THE PRINCIPLE OF CREATION APPLIED TO QUANTUM SCIENCE AND ITS EXPERIMENTAL CONSEQUENCES

Richard L. Lewis, PhD
UTI, Tokyo, 2006

Most scientists in this age are firmly rooted in the materialistic view of creation. That this will be a transient period in science history is first of all suggested by the Principle.

The prediction that President Eu wrote in his introduction to the Principle is that science and theology will unite seamlessly in their description of the cosmos—God, the spiritual realm and the physical realm—in the time of the great transition we are currently living in:

> Religion and science have been the methods of searching for the two aspects of truth, in order to overcome the two aspects of ignorance and restore the two aspects of knowledge. The day must come when religion and science advance in one united way, so that man may enjoy eternal happiness, completely liberated from ignorance and directed toward goodness, which is what the original mind desires. Then, mutual understanding will occur between the two aspects of truth, the internal and the external…
>
> What is the destiny of science? Until now, scientific research has not embraced the internal world of cause, but only the external world of result; not the world of essence, but only the world of phenomena. Today science is entering a higher dimension; it is no longer concerned exclusively with the external world of result and phenomena, but has begun to examine the internal world of cause and essence as well. Those who have taken the path of science are concluding that, without the truth that relates to the spiritual world of cause; that is, the internal truth, man cannot attain the ultimate purpose of science; that is, the discovery of the external truth, which pertains to the external world of result.
>
> A sailor making a voyage on the sea of the material world under the sail of science in search of the pleasures of the flesh may reach the coast of his ideal, but he will soon find it to be nothing more than a graveyard to hold his flesh. But when the sailor who has completed his voyage in search of external truth under the sail of science comes into contact with the sea-route to internal truth, under the sail of religion, he will be able to end his voyage in the ideal world, which is the goal of the original mind's desire.

The second reason we can know that materialism is transitory is that it cannot deal with the truths that quantum science has already revealed about the physical world.

Scientists are first educated in classical (materialistic) science and then later specialize in quantum science. Without fail, when translating their precise math into the fuzzy English concepts of materialism, they will use a phrase such as ‘quantum weirdness’ to apologize for how weird the world of the atom is. Such quantum weirdness is quickly ‘swept under the carpet’ and routinely ignored by all the sciences except advanced physics.

The physical universe, however, is not weird or unnatural. It is the effort to use the incorrect concepts of materialism to explain the real world that is generating the weirdness, not creation itself.

The Principle of Creation, as predicted, does blend seamlessly with quantum science. It does not condemn it as ’weird’ but rather embraces it and makes sense of it; digests it so that the quantum perspectives can be used in all the sciences.

Scientific revolutions do not come easily, however, and ICUS has yet to make a great impact on mainstream science. The problem is that science is very conservative, it has to be; it only changes when it is forced to do so, and even then it can take until the next new generation to fully accept the change.

The only thing that can make science change is experiment, not philosophy. Only when there are experimental results that contradict current theory is there opening for a new theory to be established as the mainstream. So, ICUS has the theory, it has yet to make experimental predictions contradicting materialism, predictions that can be tested and verified.

The Principle and Quantum Science

The Principle of Creation states that all things have a dual aspect. There is an internal, directive aspect (sungsang) and an external, responsive (hyungsang) aspect.

While they do not use the same words of course, this is exactly the way that quantum science views the physical world: The basic principle of Quantum Science is that all things made of atoms have a dual aspect. There is an internal, directive aspect (wavefunction, orbital, probability amplitude) and an external, responsive (fermions & bosons) aspect.

While this unified view is used in physics, it is not used in chemistry, biochemistry, biology, evolution, etc. in the science hierarchy.

With the unified view of the Principle, however, we know where to look. We can isolate situations where the Principle and Materialism make quite different predictions. The experiments can be done and the Principle view vindicated.

As we shall now outline, one such place where materialism and Principle diverge is in the description of catalysis, the fundamental way in which living systems manipulate atoms and molecules in metabolism. As all growth, development, evolution and thinking by living systems involves such manipulation of atoms in molecules, macromolecules and their higher constructs, any change in viewpoint of enzyme catalysis—supported by otherwise unexplainable experimental results—will have implications that will ripple up the scientific edifice that is the mainstream.

Principle Science View of the Hydrogen Atom

Our starting point is the Principle view of the atom.

At the end of the hot Big Bang phase of God's creation of the universe, the physical world was remarkably simple. It was composed of photons of light, an equal number of matter and antimatter neutrinos (insubstantial 'knots' of spin in spacetime), and the particles of matter (electrons and quarks) that are now to be found in the atoms of the universe. The ratio of the "relic photons" to the matter particles was, and still is:

100,000,000,000 : 1

The electrons and quarks of this period were in the form of hydrogen atoms making up 90% by number, 80% by weight, and helium atoms the other 10%. The first generations of stars (our sun being of the third generation) in the 15 billion years since, have converted a fraction of this original beneficence into complex atoms, such as carbon and oxygen. These atoms they later contributed to subsequent stellar nurseries in their transitioning convulsion as a supernova explosion before settling down to life as a neutron star or black hole.

The universe is still mainly hydrogen, however, as the current ratio of original hydrogen/helium to all the other atoms combined is:

99.99% *H/He* : 0.01% *C, O,* etc

Thus the following description of the hydrogen atom embraces most of the matter in creation, the other atoms are basically similar.

IDN of hydrogen atom

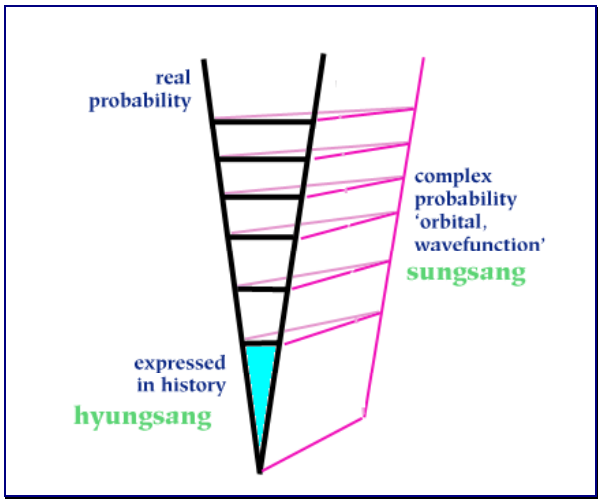
The Principle of Creation calls the internal, sungsang aspect of the hydrogen atom the Inherent Directive Nature. It has little to say about any details to this aspect of the atom.

Quantum science variously calls the internal, directive aspect of the atom the orbital, the wavefunction, the probability amplitude. Science knows a tremendous amount about the details of this aspect, all of which is neatly and precisely expressed in a mathematical sentence called Schrödinger's Equation.

The orbital exists in what mathematicians call "complex space" that involves 'imaginary' extensions to spacetime as well as the familiar 'real' extensions in space and time.

It is highly structured and hierarchal, and its forms get very intricate at the higher levels. Like an iceberg, only the tip of this internal structure to the complex probability amplitude extends into external world of space and time as real probability. (The technical connection is that the external probability 'tip' is the square on the magnitude of the probability amplitude 'iceberg,' the external tip of the orbital having only three 'degrees of freedom' in space while the entire construct 'iceberg' has twelve degrees, not including time as there is no 'time development' of the orbital wavefunction, it is constant in time.)

The following simplified diagram is a section of the wavefunction in the Principle Science view of the atom.



The IDN is the entire wavefunction in poly-dimensional complex space, diagramed as a purple wedge. The tip of this iceberg that extends into 3-D real space is the black frame. This is a field of real probability that governs what an electron does as it moves through time. Just one of these levels—the lowest and smallest 1s orbital—is occupied by an electron in the diagram as a blue wedge; it is a 'ground state' hydrogen atom. The rest of the levels are empty, but always there.

Hyungsang

Over periods of time that are brief by our standards, the electron is entrained by the orbital, and the form of its bounded history is a 3-D expression of the poly-dimensional form of the complex IDN.

The levels reach on up to large numbers, and an 'excited atom' in which, say, the 521s orbital is occupied by the electron is called a 'Rydberg atom.' They can be centimeters across as compared to the tiny size of the occupied 1s orbital in the ground state atom.

The hyungsang aspect of the atom is the electron, the three quarks, some coupling photons and an intense color field of gluons with a great deal of energy.

We can give a relative size of the internal and external of the atom by setting the electron and the three quarks to size 1. Their combined 'rest-mass' contributes about 0.01% to the mass of the atom.

The proton at the center of the atom has a quantum color orbital wavefunction that contains the quarks and the intense field of gluons they have generated. The proton is 100,000 times bigger than the three quarks, which spend most of their time in the colorless center, having shed all their color charge onto the gluons (which are similar to light and have wavelengths about the size of a proton. The surface of the proton is where all the color is at the ends of the gluons. The gluon field is basically a ball of intense light whose energy is responsible for 99.99% of the mass of the atom.

The smallest atomic orbital—the 1s as it is called—is 10,000 times the size of the proton and 100,000,000,000 the size of the electron.

The external tip of the internal 1s orbital determines the probability of what the electron can do, so what it does is jump around inside the vast, but bounded, external extent of the internal IDN generated by the proton.

While the electron itself is tiny indeed compared the spatial extent of the 1s orbital—$1/10^{33}$ of the volume— it jumps about so quickly in this external orbital so very rapidly—trillions upon trillions of times a second—that on our time scale it appears completely ‘smeared out’ over the entire volume of the 1s orbital. The ‘electron ball’ of each atom excludes the ‘electron ball’ of other atoms, and this is why, on our time scales, atoms appear to behave as little solid ‘balls of matter’ that can bounce off each other.

The external shape of the ‘electron ball’ of the atom (the hyungsang aspect) faithfully reflects the internal shape of the lowest 1s level of the orbital IDN (the sungsang aspect), the rest of the levels being empty and present in complex space.

Molecules are arrays of atoms, so the same basic picture applies and will involve:

- An intricate and hierarchical internal construct of probability amplitudes in complex space (the molecular orbital IDN)
- Its external tip as an extended real probability field in spacetime
- A few of these levels have entrained electrons and have their internal form expressed externally over time (the hyungsang aspect).

While the materialistic concept of solid atoms and molecules can be a useful approximation at times, it can also be totally misleading as reality is much more sophisticated.

Note that the only real difference between atoms and molecules is in the complexity of the orbitals; the external aspect of electrons doing the filling-in and expressing the orbitals is identical in both cases. This holds for anything made of atoms, their differences are to be found on the internal sungsang level, not on the hyungsang level which is always the same—electrons moving in orbitals.

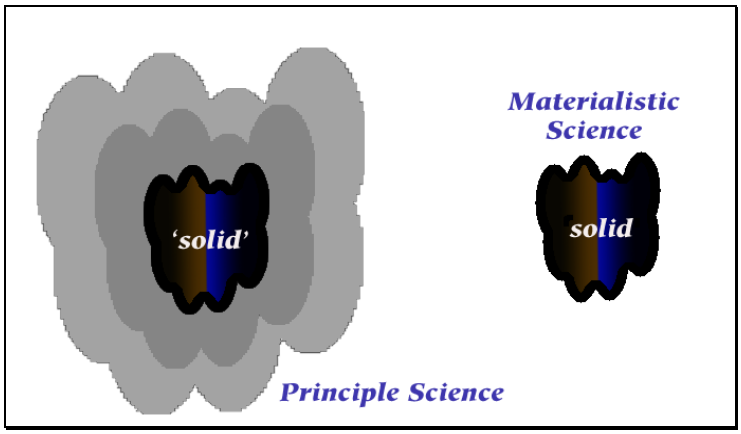
Two Views of Enzymes

The most basic activity of living systems is the manipulation of atoms and molecules by the protein enzymes. A living cell has billions of such proteins at work at the same time.

Clearly, the overall concept of what a cell is will depend highly on view of what enzyme activity involves.

The classical view is that an enzyme is a tiny solid with an “active site” patch to which the substrate binds. This is called the “lock & key” view and can be likened to two pieces of a jigsaw fitting together. The focus is purely on the external.

The Principle Science view is that the ‘solid’ aspect of the enzyme is just the filled-in tip of an extended, and mostly empty, construct in complex space, the IDN of the protein macromolecule.



Now we can start to make predictions based on these two models that are open to experimental testing.

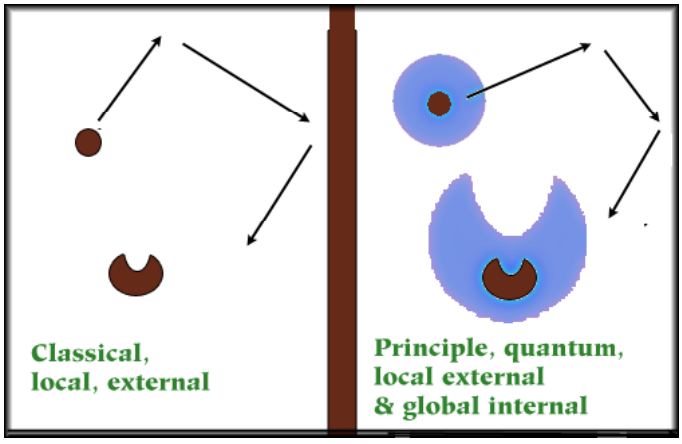
In the materialistic view, the solid substrate is moving in thermal motion until it scores a hit on the solid enzyme, at which point it sticks and things happen.

In the Principle Science view, the local hyungsang 'solid over time' is just the tip of a much larger and extended orbital IDN. The enzyme active site is just the local hyungsang aspect of an extended, and mostly empty, sungsang aspect.

Consider a large volume in which there is just one molecule of the substrate and one molecule of enzyme. For simplicity, consider the much larger enzyme as stationary and only the substrate moving rapidly about. To scale, this extreme dilution has the enzyme as a basketball hoop in Madison Square Garden. The substrate is a baseball ricocheting off the walls of the hall in rapid random thermal motion.

In this classical view, it will take al long time for the ball to pass through the hoop and the enzymatic change thus occur.

In the Principle Science view, this small ball is surrounded by an extended gossamer halo. The substrate is also surrounded with a gossamer halo, and the active site is like an extended chute reaching out to catch the gossamer substrate. It will clearly take a much shorter time for the empty extended complex probability fields to entangle with each other and for the substrate to fall down the probability chute of the extended active site and pass through the hoop.



The classical thermal limit for enzyme activity at such extremes can be calculated and will be in terms of hours. Principle Science predicts that all enzymes are capable of

exceeding the thermal maximum—this has already been established for a few enzymes but is considered a loose end not explainable by the lock and key perspective.

The Principle predicts that at extreme dilution, enzyme activity will be measured in seconds, not the hours expected by the materialistic viewpoint.

Implications

The classical view of a simple living system, such as a bacterium, with its millions of enzymes is only locally organized. The Principle view of a bacterium is more sophisticated, and involves a global role for the extended complex wavefunction that combine into the unified IDN of bacteria.

This is just one of the simplest predictions by the Principle view of quantum science that is open to experimental testing.