

A Prediction of the Temperature of the Cosmic Blackbody Radiation

by James Carter

When the circlon model of atomic and nuclear structure is combined with the transformation of electron mass, it predicts both the occurrence and the temperature of the CBR. These predictions make no assumptions other than the circlon shape and the 5 measured quantum mechanical constants of M_p , M_e , a_0 , α and $h\lambda_\infty$.

Cosmologists have long believed that the CBR consisted mostly of spectral photons from hydrogen and other elements but have failed to clearly demonstrate how they could have increased their wavelengths and decreased their momentum and energies by nearly 2000 times. The answer to this is that the CBR photons are just mostly hydrogen photons from a time in the early evolution of the electron when the proton was only 147 times heavier, instead of today when the proton is 1836 times heavier than the electron. All this we can measure, but the question to be answered here is why did these far flung evolving atoms choose this point in their history to all emit photons at the same time and fill the universe with an enormous burst of 2.7°K blackbody photons? Also, what caused this great universal burst of photon emission to stop nearly as quickly as it started?

In the circlon model of nuclear structure, the neutron is a proton with an electron compressed and captured within its circlon shaped structure. It takes a certain amount of energy to lock the electron inside of the proton, and this energy is released when the neutron decays and ejects the electron. As the mass of the electron decreases, it takes more and more energy to push an electron inside of a proton and create a neutron. This increased energy makes the neutrons become less stable. As we go back farther and farther into the past, the neutron becomes more stable and it takes less and less energy for the neutron to form. The point is eventually reached when neutrons become completely stable, and when they form, they produce energy instead of absorbing it. Instead of releasing this energy in a photon like an atom, the neutron retains it as spin energy within its structure.

The Neutron Stability Constant $M_p/M_e \sqrt{\alpha}$

The early Living-Universe was filled with stable neutrons that eventually evolved to a point where they became unstable and began exploding into protons and electrons. This same great flash of light from all these Hydrogen atoms can still be viewed today as microwave static on our TV sets.

The stability of the neutron is determined by the evolving number of the neutron stability constant $M_p/M_e \sqrt{\alpha}$. The mass of the proton divided by the mass of the electron times the square root of the fine structure constant. As the value of electron mass decreases, the neutron stability number increases. Today the value of this constant is 157. Back at the time when the CBR photons were all emitted from atoms, its value was one. When this value was less than one, the neutron was stable and when the value increased to greater than one, the neutron became unstable. As the number increased from one, the neutron's stability has decreased until today, at 157, its lifetime has decreased to about nineteen minutes.

Today, the electron/proton mass ratio is 1/1836. At the time of the Living-Universe's phase transition from neutrons to atoms, this ratio was 1/146.6. With a more massive electron, the photons of Hydrogen's emission spectrum had longer wavelengths than they do today. At this electron/proton mass ratio, it can be calculated with the standard electrostatics equation of ${}_H\lambda_\infty = 4\pi a_0 / \alpha = .000179$ that Hydrogen's intrinsic photon was the same as the first photon at the high energy end of the CBR spectrum.

This Lyman series photon combined with the countless photons from the other series of Hydrogen spectra and the spectra of other elements create a calculated group of photons that is virtually identical to the measured spectrum of the CBR.

The Circlon Model's Neutron Structure and CBR Photon Emission

The only true constant in the circlon model of atomic structure is the mass of the proton M_p . The electron mass M_e slowly decreases in value with the passage of time. This transformation of electron mass causes the value of the Bohr radius a_0 to get smaller and the fine structure ratio α to get larger. These evolving constants decrease the wavelength of Hydrogen's intrinsic photon ${}_{Ly}\lambda_\infty = 4\pi a_0 / \alpha$ along with the other series in its spectrum. In the past, a heavier electron produced spectral photons with a longer wavelengths. Using the circlon model for Hydrogen's production of spectral photons, the evolution of this wavelength can be traced all the way back to the point in time where it was the same as the maximum energy photon of the CBR. In this era, the electron/proton mass ratio was 1/146.6, the Bohr radius was 12.53 times what it is today, ${}_H\lambda_\infty$ was increased by 1,967 times and the fine structure constant α was 173 times smaller.

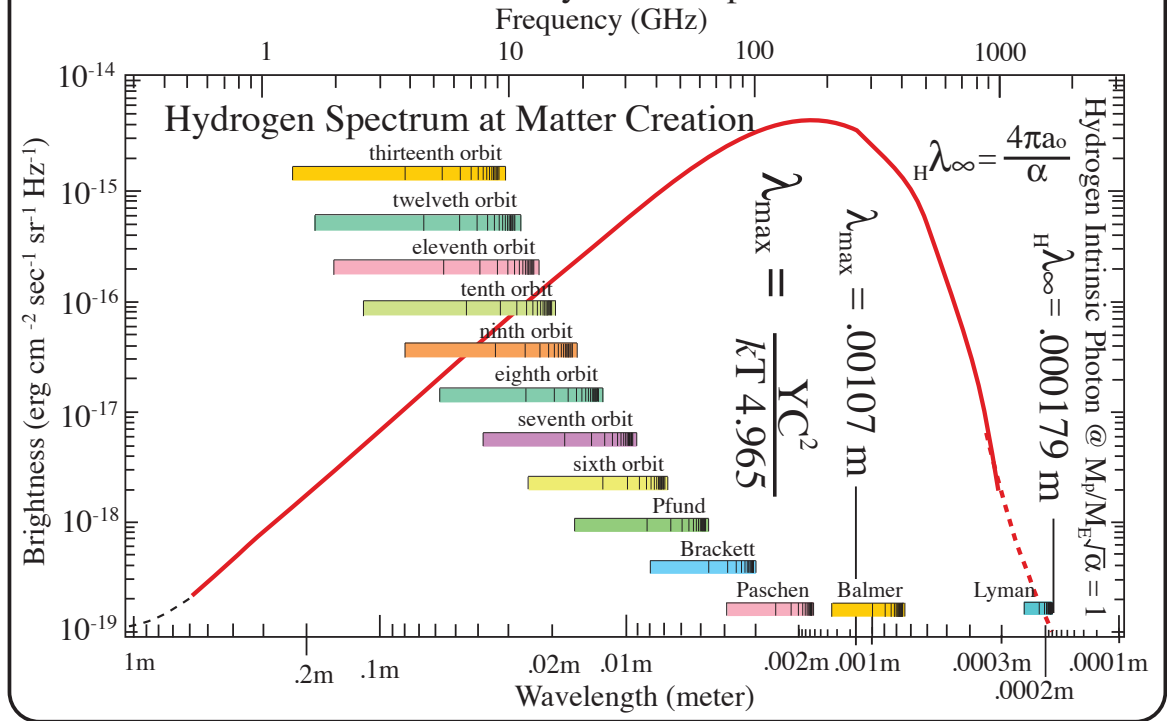
In the circlon model of atomic structure, an atom is formed and photons produced when the last links in the proton and electron charge chains mesh together and then align themselves into the same position in space. They can then divide into a pair of photons. One photon is emitted into space and the other remains as a mechanical link to hold the atom together. The ground state of the atom is reached when the secondary coils of the composite Bohr radius link are the same size as the tertiary coil of the electron and the primary coils of the Bohr link are slightly larger and fit outside of the proton's tertiary coil.

As we go back in time, the point is reached at neutron stability number one, where the secondary coils of the electron have become smaller than the proton's tertiary coil, the atom can no longer maintain its Bohr link to produce photons and it collapses into a stable neutron. In the neutron, the secondary coils of the electron are smaller and physically mesh inside of the tertiary coil of the proton.

Before this critical point in the evolutionary past of the Living-Universe, nearly all electron/proton pairs were locked into stable neutrons. The reason for this is that the secondary coils of the electron were smaller and able to fit inside of the proton's tertiary coil.

The great explosion of CBR photons that we still see today occurred when the Living-Universe

Hydrogen's Photon Spectrum @ $M_p/M_E \sqrt{\alpha} = 1$ is the same basic group of photons that make up the 2.7°K Cosmic Blackbody Radiation. $M_p/M_E \sqrt{\alpha} = 1$ is also the point in matter's evolution when neutrons became unstable and decayed into protons and electrons.



composed of stable neutrons was suddenly transformed when these neutrons all began to decay into rapidly moving protons and electrons. A cold dark universe of neutrons suddenly became a brilliant universe filled with photon producing Hydrogen atoms as well as Helium and some atoms of all the other elements.

The circlon model requires that this event must have occurred when the neutron stability number equaled one and the intrinsic Hydrogen photon had a wavelength of ${}_{\text{H}}\lambda_{\infty} = 4\pi a_0 / \alpha = .000179 \text{ m}$. At this wavelength, the blackbody equilibrium temperature of Hydrogen's spectral radiation is calculated to be 2.7°K.

When the value of the neutron stability number $M_p/M_E \sqrt{\alpha} = 1$ was greater than one, electrons and protons combined into stable Hydrogen atoms as well as nearly stable neutrons. With a number greater than one, the electron can attach to the outside of the proton and release their kinetic energy in photons. With just the right amount of energy, an electron can collapse into a proton where their energy is stored until the neutron decays. Back when the number was less than one, the electron can only fit inside of the proton's tertiary coil and could not attach to the outside of

the proton. In a neutron, the electron and proton are physically attached to one another, and in an atom they are connected by the intermediate Bohr link of their charge chains.

If there were no CBR or if it had a different temperature than 2.7°K , then both the principle of the circlon shape and the transformation of electron mass would be falsified. However, the accurate experimental measurement of the CBR transforms the circlon shaped particle from an invention to the next great discovery in physics.

The the true importance of CBR temperature measurements is enormous. What has been discovered is an eternally evolving Living-Universe that has always contained circlon shaped protons and electrons. What the measurements invalidate is the temporary new universe of the Big Bang that sprang out of the nothingness of a pure energy singularity only about 13 billion years ago. It is the difference between a universe of living mechanical particles or a universe filled with relativistic quantum fields of energy. These tests will allow astronomers to look through their telescopes from a different perspective and be able to answer other mysteries. By being able to clearly see into the past, we will be able to more accurately view the future.