Quantum Consciousness

Forward

(As a foundational collection of thoughts for the correct propagation of Buddhist teachings from Shakyamunibuddha, and the lineage through China, Japan and the world, from East to West, from thousands of years past to today, human science represents the most rigorous system of determining truth. However, truth finds expression in subjective experience; and how this occurs is, in a very direct way, the foundational work of Buddhist teaching, Buddhist 'devices', 'expedients', and 'stories' designed and offered to minds of varied capacity. In this collection of scientific reference material, I annotate the document to demonstrate the vernacular of science and the every day, the experience of the physical analysis of our experience in this cosmos and juxtapose it directly to the vernacular of the Buddhist teachings.

As a boy growing up in Eastern Canada, I was often surrounded by the teachings of the martial arts. Montreal was the first city to host the Jujitsu master from Japan who developed the system known as Judo, a new scoring and competitive "safe version" of one the great martial Japanese traditions. In person and on television, the statement that "Mind was stronger than matter" or the myriad versions and formulations of that thought were a near constant. I was fascinated by the idea that my mind could actually alter conditions to my focused volitional actions. I adopted this reasoning model throughout my life and found expression for it in all aspects of my endeavors and thoughts.

You will also notice while reading this transcription, several words that I have repeated throughout my books, my videos, and discussions in my own expedient means of propagating the Buddhist teachings just I will endeavor to do in this document.

All my annotations and interjections will be contained in parenthesis and italicized.

Bodhisattva, Sifu Sylvain Chamberlain)

Transcript Introduction

What would happen if we discovered that our brain is not the producer of consciousness but a sophisticated receiver tuned to a fundamental frequency of the universe. For decades, science has tried to explain subjective experience as a simple byproduct of neuronal electrical activity, a secret hidden among the folds of gray matter. Yet despite the extraordinary progress of neuroscience, the so-called hard problem of consciousness remains unsolved.

(There seems to be a certain wave of thinking on this idea of thee Brain as receiver, antenna, or translator of a consciousness or "source" on a cosmic scale that is outside the human sentient experience. This is a slippery slope in that it can lead quickly to an ancillary idea of an outside or "other" entity as ultimate "creator" or controller/master. To be fair, I am thinking that the articles I have selected are more deliberate in their investigation of structural properties of the energies of generation of the universe and its "contents" rather than its ownership. However, I think it is worth stating here that I find the Buddhist corollary to this idea in the ***Tathagata*** *momentum or karmic seed. Seed, that is, as a proto-tendency of the fluctuations leading to the amalgams of expressions from the quiescent "bulk". This would be a proto-tendency freely combining with other fluctuations of energetic expression to precipitate all the constituent parts of the earliest universe, kicking off the process of all that would come later to be experienced.)*

Today, some of the most brilliant minds in physics and biology are exploring radically new territories, suggesting that consciousness is not just a result of biological evolution, but also an intrinsic property of reality itself.

Understanding this perspective does not only mean changing the way we look at medicine or artificial intelligence, but entirely reconsidering our place in the cosmos.

Before however, entering the heart of every theory, it is worth stopping for a moment on the so-called hard problem of consciousness, an expression coined by the philosopher David Charas in the '90s. Charas distinguishes between the easy problems of consciousness, namely explaining how the brain processes sensory information, regulates behavior, and integrates perceptual data and the hard problem, which is instead that of explaining why all this processing is accompanied by a subjective experience.

(Here again I refer to the fundamental aspect of the Tathagata as the exigence to "self-perceive" from the smallest to the grandest expression of the process. I am thinking again of the Skandhas and the Nidana.)

Why is there "something" that it feels like to be us instead of a simple signal processor without any "inner light"? It is this abyss between the neuronal and the phenomenal that none of traditional neuroscience has yet been able to bridge and that all five theories that we will explore today attempt across with radically different tools. Number one, the ***orchestrated objective reduction*** of *Roger Penrose* and *Stuart Hameroff*. This theory known as *Orch-OR* represents one of the boldest attempts to unite *quantum physics* with *cellular biology*. Sir Roger Penrose, Nobel Prize winner for physics, started from a fundamental logical observation based on Girdle's incompleteness theorems.

(Now this, I find tremendously exiting. The idea that a massive collection of microscopic regions of the human brain can replicate an energetic resonance of the cosmos within an individual or even a multitude of brains to express this ***Tathagata*** *of exigency "to be" as an internal physical component, and use it to produce the emergent experience of "Mind", for every ensuing karmic tendency*

and condition to find expression leading to the sentient experience of itself, the entirety of the process of life, the cosmos; well, it is our only purpose. Our integral, built-in, incredible purpose. This is the two way antenna, sending to our mind the totality of life and receiving our invocation of it as Buddhahood. NaMuMyoHoRenGeKyo.)

The human mind is capable of understanding mathematical truths that no algorithm or traditional computer will ever be able to calculate. If our mind is not algorithmic, then it cannot be a simple software running on classical biological hardware. Penrose hypothesized that consciousness must emerge from non-computable physical processes occurring at the plank scale. the most infinite decimal fabric of spacetime. The encounter with the anesthesiologist Stuart Hameroff provided the missing biological piece **microtubules**.

These tiny protein structures inside neurons would not only serve as a cellular skeleton but would act as protected environments in which subatomic particles can exist in a state of quantum superposition. According to this vision, consciousness occurs when these quantum superpositions collapse in an orchestrated way inside the microtubules, allowing the brain to access a fundamental geometry of the universe that already contains within itself the seeds of subjective experience. We are therefore not biological machines but quantum systems capable of connecting to the very structure of reality. What makes the Orch-OR theory particularly fascinating is the increasingly solid convergence between its predictions and experimental data.

For decades, the main objection was that the brain's biological heat was too chaotic to allow for quantum coherence. But in recent years, this barrier has been progressively eroded. Experiments by the physicist Jack Tazinski have shown that microtubules are capable of generating real quantum reactions at biological temperatures. Studies on rats, to which microtubial stabilizing drugs had been administered, showed an anomalous resistance to anesthesia, a result that is perfectly explained within Hameroff's model. Another recent contribution of great interest comes from the physicist Yoakim Kepler of the Dis Research Institute. His model based on quantum electrodynamics describes how the 0 point electromagnetic field that same ocean of fluctuating energy that permeates the quantum vacuum can resonate with the cortical micro columns of the brain specific frequencies in the order of terahertz.

It is an indirect but powerful confirmation of the central intuition of **Penrose** and **Hameroff**. It is worth remembering that in 2017 together with Penrose himself, physicist James Tagg and scientist Yvette Fuentes, Hameroff co-founded the ***Penrose Institute***, a research center explicitly dedicated to exploring the links between quantum gravity, cosmology, and consciousness.

The fact that a scientific institute of this level was founded with these objectives signals that what for years was considered an eccentric hypothesis is becoming a serious structured and growing research program.

Number two, the formational quantum panpsychism of Federico Faggin and Maro Dariano. Faggin, famous physicist and inventor of first microprocessor in the world, has dedicated the last part of his career to studying what technology will never be able to replicate qualia or subjective sensations such as the scent of a rose or the taste of chocolate. Faggin argues that there is a clear distinction between classical information which can be copied and manipulated and conscious experience which is private and indivisible. According to his model based on a solid mathematical structure developed together with physicists such as Jakamo Maro Dariano, consciousness is a fundamental property of the quantum vacuum or of a primary ontological unit.

In this vision, the brain acts as a complex interface that allows connection with a universal consciousness that permeates spacetime. Matter does not generate the mind. On the contrary, matter is the way in which consciousness manifests itself in order to be able to experience and communicate. It is a Capernac revolution. We are not bodies that have a consciousness, but we are consciousness that uses a body and a brain to translate electrical signals into living meanings. The theoretical framework that Faggin and Dariano have built is founded on a precise conceptual pillar. The no cloning theorem of quantum mechanics. This theorem well known in physics states that it is impossible to create an identical copy of an arbitrary unknown quantum state. Faggin interprets this principle as a mathematical anchor for consciousness.

In the same way that a quantum state cannot be duplicated, subjective experience, our qualia are also intrinsically private and not replicable. There is no machine, however sophisticated, that can take possession of your experience of the color red or of your pain because that experience is quantum mechanically unique as is every pure state of the quantum field that according to Faggin we are at depth. The most original concept of his proposal is that of seety which in English he calls seety.

> *(Here again is that fundamental aspect of Tathagata, the self knowing, self-experiencing "awareness". In this context I would tend to attribute "awareness" as prerequisite for consciousness. Thinking back to the Nidana, the first stirrings of reaching or finding affinity for or toward "more". The being with validation of that "being". The very aspect that inexorably leads to the sentient Buddha consciousness that can bare witness.)*

It is not simply an entity endowed with consciousness but an entity that knows it is conscious that possesses its own identity and that acts with free will. In this architecture, the universe is a hierarchy of cities of conscious entities of different levels of complexity all emanated from a single fundamental source that Faggin calls one. A holistic property of the universe already recognized although not interpreted in this way by the non-separable structure of quantum mechanics. It is a vision that sinks its roots in the most rigorous physics but blossoms in a territory that many would find almost spiritual and Faggin does not shy away from this tension. On the contrary, he claims it as his strength. It is not surprising, therefore, that Faggin has become a point of reference not only for those who question consciousness, but also for those who study the implications of artificial intelligence.

The advent of advanced language models has posed a question to the collective consciousness that could previously be evaded. Can a machine be conscious?

Faggin responds with a firmness that derives directly from his theory. No. Not because a machine cannot process information in an extraordinarily complex way, but because the processing of information, classical, however refined, never generates qualia.

Number three, the biocentrism of Robert Lanza. Robert Lanza, one of the most important biologists in the world, proposes a vision in which biology and life are not random accidents of physics, but the keystones for understanding the universe. According to biocentrism, space and time are not external and absolute physical objects, but tools of our mind, forms of biological processing that we use to make sense of reality. Lanza draws heavily from experiments in quantum physics, such as the double slit experiment, to demonstrate that the behavior of particles intrinsically depends on the presence of an observer. *Without a consciousness that perceives, the universe would remain in a state of indeterminate possibility, a sort of formless fog of probability. In this perspective, consciousness is the very foundation of existence.* It is life that creates the cosmos and not vice versa. The brain in this context does not produce awareness out of nothing, but organizes the flow of cosmic information into a coherent structure of space and time, acting as a sort of lens through which reality takes on a solid and understandable form. The most provocative point of biocentrism concerns cosmology. Lanza directly confronts one of the largest questions of contemporary physics.

Why do the physical constants of the universe from the speed of light to the mass of the electron seem calibrated with incredible precision to allow the existence of life? For many physicists, this fine-tuning is explained by the multiverse hypothesis, namely the existence of countless parallel universes with different constants, of which we inhabit one of the few compatible with life through pure selection. But Lanza reverses this logic. It is not a lucky chance that the universe adapts to life because it is life itself through consciousness that determines the physical properties it observes. The observer is not a random guest of a prepackaged universe. He is the co-creator of the reality that surrounds him. Lanza argues that if space and time are not absolute realities but constructions of the biological mind, then death, understood as a definitive cessation of experience, cannot be an absolute event. In quantum terms, consciousness does not go out like a light bulb. It transforms. It redistributes itself. It continues to exist in forms that our perceptual architecture is not equipped to detect.

This position has garnered enormous interest but also significant criticism. Many physicists point out that Lanza uses the concept of observer in quantum physics in a much broader sense than the formalism allows, equating it to a subjective consciousness. when in reality in the language of quantum mechanics the term indicates any physical system that interacts with another. It is a crucial distinction and keeping it in mind while following Lanza's argument is the most honest way to appreciate its greatness without losing sight of its limits.

Number four, the multimodal interface of Donald Hoffman. Hoffman, internationally renowned cognitive scientist, uses evolutionary game theory to reach a shocking conclusion. Our perception does not show us the objective truth, but actively hides it. According to his mathematical simulations, organisms that see reality for what it really is always go extinct in favor of those that only see what is useful for survival.

Hoffman uses the metaphor of the computer desktop. The colored icons we see on the screen are not the reality of the computer made of complex circuits and silicon, but a useful simplification that allows us to interact with it without having to know its technical complexity. In this vision, the physical world and neurons themselves are only icons of our graphical interface. The true underlying reality would be composed of a vast network of conscious agents interacting with each other. The brain therefore is not the origin of the mind but is itself a part of the interface, an icon that represents the way in which our limited consciousness interacts with the infinite network of universal consciousness. The power of Hoffman's work lies in the mathematical rigor with which he built this thesis. Using simulations, he formally demonstrated that in a selective environment, the accurate perception of reality is always disadvantageous compared to a perception optimized for fitness. Evolution, in other words, has never selected for truth. It has selected for utility. This principle, which Hoffman calls the fitness beats truth theorem, has been published in peer-reviewed scientific journals and represents a genuine contribution to the theory of perception, regardless of how far one wants to push into its more radical philosophical implications.

> *(This is Samsara all day long. What an amazing insight for Buddhists to understand the inherent duality at the first instance of the process of Life. Of course this relationship would require profound effort and dedication to reveal and eventually divorce in order to experience the "pure" observer of the cosmos and its vast potentials and expressions.)*

The next step that Hoffman takes and which leads him directly into the territory of fundamental consciousness is that of conscious realism. If spacetime is only an interface and not the ultimate reality, then what is underneath? Hoffman proposes that the fundamental structure of the real is composed of conscious agents, elementary entities endowed with experience capable of perceiving, deciding and acting which interact with each other, generating as a side effect of their network of interactions. Everything that we perceive as the physical world. In this framework, even the most elementary brain in the universe, a single bit agent, possesses two experiences and two possible actions. It is the smallest imaginable form of consciousness, but it is already consciousness. There is nothing in this universe that does not have at least this inner spark.

Hoffman argues that spacetime as we know it will not survive the next scientific revolution. Physicists working on quantum gravity and string theory are already encountering signals that spacetime emerges from more profound structures not fundamental but derived. Hoffman reads these developments as an indirect confirmation of his proposal. The physical stage on which our life plays out could be the shadow cast by something radically different. Something that looks much more like a network of minds than a vacuum of Cartesian coordinates.

Number five, the *integrated information theory* of Giulio Tononi. Although it is often considered closer to traditional neuroscience, Tononi's theory, *Integrated Information Theory (IIT),* known as IIT, is deeply linked to these frontier visions thanks to its mathematical definition of consciousness through the Phi parameter. Tononi proposes that consciousness does not depend on what a system does but on how it is structured. A system is conscious if it possesses a high degree of integrated information. Meaning if the whole is much more than the simple sum of its parts and if this information cannot be reduced to independent subsystems.

The Phi parameter measures exactly this capacity for integration. The strength of this model is that it suggests that consciousness is an intrinsic property of matter organized in a certain way. The more complex and interconnected a system is, the higher Phi is and the greater its capacity to generate experience. Even though Tononi starts from a materialist base, his work opens the doors to a revolutionary idea. If consciousness is linked to the integration of information, then it could be present wherever physical structures with the right architecture exist, making it a pervasive feature of the universe. What distinguishes IIT from previous theories is its ambition to be not only descriptive but predictive. Tononi has stated five fundamental axioms of conscious experience.

1. It exists.
2. It is structured.
3. It is informative.
4. It is integrated.
5. And finally, it is exclusive in the sense that each experience has a well-defined causal structure that excludes others.

From these axioms through a rigorous logical path, the physical properties that a system must have to be conscious are derived. It is a radically different approach from trying to find the neural correlates of consciousness with functional magnetic resonance imaging.

Instead of looking for where the brain lights up, IIT asks what the causal structure of the system that generates that lighting is. The most dramatic application of IIT is the hat to the medicine of consciousness disorders.

> *(Oh boy, I hear the bells going off. Can you follow the 12 linked causal Chain of the Nidana in all this? The formation of the Skandhas?)*

Neuroscientist Kristoff Kau among Tononi's closest collaborators has worked for years on the application of the Phi parameter to patients in a vegetative state. In some cases, patients clinically classified as unconscious showed in the analysis of the integration of brain information five values compatible with states of residual consciousness not detectable by standard methods. This has ethical implications of enormous scope. If IIT is correct, we might have treated for decades as insensitive people who instead had an active inner experience simply because they were

deprived of the motor capacity to communicate it. In seeking a common thread between these five extraordinary visions, a fascinating and coherent image emerges that moves away from the dogma of the brain as a solitary generator. The idea of the brain as an antenna or a sophisticated interface is solidifying, a physical substrate designed to tune into a consciousness that preexists matter.

A crucial reference in this synthesis is the recent work of physicists and materials scientists such as Maria Strummer whose research on the complexity of nano-materials and biological systems suggests that structural complexity may be the fundamental requirement for receiving and processing experience. In this perspective, Tononi's Phi parameter would not indicate how much consciousness a brain produces, but how much that substrate is capable of acting as an efficient receiver for universal consciousness. Neural complexity, therefore, would not create awareness out of nothing, but would determine the quality and depth of the connection between the individual and the fundamental field of reality. It is as if the universe were immersed in a constant signal and our biological architecture were the radio that allows that signal to transform into music. It is important to note that these five theories do not necessarily exclude each other.

1. The Orch-OR of Penrose and Hameroff identifies the microscopic physical mechanism through which the brain could connect to something fundamental.

2. Faggin's QIP provides the ontology that is the philosophical and mathematical structure that describes what that fundamental something is.

3. Lanza's biocentrism redefines the relationship between observer and universe, dissolving the apparent absurdity of a reality that depends on those who look at it.

4. Hoffman's interface theory explains why our perception does not directly show us that profound reality, but only a projection useful for survival.

5. And Tononi's IIT offers the mathematical tools to measure the degree to which a physical system is capable of participating in that experience.

They are different lenses pointed at the same mystery. Each capable of illuminating an aspect that the others leave in the shadows. There is an implication of all this that deserves to be named explicitly because it goes far beyond physics or biology. If consciousness is indeed a fundamental property of reality and not an evolutionary accident that appeared 300 million years ago in some lucky vertebrate, then every moment of conscious experience has an ontological weight that materialist science has never known how to recognize. Every perception, every emotion, every moment of awareness is not a waste product of brain electro-chemistry, but an event that participates in the structure itself of the universe. It is not philosophical consolation. It is a logical consequence of these models. And while we wait for science to develop the tools to definitively verify or refute them, the mere fact that questions of this level have become legitimate scientific research represents already in itself a profound transformation in the way humanity understands itself.

This journey to the boundaries of knowledge suggests that we are much more than simple spectators in a mechanical and purposeless universe. If consciousness is a fundamental property of the cosmos, every thought and every perception of ours connects us to the very fabric of reality. Much remains to be discovered, and the distinction between what is verified and what is speculative must remain our compass. But the very fact that science is starting to ask these questions marks the beginning of a new era in our understanding of existence.

Which of these theories convinced you the most or stimulated your curiosity the most?