Dark Matter (Part 2): A Dark Matter Model of Consciousness

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An axion condensate,
a likely constituent of Dark Matter,
may be the medium of non-local consciousness,
and may as well be the 'pilot wave' medium of Bohm Theory

In this paper, the principal message is the medium, not the model. However, having presented the argument for consciousness embedded in Dark Matter, we mention its consistency with a model of consciousness presented at this conference (QM2003) and also discuss two relevant models from the internet. This is the second paper in the series. You can view the first here.

1. BEC media posited for consciousness
Assuming a material world, the non-local properties of consciousness (see below) suggest that it must exist in a macroscopic coherent quantum medium, called a Bose-Einstein Condensate (BEC) that is meters in extent and perhaps global. Known BECs such as super-fluids and superconductors only exist near absolute zero. To explain consciousness the BEC medium must exist at room temperature.

The presumption of a BEC medium to explain our visible, waking or physical consciousness underlies both the early Frolich/Marshall (where the medium is a coherent field of membrane dipoles) and the more recent Penrose/Hameroff microtubule-medium model. Both models require metabolic excitation to a state of thermodynamic non-equilibrium (see Hagan, QM2003), consistent with a physical consciousness that can turn off and turn on, as in sleeping and waking.

Some such model is perhaps the best explanation of waking consciousness. However, such models are local in nature, confined to the human brain and probably even microscopic aspects of the brain. Because of the non-local nature of some forms of consciousness, another medium is needed, one that might even explain consciousness in the sleep state. A secondary medium would also serve to integrate the perhaps microscopic processes of physical consciousness.

Quoting Piero Scaruffi from his site http://www.thymos.com/tat/consc3.html

"The fascination with Bose-Einstein condensates is that they are the most highly ordered structures in nature (before their discovery by Albert Einstein and Satyendranath Bose, that record was owned by crystals). The order is such that each of their constituents appears to occupy all their space and all their time: for all purposes the constituents of a

Bose-Einstein condensate share the same identity. In other words, the constituents behave just like one constituent (the photons of a laser beam behave just like one photon) and the Bose-Einstein condensate behaves like one single particle. Another odd feature of Bose-Einstein condensates is that they seem to possess a primitive form of free will."-

2. Evidence for non-local consciousness

A host of experiments reported at this conference (QM2003) verify the existence of some form of non-local consciousness, at least out to ten meters. Separate papers by Standish, Germine, Thaheld, Richards, Kozak and Wackermann (lead authors) report (i) EEG and MRI correlations in the brain of a human receiver with the (ii) visual stimulus of an isolated sender some ten meters away. We say that this form of consciousness is invisible as the receiver is not aware of the sender or the sender's transmissions. Neither is the sender aware of what is being transmitted.

Wallach and Bell separately report placebo effects in control groups that they explain as non-local consciousness. Lake, Vekaria and Hurtak separately report human healing at a distance, and Agadjamian reports adaptation of insects to promote survival that he attributes to non-local consciousness. Concurrent Session VI is devoted to a discussion of Non-locality. Many of the presentations at this conference claim that non-local consciousness can only be understood as a form of EPR entanglement indicating a BEC medium outside the human body, as well as in it.

Suggestive of plant consciousness as well as non-local consciousness, Chouinard at this conference reports micron plant movements from distant human intention, and Schwartz reports enhanced seed germination from human intention. In addition, Aranbura reports effects on electromechanical devices. It seems that the receiver need only be electrical in nature. That supports anecdotal evidence that some humans can will lights to turn off. It seems that the BEC medium must be able to interact actively with physical media, rather than just being a passive reflection of it.

3. Subjective evidence for non-local visible consciousness

Less rigorous, but with greater implications than the above experiments, are the reports by Lommel, and also Britten, of Near Death Experiences (NDE) of patients surviving cardiac arrest. One of five of the surviving patients had NDEs. The most common NDE involved an Out-of-Body Experience(OBE) where the patient observes (i.e. visible consciousness) doctors working on his or her body from a distance. Also the patient often obtains a life review of some sort. Less often the patient reports conversation with deceased loved ones or a preview of the future during NDE. If true, this means that consciousness in the secondary medium can be visible and that it may contain a storage of information as well as intelligent beings.

One might think that OBE data would be instructive and conclusive regarding the need for a nonphysical medium. However, most of the data are anecdotal. A small amount of rather inconclusive OBE data is discussed by Charles Tart on the site http://www.paradigm-sys.com/cttart/sci-docs/ctt97-ssooo.html, which however contains an extensive bibliography of OBE literature. A significant omission in this bibliography

is the work of Brazilian physician Waldo Vieira at the International Instiute of Projectology, reviewed on www.spiritweb.org/Spirit/obe-iipc.html. The site discusses the origins of ghosts and how to heal them; and refers to descriptions of 60 OBEs.

The subject of ghosts is rarely discussed as a form of non-local consciousness as it is seemingly too controversial and at least very subjective. However, they are a common experience for many. Sonny Ayran presents a rather complete description of the various manifestations of ghosts on the internet site: http://members.tripod.com/spaweb/theories.html.

He describes ghost manifestations as basically orbs (one inch diameter spheres containing a central matrix and two outer layers), with less frequent sensings as vortices, mists, apparitions, audio ghost recordings, odors, cold chills and touching. He points out that ghosts must absorb physical energy [or at least excite physical particles] requiring active coupling mechanisms to be detectable in the physical realm, as they are with IR photography.

4. Remote Viewing, a form of non-local consciousness

Although not really covered in this conference, it seems that some of the best evidence in support of a nonphysical consciousness is found in experimental investigations of mind-based Remote Viewing (also called remote perception or anomalous cognition). The experiments conducted at Stanford Research Institute (see Putoff and Targ, Proc IEEE 64,1976) and later at SAIC, were funded by the CIA and DIA in response to similar work in the USSR.

Remote Viewing has gone mainstream with the 27 January 2003 US News & World Report article on CIA spying. The US News article reports that funding was forthwith after two separate human receivers, given latitude and longitude of an USSR site, described an arrangement of buildings that was later confirmed by spy photography. In the subsequent research, rigorous scientific protocol was used and the results were positive, leading to medals of honor for a few well trained experts. This suggests that the BEC medium is global in extent.

As an aside, Remote Viewing (RV) is not the same as OBE. In RV the subject remains awake and very attentive to some remote object. The images obtained are shadowy and not easily recognized, being reflective of an internal structure; and the claim is that anyone can be trained to perform RV. OBE, on the other hand, is an altered state of consciousness in which the subject appears to be unconscious (asleep), but the subject himself or herself feels awake, separated from his or her own body, and able to travel elsewhere. In this state, the environment appears distinct and external surfaces are seen rather than internal structure. In both cases the subject experiences visible consciousness.

5. Galactic distributions of Dark Matter

Dark matter has been indirectly detected from astronomical observations. Analysis using Newton's gravitational theory of the motion of stars, galaxies and galactic clusters, and also analysis using Einstein's theory of the bending of light around these collections of

stars, all indicate that the amount of dark matter (matter that is invisible for our telescopes) is at least 10 times the mass of the visible (star-like) matter in the universe. Presently it seems clear that Dark Matter has the same large-scale distribution as galactic clusters and super-clusters, except that the Dark Matter 'halos' extend somewhat beyond the visible galaxy and often overlaps several galaxies. Dark Matter 'halos' are usually but not necessarily spherical. The exact shape of galactic Halos is being actively researched. For example, the Milky Way Halo appears to incorporate its satellite galaxies.

The candidate constituents of dark matter are: axions, wimps, neutrinos, black holes, brown dwarfs and large planets. No single candidate has sufficient mass except possibly axions or wimps, neither of which has been as yet detected; whereas the other candidates are known to exist. Wimps (Weakly Interacting Massive Particles) are theoretically predicted in the super-symmetric theories. Axions are predicted in the Grand Unification Theory (GUT) and are thought to be the reason why neutron electric dipole moments are zero.

6. Cosmic Axions

Cosmic Axions were generated in the Big Bang. They differ from all other Dark Matter candidates in that they were (presumably) created in primordial symmetry breaking processes. All the other candidates were created in thermal processes and have thermal velocities, including the thermal axions presently being created in the sun. Cosmic axions are then unique in that they essentially are fixed in space. They seemingly have no inherent initial motion or momentum. They are at or very close to the temperature of absolute zero.

They are therefore referred to as cold dark matter and are often called the cosmic axion field, a coherent Bose-Einstein Condensate (BEC) that surrounds and permeates galaxies. Superconductors and superfluids like Helium at near absolute zero are also BECs. At these temperatures electron or atom wave functions have macroscopic (millimeter+) extension. As wave function extent depends inversely on the mass of the particle, and the mass of an axion is one billionth that of an electron, the axion wave function extends well beyond the earth. The axion fluid must then be a BEC at room temperatures, and perhaps even at solar temperatures. If the scaling to infinitesimal mass holds up, thermal as well as cosmic axions behave coherently over global scales.

Yet they are extremely numerous. If they are a major constituent of dark matter, there must be more than a 10 trillion axions for every proton and neutron in the universe. If the symmetry breaking process produced cosmic axions before matter and anti-matter recombined, then the number of axions is comparable to the number of photons in the universe.

According to physicist John Cramer, "Axions have a geometrical resemblance to an electric and a magnetic field oriented parallel to each other. In theory, this property can be exploited to convert axions into photons (radio/light/gamma-rays) throughthe use of intense electric and/or magnetic fields. If cosmic axions were converted to photons, their estimated mass-energy would make electromagnetic microwaves like those used in home

microwave ovens."

Reference: http://mist.npl.washington.edu/av/altvw05.html

7. A Mathematical Theory of (Axion) Consciousness

A theory of consciousness, proposed by Russian researcher Boris Iskatov is discussed on http://www.spiritweb.org/Spirit/religion-eq-science.html. He derived a mathematical quantum theory (from transformations of the Dirac and Schroedinger equations) of an information-energy field Y residing in a "global gas of micro-leptons" having several levels of particle masses between 10^-40 and 10^-30 grams. Axions predicted by GUT are about 10^-5 eV or 2x10^-38 grams, so that it is likely that microleptons are actually the axions of dark matter. The equations are copied here from the above site for the sake of completeness.

A Y=0; A' Y'=0;

where the operators have the form:

A=2h^2V + i2h d/d t-U; A'=2h^2V - i2h d/d t-U.

Here: Y denotes the probability density wave (the wave function); V, the Laplace operator; U, the potential energy density; and h, Planck's constant.

The equations of this theory can be solved to obtain the quantum hologram. Some rather exotic solutions are also claimed. Strong signals in this medium travel at the speed of light. But weak pre- and post-signals can travel much faster than the speed of light, and there are also so-called (very weak) anti-signals that allow for the investigation of the past. We expect that the weak signals are due to BEC effects and the strong signals relate to physical particles. Coupling to the physical world is not discussed.

The experimental work of Russian Anatoly Ohatim is also reviewed on the above site. He claims to confirm the existence of the microlepton gas experimentally using an instrument, the aurometer, for measuring these effects. He suggests that all information produced by the material world is embedded in the microlepton gas. This includes human thoughts, which are said to be "propagated by the lightest particles". This information exists in the form of holograms and comes in units called "eidoses". Ohatim discusses such effects as the half-life of eidoses (holograms) based on particle mass. Particles with less mass have longer lifetimes. Ohatim also discusses how humans influence the cosmos from their generation of good or bad eidoses.

8. A Non-mathematical Model of Axion Consciousness

The only model that explicitly states that consciousness exists in an axion BEC residing in Dark Matter is by Father Jerome: http://go.to/QUFD. To quote him:

" I do so identify the basic and necessary Particle of Universal Consciousness as being the Quantum Axion Particle, a microcosmically quantum unit of four predominantly

differing "flavors": a Positive Particle of positive half-integer spin; a Negative Particle of negative half-integer spin; a Positive Particle of positive integer spin; and a Negative Particle of negative integer spin."

Briefly the model of consciousness is that Cooper-pair layers of positive and negative half-spin axions couple to the "corporeal" physical brain on one (metaphorical) side, and to an "incorporeal" higher self or soul composed of half-spin axions on the other. The incorporeal layer is said by Jerome to be a living, sentient life-form. The actual coupling mechanism to the brain is also incorporeal, i.e. not chemical or electrical, consistent with Bohm theory below.

The above site is a rather interesting read. It presents a very extensive and self-consistent explanation of almost everything in human life: physics, neurophysics, psychology, sociology and theology. For example, "Such a Cooper-pairing is the result of the incursion of negative consciousness ", which is described as a Jungian veil and attributed to Lucifer.

Much of the material presented is the result of what might be called 'direct revelation'. Father Jerome claims a D.Sc. in Quantum Physics and a D.Th. in theology from a 40,000-year-old institution that is not of this world. His site material is a translation from the terminology used in that institution into modern scientific terms. To quote him, "Using existing and known textbook science and principles, QUFD presents a never-before-seen philosophical formulation and incorporeal (Spiritual) context for Albert Einstein's long-sought-after Unified Field Theory of the quantum forces." QUFD (Quantum Unitary Field Dynamics) is his theory of Bose-Einstein Condensates. One reservation is that half-spin axions are not likely to exist except perhaps in Cooper-pairs.

9. Discussion

From the perspective of explaining both local and non-local human consciousness, the purpose of this conference, the essential ingredient missing from both the Iskatov's theory (7) and Jerome's model (8) is the coupling mechanism between an axion condensate and the human brain.

This missing ingredient is compounded by the fact that despite strong efforts the so-called axion particle has yet to be detected. Refer to the recent paper http://xxx.lanl.gov/abs/astro-ph/9801286, written by just about every prominent theorist and experimentalist in axion research, which offers this conclusion:

"We report the first results of a high-sensitivity (10^{-23} Watt) search for light halo axions through their conversion to microwave photons. At 90 percent confidence we exclude a KSVZ axion of mass 2.9 x 10^{-6} eV to 3.3 x 10^{-6} eV as the dark matter in the halo of our Galaxy." Authors: C. Hagmann, D. Kinion, W. Stoeffl, K. van Bibber, E. Daw, H. Peng, Leslie J Rosenberg, J. LaVeigne, P. Sikivie, N. Sullivan, D. Tanner, F. Nezrick, Michael S. Turner, D. Moltz, J. Powell, and N. Golubev.

Note that the experiment covered a spread of axion mass outside of the spread indicated

by Iskatov for micro-leptons. But more to the point, from the experimental and observational data presented at this conference, we must conclude that some sort of pervasive, global (at least) quantum coherent medium must exist, and the most likely candidate is an axion condensate. It would then appear that the next essential step is to determine coupling mechanisms between the condensate and the physical brain.

10. A Bohmian Model

Paavo Pylkkanen in the talk Consciousness and our concept of reality reviews Bohm pilot wave theory. An aspect of his talk directly relates to the coupling problem, e.g., "The problem of mental causation, or the problem of how could mental states (as non-physical states) possibly influence the course of physical processes without, for example, violating the energy conservation laws. Bohm and Hiley's ontological interpretation of quantum theory suggests that an entirely new kind of energy operates in situations where quantum theory is required, an energy best understood as 'active information'."

In Bohm theory, see http://members.aol.com/Mszlazak/BOHM.html, this active information exists as 'pilot waves' (i.e. like wave functions). Fundamental particles such as electrons then react to pilot wave information. There is no wave/particle duality. They both exist at the same time and have definite locations in space and time. [For example, pilot waves solve the double slit paradox by instantly knowing what the environment is and then guiding the photon or electron through the proper slit. Experiments indicate that when information is extracted as to which slit the particle passes through, the interference pattern disappears, even if the information is extracted without the use of force.]

To a materialist, what seemingly is missing from this approach is the medium in which the 'active information' exists. I propose that pilot waves exist in the axion condensate of Dark Matter. Cosmic axions form global BECs that instantly react to all changes in the environment- just what Bohm calls for. The axion condensate provides the dynamic landscape that particles flow through.

As discussed by Bohm in the above link, each physical particle is sufficiently complex to extract information from the axion condensate as to where it should go. That seemingly solves the axion/brain coupling problem. But the question remains as to how the particles get propulsion to change course- perhaps also from their inherent complexity. If so, such particles can both sense the pilot waves and change the direction of their movement- a primitive form of free will.

As farfetched as that may seem, the reader is reminded that essentially the same thing must happen in the frictionless flow of electrons as Cooper-pairs through superconductors. Somehow the pairs move around the obstacle atoms. So either there are unknown forces in the BEC of the superconductor to guide dumb particles; or the fundamental particles are smart and can sense the environment and change direction without loss of energy.

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