

[Quantum Realism Glossary](#)

Definitions are based on current physics, computer science and quantum realism (QR), where the first two are accepted but the latter is a new theory.

Click on the term to go to a section that discusses it in more detail. [Download Entire Glossary](#).

[Anti-matter](#). Every matter entity has an anti-matter version with the same mass but opposite charge and magnetism, for a reason that current physics can't explain.

QR: Anti-matter exists because matter processing can run in reverse. Any matter process run backwards gives an anti-matter version with the same mass but opposite charge and magnetism.

[Anti-time](#). In Feynman diagrams, anti-matter enters events going backwards in time.

QR: Anti-matter time is matter time in reverse because it runs matter processing in reverse.

[Asynchrony](#). When processors cycle at their own rate with no common clock.

QR: The quantum network is asynchronous but the transfer of light mostly synchronizes it.

[Attention](#). The ability to select a local brain activity to experience, like sound, sight, or smell.

QR: Attention occurs when a global observation collapses to a point in the brain's electro-magnetic field.

[Bandwidth](#). The capacity of a channel to transfer information or processing.

QR: One quantum channel has a bandwidth of one quantum process.

[Being](#). A person or thing that exists ([Cambridge Dictionary](#)).

QR: That which observes and chooses.

[Big bang](#). That all the matter and energy of the universe expanded from a point singularity.

QR: The universe began from a [little rip](#) in the quantum fabric, not a big bang.

[Black hole](#). A region of space with gravity so strong that not even light can escape from it.

QR: A black hole occurs when the bandwidth of space is full.

[Blindsight](#). The ability to catch a ball while unable to see anything at all.

[Boson](#). An integer spin particle, like a photon, that is said to never collide with itself.

QR: The boson-fermion distinction isn't fundamental because matter was created from light.

[Brain waves](#). Electromagnetic waves caused by neural synchrony that scalp electrodes detect.

[Breit-Wheeler process](#). A process that allows photons to create electron-positron pairs.

[Cartesian space](#). In a space defined by orthogonal linear dimensions, any point can be represented by real coordinates (x, y, z, ...).

QR: A Cartesian space expands at its edges from a center in that space, but our space has no center and expands everywhere at once.

[Casimir effect](#). Two conducting plates placed close together in a vacuum experience a force pushing them together, so empty space is not empty.

[Cerebellum](#). Part of the brain that bulges out from its base and contains about 80% of its nerves.

[Channel](#). A link between two network points that can transmit processing, up to its bandwidth.
QR: A quantum channel between adjacent space points has a bandwidth of one quantum process.

[Channel set](#). The set of channels that let a point in space accept a ray of light with photons in every possible polarization plane.

[Charge](#). An inherent property of matter that causes electrical effects.
QR: Charge is the quantum processing left over after matter is created, that never runs. It is a positive-negative byproduct of how matter is made, not a property of matter.

[Childhood amnesia](#). The inability to remember events before a certain age, because the limbic system that lays down memories hasn't yet matured enough to do so.

[Choice](#). The ability to independently select one from a set of available physical options. Physics confirms that physical history can't predict atomic choices, so they can't have a physical cause.
QR: Where a physical event occurs depends on server choices made outside physical space.

[Client-server relation](#). A network relation that partitions work between a server and one or more clients. A printer or screen getting data from a laptop is a client-server relation. The server directs the client printer or screen to manifest letters or pictures.

QR: A photon is one quantum process spreading on the client network we call space. It spreads as processing waves until a client point overload reboots the server in a physical event.

[Coherence](#). Waves are coherent if their frequency and waveform are identical. When coherent quantum waves overlap and restart, they entangle into an ensemble that runs as one.

[Complex plane](#). The plane into which light waves vibrate, said to be imaginary.
QR: The complex plane is a quantum dimension that actually exists, so it isn't imaginary.

[Consciousness](#). The unalloyed capacity to experience a physical observation.
QR: Human consciousness is the ability to experience the observation of a physical event.

[Conservation of photons](#). That the number of photons in the universe has been constant since inflation ended, because matter is light trapped in a standing wave.

[Copenhagen interpretation of quantum theory](#). That imaginary quantum waves exist only for the purpose of physics equations, so quantum theory is a useful description of nothing.
QR: Quantum theory describes quantum waves that exist and so aren't imaginary.

[Corpus callosum](#). The 800 million nerves that connect the hemispheres of the brain.
QR: Cutting the corpus callosum divides consciousness, giving each hemisphere its own.

[Cortex](#). The folded layer of nerves that evolved from the forebrain to wrap around the midbrain and the hindbrain. It occupies 80% of the human brain but only has 20% of its nerves.

[Cosmic background radiation](#). White hot light from the early universe that is now cold due to the expansion of space.
QR: Cosmic background radiation is still all around us because our space curves back on itself.

[Cycle rate](#). The processing cycles per second, so a gigahertz processor is a billion cycles/second.
QR: The quantum cycle rate is about ten million, trillion, trillion, trillion cycles per second.

[Dark energy](#). A negative energy that pushes the universe apart, that current physics can't explain.
QR: New points of space receive but don't transmit processing for their first cycle, so dark energy is caused by the expansion of space.

[Dark matter](#). An invisible halo of matter that gives galaxies more gravity than their stars and planets allow, and so stops them flying apart.

QR: A black hole at the center of a galaxy traps a light halo around it, to create mass that isn't visible as matter.

[Delayed choice two-slit experiment](#). A two-slit experiment where an observation made *after* a photon passes through the slits decides if it traveled as a particle or wave, which is the future affecting the past according to physical realism.

QR: Occurs because the instance that restarts the photon wave, and decides its physical path, is chosen when it arrives to be observed, not when the wave starts.

[Deliverance premise](#). That the divinity behind human beings offers them a path to immortality.

[Dependence premise](#). That the visible world depends on an invisible divinity to exist.

[Distributed processing](#). Processing shared between processors. Processing distributed between more processors runs slower not less.

[Divinity premise](#). That an all-powerful reality exists unseen beyond the visible physical world.

[Down quark](#). A first-generation quark that has a minus one third charge, for no known reason.

QR: A down quark is a head-head-tail three-way collision of extreme light that almost completes the channels of a node plane, with a minus one-third quantum processing remainder.

[Dualism](#). That two different realities co-exist, a mind substance and a body substance.

[Egocentric speech](#). A running spoken commentary on perceived events actions generated by the intellect, usually in young children.

[Einstein's equation](#). $E=mc^2$ That the energy of matter is its mass times the speed of light squared.
QR: This equation can be derived from the definition of matter as trapped light.

[Electric field](#). A field that surrounds a charge to attract or repel other charges.

QR: A quantum field remainder gradient that moves other charged matter entities by biasing their natural quantum tremble.

[Electromagnetic field](#). A field whose electrical and magnetic aspects cause each other.

QR: The quantum field causes both electricity and magnetism.

[Electromagnetic spectrum](#). All the frequencies of light, including radio waves and X-rays.

QR: All the frequencies of light are one quantum process distributed more or less.

[Electron](#). An elementary particle with a negative charge that exists at a point with no extent.

QR: A head-head standing wave of extreme light that repeatedly completes all the channels of a point axis, with minus one quantum process remaining that never runs.

[Electron shell](#). Electrons occupy shells/sub-shells in an atom based on ad hoc quantum numbers.

QR: Electron occupy shells/sub-shells based on their wave radius, harmonic and direction.

[Electron spin](#). An electron has “half-spin” because only half its spin can be measured.

QR: An electron has half-spin because it exists in a plane, so only half its photons can be observed for any direction.

[Emotion](#). A neural representation of reality by the limbic system based on visceral sensations and emotional memory.

[Empty space](#). Space with no physical matter or light in it should be nothing at all, but it isn't.

QR: A network that has nothing to do is still null processing, so the vacuum of space is "full".

[Encapsulation](#). In computing, different processes can't input each other's output, so Notepad can't input pictures and Paint can't input text. Hence, different regions of the brain can't exchange data without protocols that brains don't have.

[Energy](#). A physical system's capacity to perform work. Can be kinetic (based on matter moving), radiant (based on light frequency), heat (based on temperature), or potential energy (based on gravity).

QR: Energy as the quantum processing transfer rate at the node explains all of the above.

[Ensemble](#). When quantum entities entangle to become one entity, it is called an ensemble.

[Entanglement](#). When one event creates two photons that leave in opposite directions, observing either spin, which is random, instantly makes the other the opposite, regardless of distance.

QR: Entanglement merges the photon servers to run both photons. Measuring either restarts one server randomly, leaving the other to run the opposite-spin photon. The effect ignores distance because client-server relations don't depend on client distances.

[Entrainment](#). The tendency of overlapping oscillating waves to become synchronous.

[Entropy](#). The amount of disorder in a closed system, which always tend to increase.

QR: The Law of All Action increases disorder by trying every option, and decreases it by finding new combinations that are stable. Our universe is increasing order even as it decays.

[Evolution](#). An iterative trial-and-error process that selects attributes that let creatures continue to exist by producing descendants.

QR: Matter also evolves by an iterative trial-and-error method that lets stable combinations continue to exist by constantly recreating themselves as standing waves.

[Existence](#). An entity exists if it occurs whether it is observed or not. It is currently believed that physical entities exist whether we observe them or not.

QR: Physical entities don't exist when they aren't observed but quantum waves do.

[Experiential science](#). The science of human experiences.

[Extreme light](#). The highest possible frequency of light, with a two Planck length wavelength.

[Family generations](#). Electrons, neutrinos, and quarks have three generations, each like the last but heavier, then no more. The standard model can't explain why.

QR: Higher electron, neutrino, and quark generations occur because space has two extra dimensions into which their wave structures can repeat.

[Field](#). A mathematical technique that assigns a value to every point in space, which is equivalent to assuming another dimension of space.

QR: All the fields of physics are equivalent to assuming one or more dimensions to space.

[Field theory](#). The theory that invisible fields spawn virtual particles. It is used to allow particles to explain forces like gravity. that act at a distance.

QR: The quantum field explains all the equations of field theory without the need to invent virtual particles that appear and disappear to fit the equations.

[Fundamental particle](#). Any matter that particle accelerator collisions can't break apart is said to be fundamental, to exist at a point with no size or substructure.

QR: The fundamental particles of physics are neither fundamental nor particles.

[Gauss's flux law](#). A flux spreading in three dimensions reduces as the inverse square of its radius.

QR: Gauss's flux law applied to the spread of quantum processing explains the inverse-square laws of gravity, magnetism, and charge.

[General relativity](#). The theory that the force of gravity equates to the force of an acceleration.

QR: Gravity is equivalent to acceleration because both are based on photon exchanges.

[Gluons](#). Massless virtual particles that are said to bind quarks in the atomic nucleus.

QR: Quarks bind by photon sharing, so gluons are unnecessary agents that don't exist.

[Goldilocks effect](#). That our universe has an unreasonable number of physical parameters set just right for life, without which we couldn't have evolved.

QR: Life is fine-tuned to physical reality because it evolved within it, just as crocodiles are fine-tuned to rivers because they evolved in them.

[Graviton](#). A virtual particle invented to explain gravity, based on no evidence at all.

QR: The quantum field gradient around matter causes gravity, so gravitons are unnecessary agents that don't exist.

[Gravity](#). The force that draws matter together at a distance.

QR: The quantum field gradient around a large mass biases the random movements of other matter towards it.

[Grounded theory](#). A scientific method that iteratively acquires data to form predictive theories.

QR: Quantum realism applies grounded theory to reverse engineer physical events.

[Just-in-time computing](#). The policy of leaving processing choices until the last possible moment.
QR: Nature uses this policy to choose a photon's physical path when it arrives, not before.

[Kinetic energy](#). Energy associated with the movement of matter.
QR: Matter moves when it acquires extra photons that bias its movement in a direction.

[Hidden variables](#). The idea that hidden physical causes explain quantum theory.
QR: The hidden variable is quantum reality, which is not physical.

[Higgs particle](#). A virtual particle invoked to explain another virtual particle that was invoked to explain neutron decay.
QR: Yet another unnecessary agent that doesn't exist, invented to support particle theory.

[Holographic principle](#). That everything physically knowable about a spatial volume transmits across the surface surrounding it.
QR: Quantum realism requires the holographic principle to be true.

[Huygens principle](#). That light is a wave spreading out, with each point a new wave source.
QR: Describes a processing wave passed on by instantiation on a processing network.

[Hypersphere](#). A four-dimensional sphere, whose surface has three dimensions.
QR: Our space is the inner surface of a four-dimensional bubble expanding in the quantum bulk.

[Idealism](#). That the physical world reflects something else that isn't physical.
QR: The physical world as a virtual reality reflects quantum reality, which isn't physical.

[Inflation](#). That immediately after the big bang, an immense anti-gravity field from nowhere inflated it faster than light to avoid a black hole. This doesn't explain where that field came from, how it acted faster than light, or why it stopped.
QR: [Inflation](#) began when the original quantum reality made the first photon in the first space, to give a chain reaction that created photons at faster than light speed, until the expansion of space stopped it.

[Information](#). A property of a physical state chosen from a set, defined as $\log_2 N$, for N options. It is undefined if N is unknown so a physical book has no information in itself.

[Instance](#). A server template run by a client is an instance of that template.
QR: A photon is a wave of instances of one quantum process that spreads on the space network.

[Instantiation](#). The act of providing processing to be executed independently, so any number of screen buttons can be instantiated from one server template.
QR: A photon wave spreads on the client network of space by instantiation.

[Interference](#). When two or more processes try to access the same resource at the same time, at least one must fail and try again, increasing the time that processing takes to run.
QR: When generations of matter overlap dimensions, interference increases the net processing that is mass, so a third-generation electron (a muon) is 200x the mass of an electron.

[It from Bit](#). Wheeler's conjecture that matter comes from some sort of information processing.
QR: Quantum realism proposes *It from Qubit*, that matter comes from quantum processing.

[Law of all action](#). That everything physically possible actually occurs at the quantum level, so whatever can happen, eventually will.

QR: The law of all action underlies both the second law of thermodynamics, which decreases order, and the evolution of matter and life, which increases order.

[Law of least action](#). That in nature, the amount of action used for any physical change is always the least possible, so light always takes the fastest path to any destination.

QR: A photon always finds the fastest path to any observed destination because its waves take every path, and first instance to arrive at the destination triggers an observed event.

[Life](#). A biological system that can replicate itself.

QR: Life is an inevitable result of evolution in the universe.

[Light](#). A transverse vibration of the electromagnetic field into a dimension outside physical space, that is said to be imaginary.

QR: Light vibrates **on** physical space, which is the inner surface of a hypersphere.

[Limbic System](#). A midbrain evolution that can lay down memories (Hippocampus), receive sensory input (Thalamus), recognize threats (Amygdala) and cause body states (Hypothalamus).

[Little rip](#). The "big bang" was really a little rip in the fabric of quantum reality.

[Local reality](#). A reality that is real from within but not from without, just as Monopoly money affects what you can buy in the game but has no value outside the game.

QR: The physical world is a local reality with respect to the quantum reality that creates it.

[Magnetic field](#). A field that surrounds a magnet to attract or repel other magnets.

QR: A quantum field spin gradient that moves magnetic matter by biasing its quantum tremble.

[Many-worlds theory](#). The theory that every quantum choice spawns a new universe.

QR: A zombie theory invented by physicists to explain away quantum choice.

[Mass](#). The property of matter that prevents other matter from existing in the same space.

QR: Mass is the amount of quantum processing that runs per cycle, and matter is a quantum standing wave that repeatedly runs on the network of space to exclude other matter.

[Mass problem](#). That the mass of a complex matter entity is more than its constituents, so the mass of a proton made of three quarks is 100 times that of three quarks.

QR: Mass is the total processing that runs, so when processes interfere, mass increases.

[Materialism](#). The belief that physical matter is the fundamental reality.

QR: Matter is not fundamental because it is made of light.

[Matter](#). An inert physical substance that occupies a space to keep other matter out.

QR: Matter as a quantum standing wave occupies space by constantly running there first.

[Matter time](#). Time passes for matter when it completes a forward processing cycle. Time passes for anti-matter when it completes a backward cycle. Anti-matter time runs backwards relative to matter time but even so, no physical event can be reversed because a reboot is irreversible.

[Measurement problem](#). That a quantum wave can never be observed because any attempt to do so will collapse it to a point physical event.

QR: We can't observe quantum waves because they create observation itself.

[Meson](#). A particle combination that has zero spin, so is said to be a boson that carries no force.

QR: A meson has no spin because its matter and antimatter spins cancel, so it isn't a boson.

[Monism](#). The belief that there is only one reality, so physical realism is a monism.

QR: Quantum realism is the monism that the only reality is quantum reality.

[Movement](#). A change in the spatial location of light or matter.

QR: Light and matter move differently, light by node-to-node transfer and matter by teleporting.

[Multiverse](#). The theory that there are parallel universes with alternate timelines.

QR: A zombie theory that proposes a clockwork multiverse instead of a clockwork universe.

[Murphy's law](#). The law that if anything can go wrong, it probably will.

QR: A world of constant change usually has more ways for things to go wrong than right.

[Network](#). A set of processing points that interact with each other.

QR: Space is a network where each point of space is a quantum processor.

[Network density](#). The ratio of actual connections to possible connections. If constant, it defines how many neighbors each node connects to.

QR: The density of the quantum network of space defines Planck's constant.

[Neural synchrony](#). When distant nerves constantly fire at the same time with great precision.

[Neutral Monism](#). That both mind and matter arise from a more primal reality.

QR: That the primal reality that causes mind and matter is quantum reality.

[Neutrino](#). An elemental matter particle with a tiny variable mass but a neutral charge.

QR: An asynchronous head-tail collision of extreme light, with no quantum processing left over, whose small mass varies with the asynchrony of the collision.

[Neutrino asymmetry](#). Neutrinos always spin left, so the universe is left-handed.

QR: The universe is left-handed because the first photon chose to spin left and the rest followed. We live in a universe of matter not anti-matter for the same reason.

[Neutron](#). The neutral result when an up quark and two down quarks combine.

QR: When these quarks share photons in a closed triangle, no quantum processing remains.

[Nihilism](#). The belief that everything is pointless so it doesn't matter what one does. It is expressed today as scientific nihilism, that the cosmos has no purpose.

QR: The physical world is a virtual reality that is costly to maintain, so it must exist for a reason.

[No-cloning theorem](#). That we can't copy quantum states, because reading a quantum state requires a physical event that destroys it.

QR: We can't copy quantum states but the quantum server that generates them can.

[Node](#). A point in a network, that can be a person in a social network, a device in a computer network, or text in a hyperlink network.

QR: Space is a processing network whose points receive, run, and transfer quantum processing.

[Non-physical detection](#). For an object to be detected without physically interacting with it isn't possible in a purely physical world, but it can happen in our world.

QR: Non-physical detection is possible because what quantum theory describes exists.

[Nuclear fission](#). Breaking apart atomic nuclei to release energy, as in atomic bombs.

[Nuclear fusion](#). Joining nuclei to create energy, as Hydrogen forms Helium in stars.

QR: Nuclear fusion is how matter evolves.

[Nucleosynthesis](#). How stars and supernovae make complex matter from simpler matter.

QR: All the atoms of the periodic table were created by nucleosynthesis.

[Nucleus](#). The proton and neutron center of an atom that contains nearly all its mass.

QR: A nucleus is a folded quark string, with at least one neutron per two protons.

[Null process](#). A processing activity that produces no net result, like a computer idling.

QR: The vacuum of space is not emptiness but the quantum client network null processing.

[Observation levels](#). The levels of observation used by science include physical, informational, experiential, and social. All can be valid ways to view quantum reality.

[Observer](#). The final destination of any information received in a physical interaction.

QR: Every physical event is an observer interaction, not just those that involve us.

[Observer effect](#). That how one observes a quantum entity alters what is observed.

QR: The observer effect arises because the physical world is a virtual reality.

[Occam's razor](#). That theories shouldn't multiply causes unnecessarily, so if two theories explain the same facts, science should prefer the simpler one.

QR: If one quantum field explains what many virtual particles do, it is a simpler theory.

[Order](#). The degrees of freedom of a physical system, where fewer choices mean more order.

QR: When quantum entities entangle, choices reduce so order increases.

[Panpsychism](#). The theory that all matter is conscious to some degree.

QR: Consciousness is a property of quantum reality but matter only exists as a view.

[Particle](#). Physics calls any energy spike in an accelerator collision, however brief, a particle.

QR: All the "particles" of physics are just events, even those that repeat.

[Particle model](#). A reality model based on particles that are said to exist inherently.

QR: All the particles of physics are quantum events, not things that inherently exist.

[Pass-it-on protocol](#). A network protocol where nodes first pass on their processing to their neighbors, then run whatever processing they have received, so no transfer is ever lost.

QR: The proposed transfer protocol for the network that is our space.

[Pauli exclusion rule](#). The after-the-fact rule that opposite-spin electrons can occupy the same point of space.

QR: Works because opposite spin electrons at the same point occupy different quantum spaces.

[Periodic table](#). A table of matter elements arranged by number of protons and electrons, that shows recurring trends in chemical properties.

QR: The periodic table represents the evolution of matter.

[Photon](#). A pulse of light with one frequency, polarization plane and direction.

QR: A photon is one quantum process distributed more or less over many nodes.

[Physical event](#). What happens when physical entities interact.

QR: Physical events occur when quantum waves overload the network of space.

[Physicalism](#). The theory that the physical world is real, in and of itself.

QR: In quantum realism, the physical world is virtual and only the quantum world really exists

[Physical realism](#). The theory that the physical world is all that exists.

QR: Quantum realism is theory that that quantum reality is all that exists.

[Physical state](#). The result of a physical interaction, that is said to exist apart from observation.

QR: There are no physical states, only observations that exist for a moment.

[Physical world](#). The set of all observable physical events.

QR: The set of all observable physical events is caused entirely by quantum waves.

[Planar circle](#). A circle in space of all a point's neighbor connections in a plane, that represents all possible directions in that plane from that point.

[Planck's constant](#). The smallest unit of energy exchange.

QR: A transfer of one quantum process per quantum cycle is the smallest energy exchange.

[Planck's relation](#). A photon's energy is Planck's constant times its frequency ($E=h.f$).

QR: $E=h.f$ can be derived if a photon is a distributed quantum process spreading on a network.

[Planck length](#). The smallest possible observable physical length.

QR: The smallest possible observable length is the distance between adjacent points of space.

[Planck time](#). The smallest possible observable physical time.

QR: The smallest possible observable time is the completion of one quantum cycle.

[Plato's cave](#). That we are like prisoners in a cave, who see their own shadows on a wall from the sunlight behind them, and take them to be real.

QR: One could say that the physical world is a "shadow" of the quantum "sunlight".

[Point particle](#). An elemental particle that has no spatial extent, like a quark. Such particles are said to fill space as matter because virtual particles from invisible fields keep them apart.

QR: A point of space has no extent but fills a part of space as a pixel fills part of a screen.

[Polar space](#). A space defined by orthogonal circular dimensions, where a point is represented by coordinates (r, θ, ϕ, \dots) , with r the radius and the rest angular directions.

QR: Space as a three-dimensional hypersphere surface can be represented by polar coordinates.

[Positivism](#). The nineteenth century fallacy that science must only refer to what can be physically observed. According to this view, quantum theory is not science.

QR: Quantum theory is a science because it predicts observable physical events.

[Potential energy](#). The energy that a matter entity has due to its position in a gravitational field.

QR: Potential energy is gained or lost by photon exchanges in the gravitational field.

[Program](#). Processing stored as static information that can be read and executed.

QR: The physical world can't be both a static program and its executed output.

[Processing](#). The act of creating or changing information. Processing can be stored as static data that a processor can later load and rerun.

QR: Processing that exists alone can't store itself, because to do so is a different process, so a quantum process running on a network can't use any static storage.

[Proton](#). The positively charged result when two up and one down quark combine.

QR: When these quarks share photons in a triangle structure, one quantum process is left over.

[Ptolemy's standard model](#). The medieval standard model, that heavenly bodies move in perfect circles, or circles within circles (epicycles), around the earth. It wasn't true, but it "predicted" star movements for centuries, as its followers altered the model to fit new discoveries.

QR: The standard model of physics today isn't true either, but physicists alter its invisible fields, virtual particles, and imaginary charges to fit any new discoveries.

[Quantum collapse](#). When quantum waves instantly restart at a point, in a physical event.

QR: Quantum waves can restart at a point in space when it overloads and reboots.

[Quantum directions](#). The directions outside space, into which light waves vibrate.

QR: Every point of space has three quantum directions at right angles to the three orthogonal planes through it, and to each other. A photon polarization plane is a quantum direction.

[Quantum field](#). The result of quantum waves spreading in space. Electromagnetism is a quantum field, and quantum field theories add other fields to explain other effects.

QR: One quantum field can explain the electrical, magnetic, gravitational, strong, and weak effects of physics, so no other fields are needed.

[Quantum network](#). The non-physical network of space that transmits light waves.

[Quantum paradox](#). That unreal quantum events cause real physical events.

QR: There is no paradox if real quantum events cause unreal physical events.

[Quantum process.](#) The basic command of the quantum network, which sets a circle of values at right angles to the surface of our space.

[Quantum processing.](#) Quantum processing is described by qubits rather than bits.

QR: Quantum processing is essentially the processing of processing.

[Quantum randomness.](#) Quantum collapse is truly random because no prior physical history can predict it. An example is atomic radiation.

QR: Quantum collapse is defined by quantum server choices that we have no access to, so we can't predict it. Physics calls it random because it is a choice made outside physical space.

[Quantum realism.](#) The theory that quantum reality creates the physical world as a virtual reality.

[Quantum space.](#) The four-dimensional space defined by quantum network connections.

[Quantum spin.](#) The imaginary rotation of a quantum entity into a dimension outside our space.

QR: The real rotation of a quantum process into a dimension outside our space.

[Quantum tunneling.](#) When a matter entity appears outside a barrier it can't pass through.

QR: Quantum tunneling occurs because matter moves by teleporting. Every cycle it restarts somewhere in its quantum field, so quantum tunneling is just matter moving as usual.

[Quantum wave.](#) A three-dimensional wave that vibrates in a dimension outside our space, that is said to be imaginary.

QR: Quantum waves vibrate into a quantum dimension that is outside our space.

[Quarks.](#) Elementary particles with one-third charges that can't exist alone.

QR: The phase options when three extreme light rays collide in a point of space to almost fill the channels of a plane. One quark isn't stable but groups of them form stable protons and neutrons.

[Quark string.](#) A closed string of quarks sharing photons. A three-quark string is a proton or neutron. The nucleus of every atom is a closed string of quarks with triangular connections.

[Reboot.](#) When a processor restarts its processing from scratch. A device that hangs has to reboot.

QR: When a point of space overloads and reboots, its processing restart is a physical event.

[Realism.](#) That a reality exists apart from our observation of it.

QR: Physical realism calls that reality physical, but quantum realism calls it quantum reality.

[Reality.](#) That which exists apart from the observer, to cause an observation.

QR: Quantum reality causes every observation.

[Relativity principle.](#) That the laws of physics are the same in every reference frame.

QR: This is true because matter adjusts its time and space when it moves.

[Reliability.](#) That a measurement result is repeatable by others. See [here](#).

[Renormalization.](#) A mathematical technique that makes the infinities of field theory go away if particles interact by means of other particles, hence the need for virtual particles.

QR: Renormalization is the mathematical trick that lets unreal particles explain quantum effects.

[Reverse engineering](#). The iterative method of deducing processing by observing its output.
QR: Quantum realism reverse engineers physical events to deduce quantum processing.

[Schema](#). A sensorimotor sequence created by the cerebellum that represents a motor event.

[Second law of thermodynamics](#). That disorder always increases for a closed system over time.
QR: The law of all action that causes the second law also makes order evolve, by discovering more complex entities that survive, by stability or replication.

[Server](#). A processing source that can pass a template to one or more clients for it to run.
QR: A photon wave is an entity because the server that generates it can also restart it.

[Schrödinger's cat](#). An attempt to extend quantum superposition to a live/dead cat.
QR: The superposition isn't maintained because *the cat knows* if it is alive or dead.

[Science](#). A way to ask questions of reality, not a fixed set of facts.
QR: Quantum realism is compatible with science but not the theory of physical realism.

[Simulation hypothesis](#). That our physical reality is a simulation so realistic that its participants are unaware that they are living in a simulation, e.g. The Matrix movie.
QR: The physical world is a virtual reality that doesn't reflect any other physical reality, so it isn't a simulation of anything.

[Singularity](#). The prediction that the matter in a black hole exists at a point of infinite density, based on extrapolating equations beyond their known application.
QR: A black hole is a *region* where the bandwidth of space is full, so there is no singularity.

[Solipsism](#). That the physical world exists only as a dream of the mind.
QR: Quantum realism isn't solipsism because it has a real world out there, beyond the observer.

[Space](#). The three dimensions that matter exists and moves in.
QR: Our space is the 3D surface of a hypersphere, so it can transmit quantum waves.

[Special relativity](#). The theory that matter alters its space and time to keep the speed of light constant when it moves.
QR: Is true because matter moves by teleporting, which alters its space and time.

[Speed of light](#). The speed at which light moves in a vacuum is constant, for an unknown reason.
QR: The speed of light is constant because the ability of space to transfer light is fixed.

[Standard model](#). A model that uses 5 invisible fields, 62 fundamental particles, 16 charges, 14 bosons and 24 data-fitted parameters to explain the findings of physics.
QR: The standard model predicts gravitons and gluons without evidence, uses invalid virtual particles like the Higgs, and can't explain why most of the mass of the universe is dark energy and matter. It predicts after-the-facts, like Ptolemy's standard model of cycles and epicycles.

[Standing wave](#). When waves constantly collide to give a stationary wave form.
QR: Matter arises when light waves constantly collide on the space network.

String theory. That one-dimensional strings acting in 11 dimensions cause all physics equations.
QR: A zombie theory whose 10^{500} versions don't predict anything.

Strong force. The force that holds quarks together in the nucleus, attributed to virtual W bosons.
QR: Quarks in a nucleus bind together by sharing photons in a closed string, so W bosons are imaginary agents that don't exist.

Superposition. That a quantum wave can be in many places at once, so a photon wave can pass through two slits at once.

QR: A photon is a processing wave whose instances can pass through two slits at once.

Teleport. When an entity moves to a point with no physical way to travel there.

QR: All matter moves by teleport, by restarting itself at a point in its quantum field.

The binding problem. How can a decentralized brain bind together information from distant brain areas to allow unified percepts, choices, and actions?

QR: Distant nerves synchronize and entangle into a quantum entity that observes and chooses.

The hard problem. That we experience observation when there is no physical way to do that.

QR: Quantum entities observe on every scale, and larger entities observe more.

Thought. A neural representation of sensory patterns created by the neocortex.

Time. What separates different events at the same point. Time passes for some reason.

QR: Time passes when quantum cycles complete, to eventually give different physical events.

Time travel. The idea that time is a dimension that one can travel back or forth along, like space.

QR: Travelling back or forth along a time dimension denies causality and choice, respectively.

Transfer problem. That a transfer between the points of a network could be lost.

QR: The pass-it-on protocol ensures that every transfer of space is accepted, as an interrupt.

Transverse circle. A circle of values transverse to the surface of space that represents a photon vibrating in its polarization plane.

Young's two slit experiment. A light shining through two slits gives a screen interference pattern.

QR: The pattern occurs because photons are waves not particles, as quantum theory states.

Uncertainty principle. That one can know a quantum particle's exact position or momentum but not both at once.

QR: Occurs because measuring a wave can reveal position or wavelength, but not both at once.

Up quark. A first-generation quark with a strange plus two-thirds charge.

QR: A head-tail-tail three-way collision of extreme light that almost fills the channels of a plane through a point of space, with two-thirds of a quantum process left over that never runs.

Validity. That a theory construct represents what it is said to represent. See [here](#).

QR: Virtual particles are invalid constructs because there is no evidence that they exist at all.

[Virtual reality hypothesis](#). That our physical reality is a virtual reality so realistic that its participants are unaware that they are living in a virtual reality.

[Virtualism](#). That physical events are the processing output of some unspecified “other”, whether of a great mind, another physical world's processing, or quantum reality.

QR: In quantum realism, the “other” is quantum reality.

[Virtual particle](#). A particle that mediates a force at a distance, but can never be validated because it is created and consumed in the same event.

QR: [Virtual particles are unnecessary](#) agents, as quantum processing explains all their effects.

[Wave-particle duality](#). The ability of a quantum particle to be a wave or a particle as required, though no physical particle can act like a wave, nor can any physical wave act like a particle.

QR: Quantum entities are processing waves that reboot to appear as particles in physical events, so there is no wave-particle duality.

[Weak force](#). That virtual weak bosons turn neutrons to into protons after about fifteen minutes in empty space, but protons in space didn't turn into neutrons as predicted.

QR: Neutrinos turn neutrons to into protons in space, but the reverse requires high energy electron interactions that only occur in stars.

[Weak bosons](#). Virtual particles with mass that were invented to explain the weak force.

QR: Weak bosons are unnecessary agents because neutrinos explain the weak force.

[WIMPs](#). Weakly Interacting Massive Particles. The standard model predicted that they would explain dark matter, but there no evidence at all that they exist.

QR: Another standard model prediction that failed.

[Zitterbewegung](#). A natural trembling of quantum matter predicted by quantum theory.

QR: Zitterbewegung is the basis of all matter movement.

[Zombie theory](#). A scientifically “dead” theory that doesn't predict but can't be falsified, like a zombie that has no progeny but can't be killed e.g., multiverse theory, string theory, solipsism.