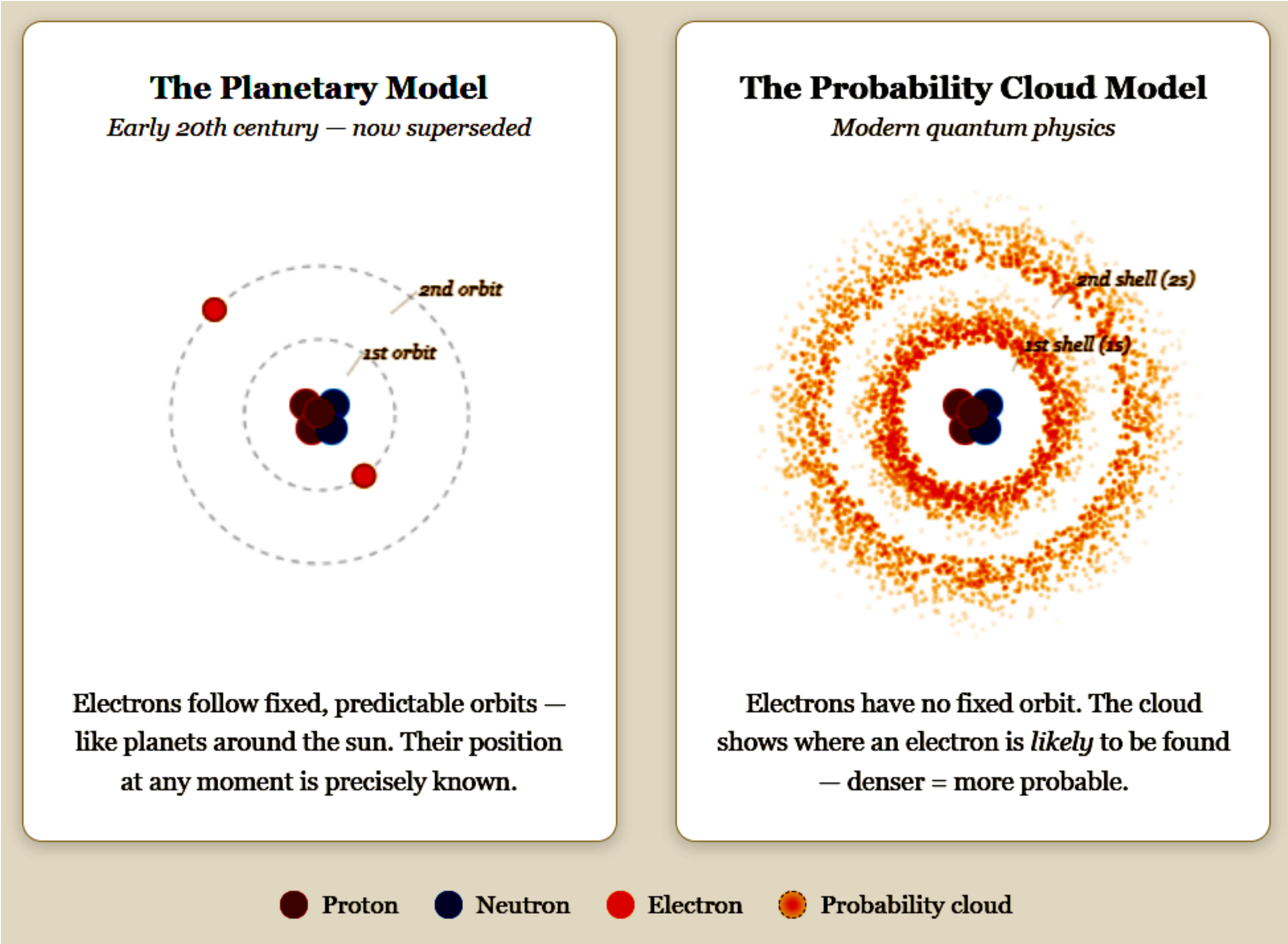
Atom

You've probably heard that everything is made of atoms. But what is an atom, exactly? It's the basic building block of matter – a tiny nucleus at the centre (made of protons and neutrons), with electrons buzzing around it. For a long time, the picture people had in their heads was a kind of miniature solar system, with electrons orbiting the nucleus like planets around the sun. It's a satisfying image – but modern physics has had to abandon it.

What actually happens is stranger and more interesting: instead of following neat orbits, electrons exist in clouds of probability. You can't say exactly where an electron is at any given moment – only where it's likely to be. That shift – from precise little balls in orbit to fuzzy probability clouds – is your first hint that the quantum world plays by very different rules from the everyday world you can see and touch.

(*See Atom Diagram next page*)

Why does this matter? The planetary model felt comfortable because it looked like something familiar. The cloud model is harder to picture — but that discomfort is telling us something true: at the quantum scale, nature genuinely doesn't work the way our everyday intuitions expect.



The old and the new understanding of the Atom *(see Atom, previous page)*

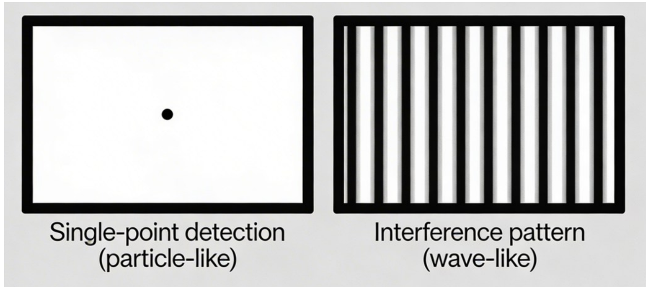
Wave–Particle Duality

Here's something that genuinely puzzled the greatest scientists of the twentieth century, so if it puzzles you too, you're in good company.

When physicists fire electrons (or photons, or other tiny entities) at a detector, these particles sometimes behave like little bullets – hitting a single point. But in other experiments, the very same particles spread out and interfere with each other, exactly the way ripples on a pond do. So which are they – particles or waves?

The honest answer is: neither, exactly. They're something genuinely new that our everyday language isn't quite equipped to describe. The words "particle" and "wave" are borrowed from the big visible world we grew up in – and they only half-fit the quantum world. This isn't a failure of science; it's a sign that reality at very small scales is richer than our intuitions prepared us for.

Diagram recommendation: A simple side-by-side – a particle-like single-point detection pattern on one side, a wave-like interference pattern of alternating bands on the other.



The wave-particle duality

Double-Slit Experiment

This is probably the most famous experiment in all of quantum physics, and for good reason – it makes the strangeness of the quantum world impossible to ignore.

Imagine firing particles one at a time at a barrier with two narrow slits cut into it. Behind the barrier is a screen that records where each particle lands. If particles were simply tiny bullets, you'd expect two neat clusters on the screen – one behind each slit. But that's not what happens. Instead, you get a rippling pattern of many bands – an interference pattern – as if each particle somehow went through both slits at once and interfered with itself. Astonishing.

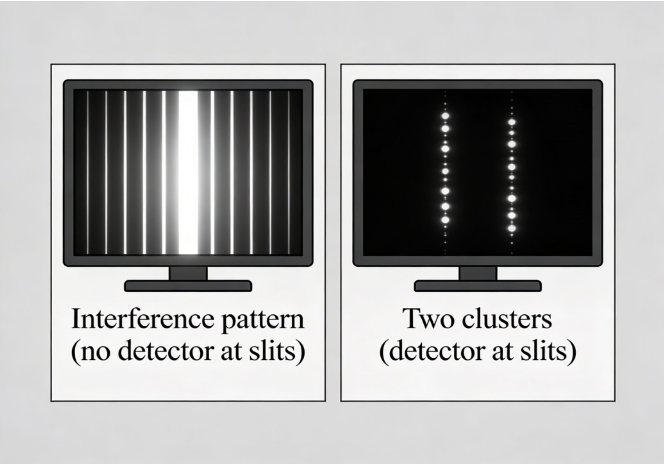
Now add detectors at the slits to find out which slit each particle actually passes through. The interference pattern vanishes. You get two clusters again, just like you'd expect from bullets.

What this tells us is that the physical conditions under which a system is measured affect the pattern of outcomes that appear. That's a real and important result. What it does not tell us – despite what you may have read – is that human consciousness creates reality. The effect happens with purely physical detectors; no human mind needs to be involved. We'll come back to this when we get to the entry on Measurement.

Measurement (Quantum)

The word "measurement" has a very specific meaning in quantum physics, and it's quite different from what the word might suggest in everyday life – so it's worth being clear about this, because a lot of woolly thinking creeps in here.

In quantum physics, measurement simply means a



Wave-Particle Duality. *The two-screen results of the double-slit experiment, showing that measurement (in the form of a detector placed at one of the slits) affects the outcome, collapsing the wave-like behaviour (left) into particle-like behaviour (right) where each particle passes through only one of the 2 slits. Particles are detected as two lines opposite the slits*

physical interaction that produces a definite, recordable outcome. It does not require a human being to be watching. It does not require consciousness. A mechanical detector, a photographic plate, an automated instrument – all of these count as "measuring systems." The production of a definite outcome does not depend on a human mind being present.

This matters for discussions about science and God: some writers claim that quantum physics proves consciousness is fundamental to reality, because "observers" are needed for measurements. But when physicists say "observer," they mean any physical system that interacts and records – not a mind, not a soul, not God. Keeping this straight will save you from a lot of false trails.

Wave Function

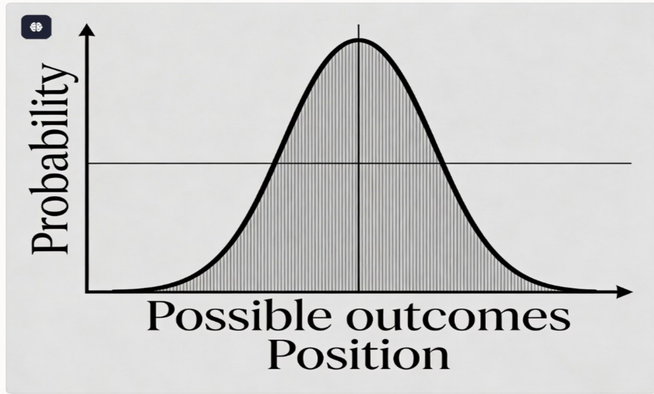
When physicists want to describe a quantum system – say, an electron about to hit a screen – they use something called the wave function. Think of it as a mathematical recipe for calculating the probabilities of all the different possible outcomes of a measurement.

It's important to understand what the wave function is not. It is not a physical wave travelling through space, like a wave on the ocean. It is a mathematical tool – extraordinarily useful and precise, but a tool for predicting probabilities, not a description of something you could photograph or touch.

The wave function has been so accurate in its predictions that it's one of the most successful mathematical structures in the history of science. But whether it corresponds to something physically real or functions purely as a predictive tool remains a genuinely open question that physicists and philosophers still debate.

Indeterminacy

In the everyday world you're used to, causes lead to effects in a predictable chain. If you know exactly where a billiard ball is and exactly how fast it's moving, you can – in principle – calculate exactly where it will go. This is called determinism,



and it was the standard assumption of physics for centuries.

Quantum physics breaks this. At the subatomic level, the theory gives you probabilities for what will happen – not certainties. Even with complete knowledge of the wave function, you cannot predict the precise outcome of an individual measurement. This is not a gap in our knowledge that better instruments will close; it appears to be built into nature itself.

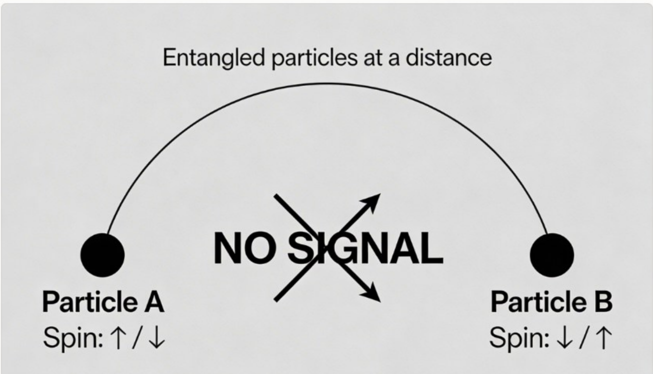
Quantum indeterminacy does not automatically mean that human beings have free will. It doesn't mean the universe is lawless at the everyday scale – vast numbers of quantum events average out into the reliable patterns we all live by. And it doesn't, by itself, mean there is space for divine intervention in physical events. These are live debates; indeterminacy opens some questions without settling them.

Entanglement

Entanglement is one of those quantum phenomena that sounds so strange that people sometimes assume it's been exaggerated. It hasn't.

When two particles interact in certain ways, they can become entangled – meaning they form a single connected system, even when they're separated by large distances. Measure one particle and you instantly know something definite about the other, no matter how far away it is. Einstein famously called this "spooky action at a distance." This has been confirmed repeatedly in experiments.

Two things are important to understand here. First, this does not mean you can send a message faster than light. The connection is real, but it can't be used to transmit usable information – the mathematics and the experiments are very clear on this. Second, the right way to think about it is not as two separate particles mysteriously signalling each other, but as one system that happens to be spread across space. The whole must be described together.



Quantum Entanglement. *Under certain conditions, two small particles become a single quantum system, ignoring distance, where a change in one is immediately mirrored by a change in the other, without any signal passing between them. This bizarre, counter-intuitive phenomenon is quite alien to pre-quantum physics.*

Materialism (Physicalism)

Materialism – also called physicalism – is the philosophical view that everything that exists is, at bottom, physical. Your thoughts, your feelings, your sense of being a conscious self – all of this, on this view, arises from physical processes in your brain and body. There is nothing "extra," no soul, no immaterial mind floating alongside the body.

Materialism is compatible with being a moral and thoughtful person; it is not a caricature position.

It's worth noting that materialism is a philosophical position, *not a scientific finding*. Science describes physical processes extremely well; materialism is the further claim that physical processes are all there is.

Modern physics has made older, mechanical versions of materialism harder to defend – matter turns out to be far stranger and more elusive than the solid, predictable stuff the early materialists had in mind. But this doesn't mean physicalism is dead. More sophisticated versions remain very much alive.

Idealism

If materialism says matter is the bottom level of reality, idealism says the opposite: that reality is fundamentally mental or experiential. On this view, matter isn't the foundation – mind is. Physical things are real, but they exist within or as part of a deeper experiential reality.

Quantum mechanics *is compatible with* idealism, in the sense that it does not rule it out. But it does not *require* idealism. Several other interpretations of quantum mechanics fit the same experimental data equally well. So if someone tells you that quantum physics proves the universe is fundamentally mental, they are claiming more than the physics itself establishes.

Classical Theism

Classical theism is the traditional understanding of God found across much of Christian, Jewish and Islamic thought.

God is not a part of the universe – not a force within nature, not a very large physical object, not a kind of energy field. God is understood as the necessary, transcendent source of everything that exists – the reason there is something rather than nothing. Creation is not merely a past event, but an ongoing dependence of all things upon God for their existence.

This means classical theism does not compete with physics at the level of explaining physical events. It makes a claim at a different level – about why there is a physical world at all, and why it is the kind of world that is ordered and intelligible.

Logos

Logos is a Greek word meaning word, reason, account or ordering principle. In the opening of

John's Gospel, it is used to describe the divine Word through whom all things were made.

For science-and-religion discussions, Logos expresses the claim that the universe arises from divine reason and wisdom. Creation is not a brute fact; it is structured, ordered and therefore intelligible.

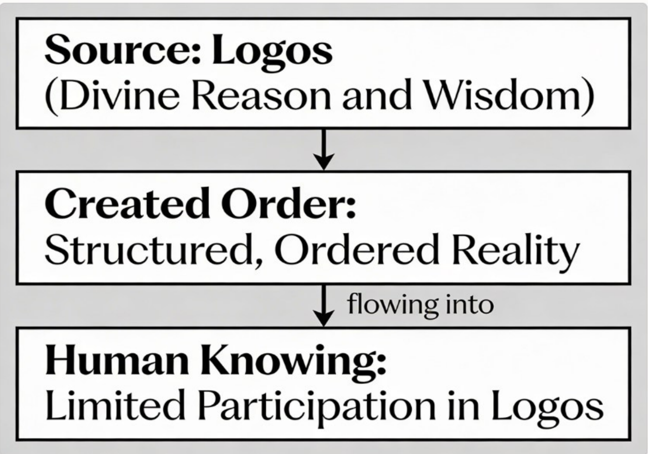
Some historians of science argue that this theological conviction helped motivate the search for rational patterns in nature.

Intelligibility

Here is a fact about the universe so familiar that it's easy to miss how remarkable it is: the universe *makes sense*. Mathematics developed by human beings through abstract reasoning often turns out to describe physical reality with extraordinary precision.

There is no obvious reason, on a purely survival-based account, why advanced mathematics developed abstractly should so often map physical reality – and yet it does.

Intelligibility means the universe has consistent, stable patterns that can be discovered and described. It is ordered rather than chaotic, and that order is accessible to human minds.



Intelligible does not mean fully comprehensible. There is vastly more we do not understand than we do. But the universe is the kind of place where understanding is possible.

God of the Gaps

The "God of the Gaps" is the habit of pointing to something science hasn't yet explained and saying: "There – that's where God is."

The problem is that science has a strong track record of closing gaps. What was mysterious yesterday is explained today. A God invoked to fill gaps tends to shrink as knowledge expands – which is not how classical theism works.

Classical theism does not depend on unexplained anomalies. It addresses a different question: why there is anything at all, and why it is intelligible. That is not a scientific gap, but a metaphysical question.

Faith

Faith is not believing things without evidence, or in defiance of evidence. That would be credulity.

In classical Christian theology, faith is better understood as trust – a personal commitment to God grounded in reason, experience, tradition and relationship, rather than on scientific proof alone. It involves the whole person: intellect, will, commitment and life.

It is not purely an intellectual conclusion, but it is not anti-intellectual either. For some, it deepens through prayer and interior reflection; for others, through faithful practice and lived commitment.

Science asks how the physical world works. Faith asks different questions: What is ultimately real? What are we for? How should we live? Is there anyone there? These are not questions a laboratory is designed to answer/ Recognising that is not retreat, but clarity.

-o-

Nobel Prize medal

The Greats of Quantum Physics

- **Planck** – introduced the idea of energy quanta or packets
- **Einstein** – showed that light itself is quantised (photons)
- **Bohr** – applied quantisation to the structure of atoms
- **Heisenberg** – created the first full mathematical formulation of quantum mechanics
- **Schrödinger** – developed the probability-wave equation central to quantum theory
- **Dirac** – unified quantum mechanics with relativity and predicted antimatter

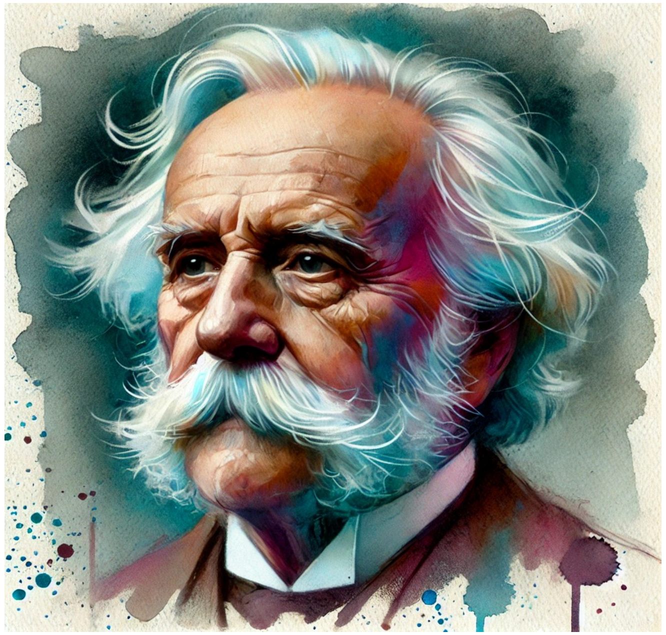
Together, these thinkers transformed our understanding of matter, energy and the structure of reality.

Continued, next page:

Max Planck (1858–1947)

Planck initiated the quantum revolution in 1900 while trying to explain the spectrum of thermal radiation emitted by heated objects. To explain the observed pattern, he proposed that energy is emitted and absorbed in discrete units, later called *quanta*. Planck himself initially regarded this as a mathematical device rather than a radical claim about nature, but the idea opened the door to quantum theory. Nobel Prize: 1918.

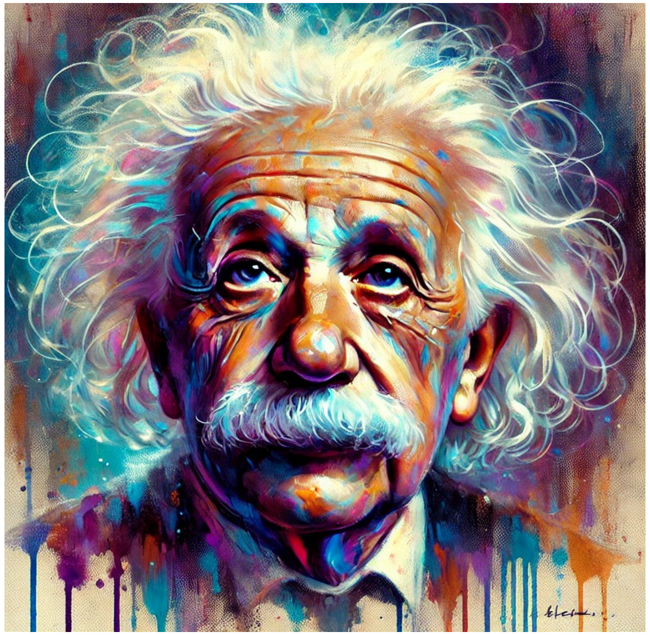
*Planck considered God as a Mind beyond material reality; and saw thoughts of God reflected in the laws and constants of nature, including Planck's constant **h**.*



Albert Einstein (1879–1955)

Einstein extended Planck's idea in 1905 by proposing that light itself sometimes behaves as if it consists of discrete packets of energy, now called photons. His explanation of the photoelectric effect showed that light could act like particles as well as waves. This work earned him the Nobel Prize and provided strong evidence that quantisation was a genuine feature of nature. Nobel Prize: 1921.

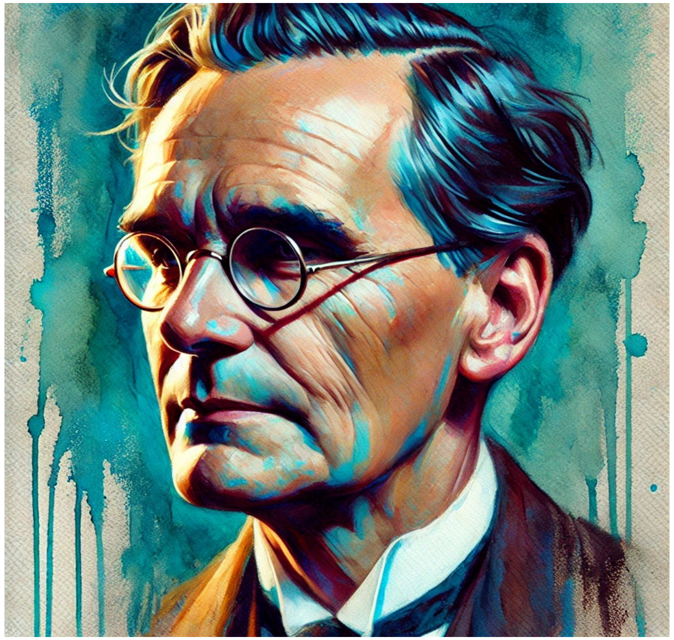
Einstein, who said he's not an atheist, saw wonder and marvellous order in the universe as an experience of the divine.



Niels Bohr (1885–1962)

Bohr applied quantum ideas to the structure of atoms. His 1913 model proposed that electrons occupy discrete energy levels around the nucleus and can jump between them while emitting or absorbing light. Although later refined, Bohr's model helped explain patterns of light absorbed or emitted by each type of atom – or atomic spectra - and became a crucial bridge between early quantum ideas and the full theory that followed. Nobel Prize: 1922.

Niels Bohr explained that science and religion use language differently, not that one is right and the other wrong.



Werner Heisenberg (1901–1976)

Heisenberg developed the first complete mathematical formulation of quantum mechanics in 1925 (matrix mechanics). He also articulated the *uncertainty principle*, which shows that certain pairs of physical quantities — such as position and momentum — cannot both be known with arbitrary precision. This principle captured an essential feature of quantum behaviour. Nobel Prize: 1932.

To Heisenberg is attributed this quote: "The first gulp from the glass of natural sciences will turn you into an atheist, but at the bottom of the glass God is waiting for you,"

Erwin Schrödinger (1887–1961)

Schrödinger introduced an alternative mathematical formulation of quantum mechanics in 1926, known as wave mechanics. His famous equation describes how the quantum state of a system evolves over time and remains one of the central tools of modern physics. Schrödinger's work provided a powerful and intuitive framework for analysing quantum systems. Nobel Prize: 1933.

Schrödinger was inspired by Hindu Vedantic concepts, which, it is said, helped him cope with the absurdity of quantum mechanics.

Paul Dirac (1902–1984)

Dirac brought extraordinary mathematical clarity to quantum theory. In 1928 he formulated the Dirac equation, which successfully combined quantum mechanics with Einstein's "special relativity". This equation predicted the existence of antimatter — particles identical to ordinary matter but with opposite charge — which was later confirmed experimentally. Dirac's work laid the foundations for modern quantum field theory. Dirac's work did not unify quantum mechanics with the wider so-called "general relativity" and with gravity. That problem remains unsolved today. Nobel Prize: 1933.

Dirac was an agnostic, but he wrote, "One could perhaps describe the situation by saying that God is a mathematician of a very high order, and He used very advanced mathematics in constructing the universe." —-[]