**Article**

# Quantitative Support for Water as the Conduit of Interaction for Universal Entanglement

Trevor N. Carniello[1,3], David A. E. Vares[1,2] & Michael A. Persinger[1,2,3*]

Neuroscience Research Group, Human Studies and Biomolecular Sciences Programs, Laurentian University, Sudbury, Ontario, Canada P3E 2C6

**ABSTRACT**

Quantification, supplementing experimental results, suggests a convergence associating the physical properties of water as mediating the relationship between the entire observable set (Universe) and the underlying constituents which construct the entire set (Planck scale). Furthermore, these convergences may necessitate the appropriate parameters required for the initial synthesis of biogenic material facilitating the ultimate genesis of biology. The marked overlap between the energetic equivalents, magnetic field interactions and resulting electric field dynamics associated with the ultrastructural organization of water allows for the possible interaction of an entanglement-type process which is inherently linked to the microscopic (Planck scale) and macroscopic (Universal set) organization of the entire observable set.

**Keywords**: Entanglement, Universe, water, conduit, biology, Planck scale.

## 1. Introduction

Water has been described as "the solvent of Life". Water reflects the basic properties of universal particles. For example the ratio of the magnetic moment of a proton ($1.41 \cdot 10^{-26}$ A·m$^2$) and the unit charge ($1.6 \cdot 10^{-19}$ A·s) is a diffusivity value $0.88 \cdot 10^{-7}$ m$^2$·s$^{-1}$. When multiplied by the viscosity of water ($8.94 \cdot 10^{-4}$ kg·m$^{-1}$ ·s$^{-1}$) at living temperatures there is a force of $7.87 \cdot 10^{-11}$ kg·m·s$^{-2}$. When this force is applied across the distance of two O-H bonds ($1.92 \cdot 10^{-10}$ m) the energy is $1.5 \cdot 10^{-20}$ J (Karbowski and Persinger, 2015; Persinger, 2015a). This is not only the energy associated with the movements of protons but is also the solution for the average force from the entire universe at Planck's Length when distributed across the most common distance (wavelength) in the universe: the hydrogen line.

For example with a mass of ~$10^{52}$ kg, a distance (width) of ~$10^{26}$ m and the squared frequency of the vacuum oscillations ($10^{86}$ s$^{-2}$), the functional force of the universe is $10^{164}$ N (Persinger, 2015a). If the universe exhibits a net volume of $10^{78}$ m$^3$ and the smallest volume is a Planck's voxel ($10^{-105}$ m$^3$), there are $10^{183}$ Planck's voxels within the universal volume. This means there is $10^{-19}$ N per Planck's voxel and when distributed over the 10 cm hydrogen wavelength, the energy is $10^{-20}$ J. Thus the intrinsic energy within the universe at vacuum

*Corresponding author: Dr. M. A. Persinger, mpersinger@laurentian.ca

fluctuation level is congruent with the energy that is produced by the physical nature of the elements that compose the water molecule.

## 2. Basic Properties of Water

If altering the structure of a given medium can change its electrodynamic properties so too should altering the nature of water. Zheng and colleagues (2006) examined the exclusion zone (a given structural arrangement) of water corresponding to the alignment of molecules along a boundary. Results suggest that the extent of the exclusion zone extended beyond 200 um to 1 mm depending on the material which served as an interface. Most notably, non-zero potentials could be detected between 120 and (-) 160 mV and which were altered by the addition of various chloride salts. The addition of any salt to a solvent changes the solvation state (degree of interaction of water molecules in order to reduce the net charge distribution in the medium) of the molecules resulting in the ultimate change in structure.

Further alterations in the physical properties of water reflecting changes in its electrical characteristics were presented by Teschke et al (2001). Here, measures of the relative permittivity of bulk and interfacial water were conducted and suggest that the permittivity of bulk water decreased from 79 to 3.8 at the level of the interface (within 10 nm of the surface) between water and a mica surface. Relative permittivity is a measure of the potential for a medium to generate electric field flux. The greater the relative measure of permittivity, the greater the resistance for the formation of an electric field. Conversely, a low relative permittivity increases the net potential to generate an electrical field of flux within a medium.

Although not directly related to the electrical properties of water, changes in viscosity at an interface can infer structural arrangements and electrodynamic changes. Goertz et al (2007) measured the viscosity of nanometer thick water films corresponding to interfacial water with effective alterations in viscosity approaching $10^6$ times greater than bulk water. Alterations of the interacting media to a non-polar surface resulted in the absence of the enhancement of viscosity. Viscosity ($kg \cdot m^{-1} \cdot s^{-1}$) is related to electric field strength ($kg \cdot m \cdot A^{-1} \cdot s^{-3}$) by way of magnetic diffusivity ($m^2 \cdot s^{-1}$) and the inverse of charge $(As)^{-1}$. If both the number of charges and the magnetic diffusivity remain constant, any change in the magnitude of viscosity would result in a proportional change in the electrical field strength of water.

The interface between water and the membrane (a polar molecule) undergoes rotation, flipping and precession. Such dynamics, particularly when quantized angular orbital momentum is involved (Fickler et al, 2012), sets the conditions for entanglement or excess correlations of particles (or photons) differing by markedly high quantum numbers separated by significant distances. The resultant effect on the generated electric field would also respond to the dynamic nature of the membrane and in turn become itself dynamic or time-varying.

The physical characteristics of the hydronium dynamics were investigated by Lobaugh and Voth (1996) who measured the activation energy of the proton transfer to $H_3O^+$ was approximately 0.51 kcal/mol or 0.9 $k_bT$ which varied according to the geometric assemblage of the solvent. A charge in the concentration of available $H_3O^+$ invariably changes the dynamics of the system and should be reflected in the structural organization of the solvent. The latter structural re-organization in the presence of excess protons was investigated by Lobaugh and Voth (1996) which revealed a smaller O-O separation which approximates 0.25 nm and allows for the flipping of a proton between the pairs in a Grötthus mechanism. These inter-molecular O-O distances corroborate the findings of Tuckerman et al (1995) who also demonstrated that the temporal duration of the hydration shell associated with the hydronium ion complex remains intact (structured) for a duration of 2-3 picoseconds.

In order to maintain an equilibrium state, hydronium ions undergo a neutralization reaction with its diametric opposition, the hydroxide ion. Its time constants should also reflect the same temporal duration as the generation of the hydronium ion itself. Mathematical verification was completed by Hassanali et al (2011) on the recombination of $H_3O^+$ and $OH^-$ suggesting that the neutralization reaction involved a collective compression of oxygen along the water wire corresponding to a time of 0.5 picoseconds and involved the simultaneous movement of 3 protons. The proposed movement along the water wire, although occurring over a relatively short duration, should express a relatively short distance of action. Hassanali et al (2011) found that within a distance of 0.6 nm the hydrogen wires coordinating the movement of protons enhance the diffusion constant whilst outside this limit, diffusion constants are best modeled according to bulk water parameters.

If water demonstrates properties of changing electric fields then it should also be affected by magnetic fields and thus can be modeled by Maxwell's relationships. Yamashita et al (2003) examined that the application of 60 Hz AC magnetic fields (~100 mG) and DC magnetic fields (~1000 G). They demonstrated slow to large fluctuations in pH deviations and deviations on oxidation reduction potentials of 60 mV. Gang et al (2012) exposed samples of spring water to 0.16 T static magnetic fields. Measures suggestive of increases viscosity maximized after 5.9 hours, 7.4 hours and 8.6 hours corresponding to volumes of 25, 50 and 100 cc samples respectively. Water exposed to high intensity (14 T) magnetic fields intensities demonstrated a measurable change in peak wavelengths by 1 - 3 nm (Iwaska and Ueno, 1998).

Application of 1 uT intensity, physiologically patterned electromagnetic fields which were applied to water in the dark for 18 days displayed a reliable 10 nm shift in peak fluorescence of water (Murugan et al, 2015). Still weaker fields (Rouleau et al, 2014) within the 30 nT range rotating around toroids within which spring water was placed exhibited non-local effects. When two quantities of spring water each contained within toroids that shared specific patterned magnetic fields were exposed to this procedure for a critical duration, the induction of a proton shift (increased acidity) in one volume was associated with a decreased acidity in the other untouched volume of water. These volumes were separated by 1 m. However these changes have been noted over several km.

If water, or at least the microstructural organization of water serves as a conduit between the manifestation of complex biological organizations and the necessary energetic equivalents driving the processes responsible for the changes within organisms (manifested as behaviour) then the properties of water should demonstrate a convergence upon the physical parameters of the entire set of observable variables (the Universe) and the fundamental units which comprise the entire set (Planck scale). The synthesis of dynamism and materialism should be inherently linked to a fundamental organization of the Universe which reflects fundamental physical properties of the whole.

## 3. Casimir and Electromagnetic Interactions

When two parallel, non-conducting plates are brought into proximity of each other, such that the separation between the plates is magnitudinally less than the surface area of the plates, a negative force is generated between the plates (Plunien et al, 1986). The resultant force that is generated has been coined the Casimir force and reflects the possibility of transforming virtual particles into real particles in the presence of a magnetic field. The force generated through a Casimir-type effect is modeled by the equation:

$$F_c = \frac{-\hbar c \pi^2}{720 a^3} A \tag{1}$$

where ħ is reduced Planck's constant ($1.05 \cdot 10^{-34}$ kg·m$^2$·s$^{-1}$), a is the separation between the plates (meters) and A is the surface of the plates (m$^2$).

If we set the resultant Casimir force in the order of bond strengths ($10^{-12}$ kg·m·s$^{-2}$) and if the distance between the parallel plates is set to the distance between adjacent oxygen atoms in a solution containing excess protons (2.5 Ā or $2.5 \cdot 10^{-10}$m) the surface area required to generate forces in the order of bonds would be $3.62 \cdot 10^{-14}$m$^2$. The resultant surface area is in the order of the annulus surrounding a 1 um axon. Taking the square root of the calculated surface area results in a linear equivalent distance of 190 nm, which is well within the distances occupied by the exclusion zone of water. If one treats the resultant linear equivalent of 190 nm as a wavelength of light, energy can be calculated using equation:

$$E = h \frac{c}{\lambda} \tag{2}$$

where E is the energy in Joules (kg·m$^2$·s$^{-2}$), h is Planck's constant ($6.626 \cdot 10^{-34}$ kg·m$^2$·s$^{-1}$), c is the speed of light ($3.0 \cdot 10^8$ m·s$^{-1}$) and λ is the wavelength of light in meters.

The resultant energy would be in the order of $1.05 \cdot 10^{-18}$ kg·m$^2$·s$^{-2}$. The temporal equivalent of this wavelength can be approached using equation:

$$t = \frac{d}{v} \tag{3}$$

where t is the time (seconds), d is the distance (meters) and v is the velocity (m·s$^{-1}$). Assuming that the distance displaced is a wavelength of light in the order of 190 nm, the relative speed of travel would be the speed of light ($3.0 \cdot 10^8$m·s$^{-1}$) resulting in a temporal component in the order of $6.33 \cdot 10^{-16}$ seconds. The calculated temporal duration of $6.33 \cdot 10^{-16}$ seconds is within the limits of error for the duration of rotation of a Bohr electron and is complimented by the duration of time it takes light, at c, to traverse the thickness of a cell membrane.

Finally, given that the spatial extent of a molecule of oxygen is approximately $3.0 \cdot 10^{-10}$ m, $6.3 \cdot 10^{2}$ molecules would be required to accommodate a distance of 190 nm. This latter organization is reflective of 10-20 clusters of water (40-50 molecule aggregates at varying temperatures) (Pan et al, 2004). If water is the necessary conduit for the underlying processes that pre-determine the ultimate geometric organization of the organism then values reflective of the inherent electric field generated by a single molecule should converge upon Universal constraints. This property could be considered a condition for excess correlation or entanglement. The energy of a water molecule, contingent upon the generation of the hydronium complex, is ~ $2.0 \cdot 10^{-20}$ Joules (Persinger, 2010, Persinger, 2014). The electric field strength can be dimensionally approached as the quotient of energy and the electrical dipole moment of water as expressed by:

$$E = \frac{\mathrm{J}}{p} \tag{4}$$

where E is the electric field ($kg \cdot m \cdot A^{-1} \cdot s^{-3}$), J is the energy in Joules ($kg \cdot m^{2} \cdot s^{-2}$) and p is the electric dipole moment (Asm).

The electric dipole moment of water is 1.85 Debye ($6.17 \cdot 10^{-30}$ Asm) and the energy associated with a water molecule is $2.0 \cdot 10^{-20}$ J. This produces an electric field strength in the order of $3.2 \cdot 10^{9}$ $kg \cdot m \cdot A^{-1} \cdot s^{-3}$. To relate the intensity of the electric field to the intensity of a magnetic field (B) measured in Tesla ($kg \cdot A^{-1} s^{-2}$) a division by a speed is required. To isolate a speed necessary to equate the inherent electric fields strength of water to the intergalactic magnetic field we can use the relationship:

$$v = \frac{E}{B} \tag{5}$$

where E is the electric field strength, B is the intensity of the magnetic field and v is velocity ($m \cdot s^{-1}$). Thus for the lower limit of the intensity of the intergalactic magnetic field ($10^{-15}$T), and the electric field strength of $3.2 \cdot 10^{9}$ $kg \cdot m \cdot A^{-1} \cdot s^{-3}$, the speed in the order of ~$10^{24}$ to $10^{23}$ $m \cdot s^{-1}$. This is similar to the theoretical limit of the entanglement velocity (Persinger and Koren, 2013).

The magnetic field strength squared can be dimensionally approached by the relationship:

$$B^2 = \frac{\sigma}{\varepsilon} \tag{6}$$

where B is the intensity of the magnetic field, σ is the density of the material ($kg \cdot m^{-3}$) and ε is the relative permittivity of the material ($A^{2} s^{4} \cdot kg^{-1} m^{-3}$). For water the density of the material is $10^{3}$ $kg \cdot m^{-3}$ and the relative permittivity along the interfacial surface is $3.363 \cdot 10^{-11}$ $A^{2} s^{4} \cdot kg^{-1} m^{-3}$. The squared magnetic field strength would be in the order of $2.97 \cdot 10^{13}$ $T^{2}$. However, the energy stored within the magnetic field can be described by the relationship:

$$E = \frac{\mathrm{B}^2}{2 * \mu} v \tag{7}$$

where E is the energy of the magnetic field, B is the intensity of the magnetic field, μ is the permeability of free space ($1.26 \cdot 10^{-6}$ $kg \cdot m \cdot A^{-2} s^{-2}$) and v is the volume ($m^{3}$). Assuming that the resultant magnetic field strength squared of $2.97 \cdot 10^{13}$ $T^2$, had an energy equivalent of $2.0 \cdot 10^{-20}$ J, the resultant volume that is required to equate the two would be in the order of $1.69 \cdot 10^{-39}$ $m^3$. Usually volumes are not considered to describe the relationship between electron wavelength and classic radius. However assuming a general cylindrical quantum tube of the type considered by Planck's earlier visions, the product of the square of the Compton wavelength of an electron and the classic particle radius would be within this volumetric range.

## 4. Gravitational Considerations

Similarly, the gravitational potential energy can be calculated using the equation:

$$E_g = G\,\frac{\mathrm{m}^2}{\mathrm{r}} \tag{8}$$

where $E_g$ is the gravitational potential energy in Joules, G is the gravitational constant ($6.67 \cdot 10^{-11}$ $m^3 \cdot kg^{-1} s^{-2}$), m is mass (kg) and r is the separation between the masses. Setting Equation (7) equal to (8) and isolating for a given separation between water molecules in order to accommodate the equivalence the relationship is Equation (9):

$$r = \frac{2\mu * G * m^2}{B^2 * V} \tag{9}$$

Thus the separation between water molecules in the exclusion zone provided that each has a mass of $3.0 \cdot 10^{-26}$ kg and there are approximately $6.3 \cdot 10^{2}$ molecules that occupy the exclusion zone, the distance must be $1.15 \cdot 10^{-36}$ m or within the error of a Planck's length ($1.616 \cdot 10^{-35}$ m). If the possibility that two water molecules approach the limit of separation in the order of Planck's length is considered, the resultant energy associated with two non-conducting surfaces can be approached using a Casimir phenomenon and can be calculated using the equation:

$$E_c = \frac{-\hbar c \pi^2}{720 a^3} A \tag{10}$$

where "a" is the separation between the plates, A is the surface area of the plates, c is the speed of light and ħ is reduced Planck's constant. Continuing with the hypothesis that two water molecules approach the limit of separation of a Planck's length, then the surface of the plates would be in the order of the linear extent of water at a surface which is in the order of $10^{-12}$ $m^2$ and the separation between the molecules would be $1.15 \cdot 10^{-36}$ m. The calculated resultant Casimir energy would be in the order of $10^{69}$ J, reflecting the total energy stored within the Universe (Persinger, 2013; 2014; 2015).

Further support for the convergence of water as a mediator for the transition from Universal operational parameters and the potential for the generation of the organism would be contingent upon homogeneity with the photon and the graviton. One can calculate the change in magnetic moment of an object operating in a magnetic field with Equation 11.

$$\Delta m = \frac{e^2 r^2}{4me} B \tag{11}$$

where Δm is the change in magnetic moment ($kg \cdot A^{-1}s^{-2}$), e is the charge of the electron ($1.6 \cdot 10^{-19}$ As), r is the circumference of the water molecule ($1.57 \cdot 10^{-9}$), $m_e$ is the mass of the electron ($9.11 \cdot 10^{-31}$ kg) and B is the applied magnetic field.

Dimensionally analyzing Equation 11 ultimately results in a magnetic moment ($Am^2$) which can be further digested as the aggregate of Joule divide by Tesla. In this instance in order to accommodate energy we would simply have to modify Equation 11 producing Equation 12:

$$E = \frac{e^2 r^2}{4m_e} B^2 \qquad (12)$$

where E is the energy obtained in Joules and all other parameters are consistent with Equation 11.

Inputs all variables except for a value for B result in an approximate value of $1.74 \cdot 10^{-26}$ $A^2s^2m^2 \cdot kg^{-1}$. Setting an external field to a measure of 1 T would demonstrate a change in magnetic moment of water in the order of $1.74 \cdot 10^{-26} Am^2$ or effectively the difference in magnetic moment between the spin magnetic moment of the electron and the orbital magnetic moment of the electron. An applied magnetic field in the order of $10^{-13}$ T, or the intensity of the intergalactic magnetic field, becomes significant. In this instance the net energy that would result from Equation 12 would be in the order of $10^{-52}$ Joules. This may be an inherently small amount of energy however if we consider the mass equivalent of this energy at rest (when c is set to 1) then the mass, as derived by the Einstein-Eddington equation (13) would be in the order of $10^{-52}$ kg or the upper limit of the rest mass of the photon (Tu et al, 2005, Luo et al, 2003):

$$E = mc^2 \qquad (13)$$

The application of weak intensity magnetic fields in the order of 3.0 nT (those values that were utilized in the excess correlation experiments) the resultant energy (calculated from Equation 12) would be in the order of $10^{-44}$ Joules. Again the mass equivalent of this energy, as calculated using the Einstein-Eddington equation (13) would isolate a mass in the order of $10^{-60}$ to $10^{-61}$ kg. This range of mass is well within the order of magnitude of the graviton (Gershtein et al, 1997; Novello and Neves, 2002; Goldhaber and Nieto, 1974; Goldhaber and Nieto, 2010). Another parameter that can be extracted from the approach offered here is a temporal component of water operating in a nT strength field. Given that the energy obtained from the change in magnetic moment of water in 3.0 nT field is in the order of $10^{-43}$ to $10^{-44}$ J a frequency can be calculated:

$$f = \frac{E}{h} \qquad (14)$$

where $f$ is the frequency ($s^{-1}$), E is the energy in Joules ($kg \cdot m^2 \cdot s^{-2}$) and h is Planck's constant ($6.626 \cdot 10^{-34}$ $kgm^2 \cdot s^{-1}$)

For a mean value of $5.0 \cdot 10^{-43}$ Joules for water in a 3.0 nT field, the resultant frequency would be $7.55 \cdot 10^{-10}$ $s^{-1}$. The inverse of a frequency would be a time, thus the temporal equivalent of $7.55 \cdot 10^{-10}$ $s^{-1}$ would be $1.325 \cdot 10^9$ seconds. This duration is within the order of the approximate lifetime of a human being. However it is also representative of processes whose durations exist over time frames more typically found within much larger spatial increments.

## 5. The Exclusion Zone

There is a specific physical nature of the exclusion zone of interfacial water compared to bulk water. It is suggested that a net increase in the viscosity of the exclusion zone occurs such that the increase can be as high as $\sim 10^6$ times larger than the viscosity of water. The general linear expansion of the exclusion suggests a relative mean occupancy in the order of 100 um. Given that that the molecular diameter of a water molecule is $3.0^{-10}$ m, the total amount of water molecules that would occupy the linear equivalent of 100 um would be approximately $3.3 \cdot 10^5$ molecules.

The bond strength of water is in the order of $10^{-12}$ N ($kgm \cdot s^{-2}$) the net force is calculated as the product of the force of a single bond and the total available molecules and would approach $10^{-6}$ to $10^{-7}$ N. The upper limit of force is $10^{-6}$ N. Viscosity is the quotient of the force by a diffusion constant:

$$\eta = \frac{F}{\upsilon} \tag{15}$$

where F is force ($kg \cdot m \cdot s^{-2}$), $\upsilon$ is the diffusion constant ($m^2 \cdot s^{-1}$) and $\eta$ is viscosity ($kg \cdot m^{-1} s^{-1}$).

If the force is in the order of $10^{-6}$ N and the diffusion mobility constant of water is taken to be in the order of $3.6 \cdot 10^{-7}$ $m^2 \cdot s^{-1}$, the viscosity would be in the order of $10^1$. Comparatively, given the lower limit of force across the exclusion zone to be in the order of $10^{-7}$ N, and substituting the diffusion constant for that of water ($8.65 \cdot 10^{-9} m^2 \cdot s^{-1}$) the magnitude of the viscosity would approach $10^2$ $kg \cdot m^{-1} s^{-1}$. Given that the viscosity of bulk water is $8.94 \cdot 10^{-4}$ $kg \cdot m^{-1} s^{-1}$, these calculated values would be $10^5$ to $10^6$ times greater and reflects what Goertz et al (2007) found in their experiments.

An energy equivalent of $10^{-7}$ N requires that this force be applied over a distance. Provided that the force of the linear equivalent of the exclusion extends the length of the exclusion zone ($10^{-4}$ m) the resultant energy would be in the order of $10^{-11}$ Joules. One can isolate a magnetic field strength associated with the energy of the magnetic field using the equation 16:

$$B = \sqrt{\frac{E * 2\mu}{V}} \tag{16}$$

where B is the intensity of the magnetic field ($kg \cdot A^{-1} s^{-2}$), E is the energy in Joules, u is the permeability of free space and v is the volume. If we assume that the volume of water is consistent with the volumes used in experiments (25 cc) through which excess correlation was demonstrated then the strength of the magnetic field would be in the order of $10^{-6}$ Tesla. This value is the same order of magnitude that was shown to produce excess correlation in other experimental paradigms involving non-toroid equipment but where the circular changing angular velocities were produced (Dotta et al, 2013).

# 6. Photon-Graviton Entanglement in Water

The background radiant flux density of photons is in the order of $2\cdot10^{-12}$W·m$^{-2}$ (kg·s$^{-3}$) the convergence upon the level of water should be evident. If we assume that the flux density is related to the magnetic equivalence it can be equated such that:

$$B = \Phi \cdot I \cdot f \tag{17}$$

where B is the magnetic field, I is the current (A) $f$ is frequency, and Φ is radiant flux density (kg·s$^{-3}$). Assuming that the effective intensity of an incident magnetic field is ~$10^{-9}$ T, to homogenize the structure of water to hybridize with background parameters of the Universe, then the aggregate of current and frequency would represent a current per unit time (A·s$^{-1}$). The necessary value to equate a magnetic field strength of 1 nT and background radiant flux density of $10^{-12}$ kg·s$^{-3}$ would be in the order of 2-3·$10^{-3}$ A·s$^{-1}$ (Persinger, 2015b).

The Universe is composed of $1.58\cdot10^{79}$ particles or Eddington's Number. If each particle had a charge equivalent of $1.6\cdot10^{-19}$ As, the resultant net Universal charge would be $2.53\cdot10^{60}$ As (Persinger, 2015b). The quotient of the net Universal charge and the current of 2 to $3\cdot10^{-3}$ A·s$^{-1}$ resulting frequency squared approximately $1.14\cdot10^{-63}$s$^{-2}$. This is $3.37\cdot10^{-32}$ s$^{-1}$. An energy equivalent of this latter frequency can be calculated by multiplying by Planck's constant ($6.626\cdot10^{-34}$ kgm$^2$·s$^{-1}$) and would be $2.24\cdot10^{-65}$ Joules. The rest mass equivalent (when c is set to 1) of an energy of $2.24\cdot10^{-65}$ Joules would be $2.24\cdot10^{-65}$ kg, or the upper limit of the rest mass of the graviton (Gershtein et al, 1997; Novello and Neves, 2002; Goldhaber and Nieto, 1974; Goldhaber and Nieto, 2010). The product of the mass of $2.24\cdot10^{-65}$ kg and the square of the entanglement velocity ($10^{23}$ m·s$^{-1}$) the resultant energy would be in the order of $10^{-18}$ to $10^{-19}$ Joules converging on the approximate energy within wavelengths in the low 100 nm range. According to Clary (1999) excitation with 122 nm "causes electrons in the ground "X" electronic state to jump to antibonding orbitals labelled "B". Although this model has been applied to explain the dissociation of water molecules into $H^+$ and $OH^-$, the emergence of a B+X state would set the conditions for entanglement.

If Mach's principle of the Eminence of the Universe (Mach, 1887) is valid then the convergence upon 2 to $3\cdot10^{-3}$ A·s$^{-1}$ should also converge on the properties of water. Dimensionally, the inherent current per unit time can be calculated by the product of conductivity, electric field strength and a diffusion parameter and is represented in equation 18:

$$\frac{I}{t} = \sigma \cdot E \cdot \upsilon \tag{18}$$

where I/t is current per unit time (A·s$^{-1}$), σ is the conductivity (A$^2$s$^3$·kg$^{-1}$m$^{-3}$), E is the electric field (kg·m·A$^{-1}$s$^{-3}$) and υ is diffusion (m$^2$·s$^{-1}$).

Provided that the current is in the order of 2 to $3\cdot10^{-3}$ A·s$^{-1}$, the average conductivity of water is $1.75\cdot10^{-4}$ A$^2$s$^3$·kg$^{-1}$m$^{-3}$. The inherent electric field of a given water molecule is $3.2\cdot10^9$ kg·m·A$^{-1}$s$^{-3}$, the resultant diffusion constant would be $4.46\cdot10^{-9}$m$^2$·s$^{-1}$. This is within the error of the diffusion constant of water (Bett and Cappi, 1965). This suggests that the convergence between light, magnetic fields and the graviton is reflected or mediated by the simple diffusion of water over a given temporal span. The persistence of the homogeneity of physical parameters converging at the level of water consistently reflects the possibility that water may act as a conduit to facilitate the conditions leading to excess correlations and entanglement.

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