

This chapter one is excerpted from my latest work:
The Big Bang Book: How, Where, & When Demonstrated
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<http://www.amazon.com/Big-Bang-Book-Where-Demonstrated/dp/0967035317>

Chapter 1: The How – This study of The Big Bang Explosion & Modern Physics replaces the Singleton with Old Atoms, Dark Energy, and a Stanford Lab Experiment.

For atom notes, and reference links, see appendix 12

For singleton notes, etc. see appendix 6

For dark energy appendix 18

For explosion - 23

“All things are made of atoms” Richard P. Feynman
Six Easy Pieces

“He [Edwin Hubble] quickly realized what this meant that there must have been an instant in time (now known to take place about 14 billion years ago) when the entire Universe was contained in a single point in space. The Universe must have been born in this single violent event which came to be known as the ‘Big Bang.’ ”

<http://science.nasa.gov/astrophysics/focus-areas/what-powered-the-big-bang/>

“ one thing was fairly certain about the expansion of the Universe. ... it has been accelerating ... But something was causing it. ... It is called dark energy.”

<http://science.nasa.gov/astrophysics/focus-areas/what-is-dark-energy/>

Here we find NASA emulating Abbé Georges-Henri Lemaître's old mathematical suggestion, that “If the world [Universe] began with a single quantum [that singularity], the notions of space and time would altogether fail to have any meaning at the beginning;” noted in his May 1931 letter to Nature's editor.

These concepts are still held by NASA as noted above. Cosmologists today accept Lemaître's assumption that no space or time existed before the Big Bang; and that all the atoms in our Universe suddenly made their appearance, where nothing existed before, so condensed that they all fit inside a singleton dot, smaller than this one → •

How could this dot • come from nothing?

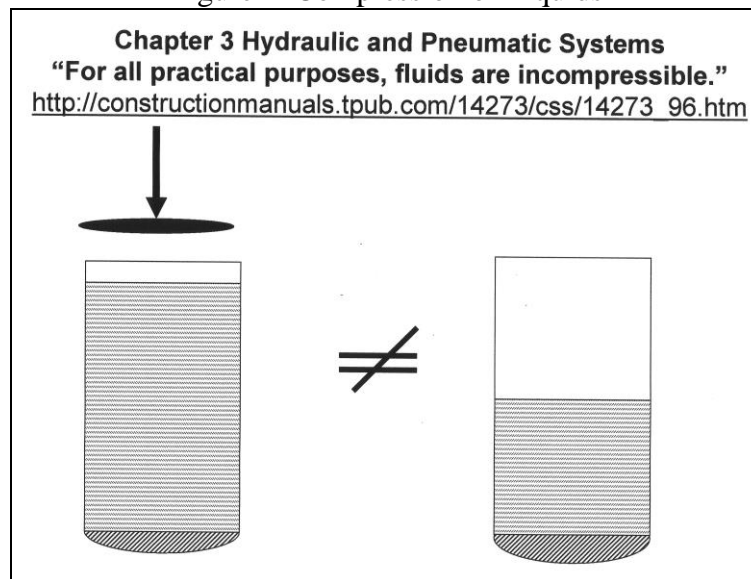
What do we know for sure? First, the event happened; the Big Bang, that we know, but how did it start? There are no acceptable theories of how the Big Bang came to be.

Scientists rely on the basic mathematical assumptions of the Big Bang springing from a single point where nothing existed before. These assumptions include the concept of expanding space, and the lack of a central point or any special or preferred position by any celestial body; all these assumptions derived from the reworking of Einstein's 1915 math.

Cosmologists really do not know what this singularity [that dot] is, because a singleton popping out of a space-less nothing, really defies scientists, or anyone else's understanding of physics. Where did that dot come from?

All of our understanding and experiments require a conversion of something into the new whatever. Not only compressing all the atoms in our 100 + billion galaxy filled Universe seems impossible, we cannot even compress a glass of water to half its volume with all our advanced technology.

Figure 1 Compression of Liquids



http://constructionmanuals.tpub.com/14273/css/14273_96.htm

Fortunately for car brakes, hydraulics works, the non-compression of liquids, used every time we step on the brakes.

Regardless of how difficult for us to conceive of – that dot, that singularity → • we need to start somewhere.

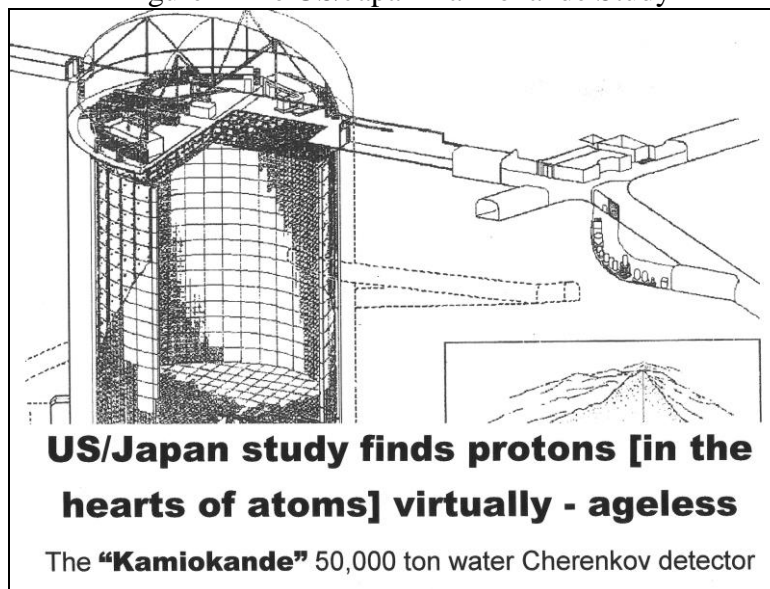
That becomes the major challenge understanding where we should start. Let's start with the closest thing to that single point, closely studied this last century – the atom.

There is much information, buried in the web, about the physical properties of the atom and its subatomic parts, all referred to as the Standard Model / Quantum Theory of Particle Physics or Standard Model for short.

The world of atoms and quantum physics is an arena that one could get lost in the details very easily. However, it is sufficient to just concentrate on the reported major points observed and by doing so we could figure out how they apply to our world and the Big Bang.

The first thing we already know is that the basic atom is composed of electrons and protons. Not as well known is the life span of our atoms. The Theories of the Standard Model predict that the eventually the protons would decay ending the life of the atom – but to the dismay of these theorists, none of their studies, including the latest US/Japan combined Super Kamiokande study, have found any protons decaying, indicating that the minimum life of our amazing atoms is longer than the age of our 13.8+ billion year old Universe.

Figure 2 The US/Japan Kamiokande Study



<http://www-sk.icrr.u-tokyo.ac.jp/sk/detector/index-e.html>

The first dedicated search was undertaken in 1982, by IMB [*Irvine-Michigan-Brookhaven* Collaboration] using an experimental pioneering water Cherenkov technique. We are now at the third generation of this study. The US/Japan Kamiokande experiment began in '96 and continues to this day, searching for the atom's proton decay predicted by scientists. No proton decay ever detected.

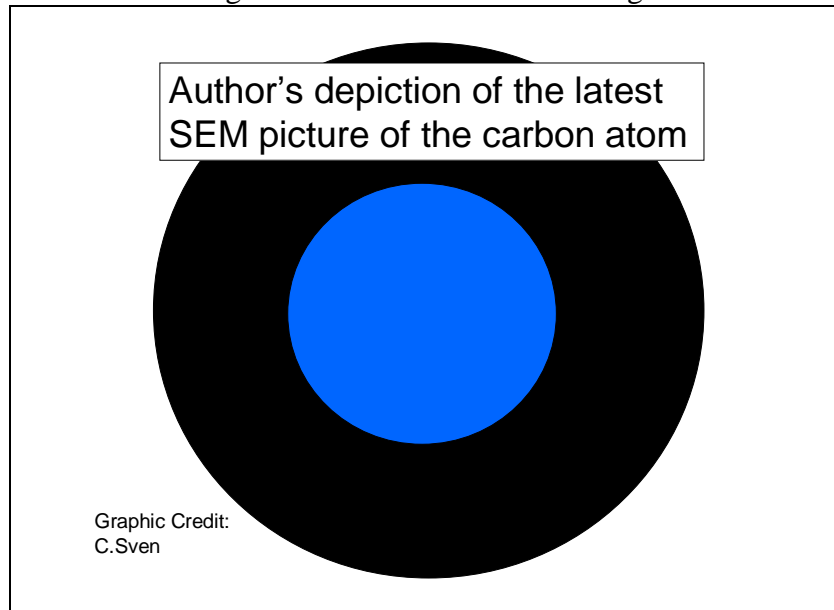
<http://www-sk.icrr.u-tokyo.ac.jp/sk/sk/pdecay-e.html>

No proton decay means that the atom has a super long life, currently scientists expect the minimum life of an atom to be 82,000,000,000,000,000,000,000,000,000,000 years or in scientific notation: 8.2×10^{34} years which is 8 + 34 decimals.

This means that all the atoms in your [[[the reader's]]] body, in mine and all the atoms existing in our Universe were created in the Big Bang era at least some 13.8 billion years ago. Virtually Ageless. Except for a few very tiny bits created at Stanford labs.

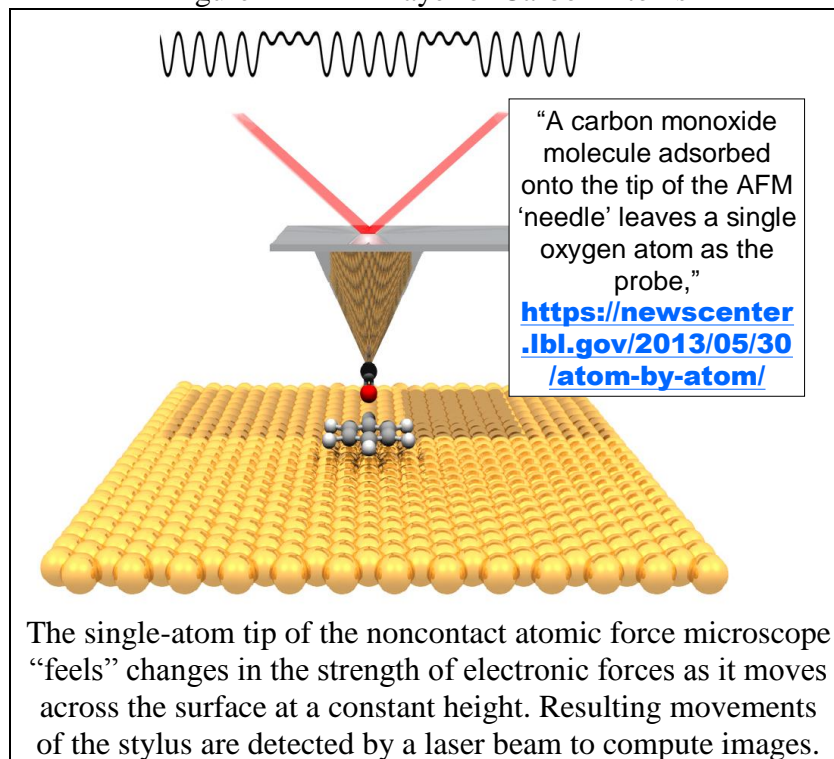
Using the latest improved scanning electron microscope [SEM], we can image the electron orbitals confirming the ball bearing shape of our atoms. The SEM is a microscope that uses electrons instead of light to form an image of atoms seen next, in figures 3 & 4, that look like ball bearings.

Figure 3 – carbon atom SEM image



<http://semisignal.com/?p=1006>

Figure 4 A Thin Layer of Carbon Atoms

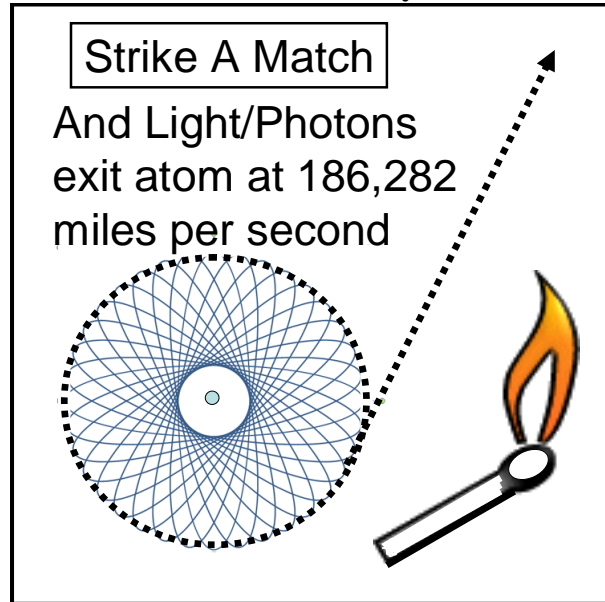


<https://newscenter.lbl.gov/2013/05/30/atom-by-atom/>

This is what a layer of carbon atoms look like using that field-emission microscope. This atom's ball bearing shape provides us with a key to the Big Bang. [[[Why do they look like ball bearings? – **answer next page.**]]]

To demonstrate an everyday experience, strike a match, and light/photons exit at 186,282 miles per second without acceleration. To achieve that speed requires a transfer of momentum like hitting an eight ball with the cue ball – **instant velocity**.

Figure 5 Strike a Match and photons exit at the speed of light with **instant velocity**



To drive light/photons with **instant velocity**, must mean that something in that atom is already moving at that speed of light, like electrons orbiting its surface, as depicted in above representation with its ball bearing shape.

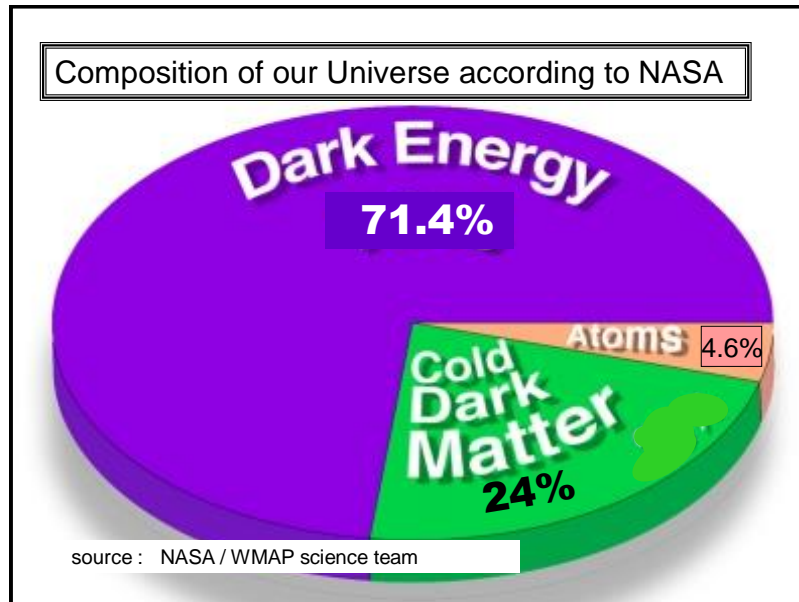
If electrons drive those light/photons at such speed then we must conclude from our observations that the electron is orbiting the atom [like a spirograph path] at light speed – and is supported by the latest SEM imaging of electron orbitals.

Converting data about atoms into number of orbits requires a little math. Just divide the distance the electron or light/photon travels in one second – that 186,282 miles by the very tiny circumference of the atom. The answer is approximately ≈ a million trillion orbits per second. This huge number of orbits accounts for the ball bearing shape! This brings us partway to understanding how the Big Bang took place. [[[This wavy line math symbol ≈ means approximately.]]]

Why should a 13+ billion year old atom have the strength to drive a light/photon at the speed of light? We must conclude that atoms require a lot of continuous power since Big Bang's Explosion to drive all the various internal forces operating in the atom to drive that electron for ≈ a million trillion orbits per second.

Dark Energy: Relationship to atom/electrons – How much power is required to drive those electrons for ≈ a million trillion orbits per second ?

Figure 6 Copy of NASA's Composition of our Universe:
Atoms, Dark Matter & 'Dark Energy'



http://map.gsfc.nasa.gov/universe/uni_matter.html

The Wilkinson Microwave Anisotropy Probe satellite - [WMAP] “determined that the universe is flat”...“total density, we ...71.4% Dark Energy ... [with the] “possibility that the universe contains a bizarre now know the breakdown to be: 4.6% Atoms ... 24% Cold Dark Matter form of matter or energy that is, in effect, gravitationally repulsive”

See what the Smithsonian Magazine in April 2010 had to say about ‘dark energy’ from its article *Dark Energy: The Biggest Mystery in the Universe* By Richard Panek

Dark Energy: The Biggest Mystery in the Universe

“Scientists have some ideas about what dark matter might be ... but they have hardly a clue about dark energy.”

“The report goes on to say that dark energy is among the ‘most profound mystery in all of science.’

“We have a complete inventory of the universe,” Sean Carroll, a California Institute of Technology cosmologist, has said, “and it makes no sense.”

[Michael Turner coined this term ‘Dark Energy’ in 1998.]

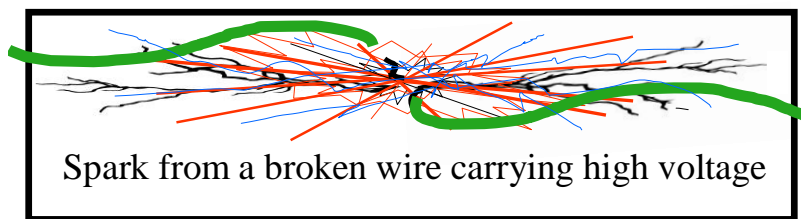
<http://www.smithsonianmag.com/science-nature/dark-energy-the-biggest-mystery-in-the-universe-9482130/> sometimes this link doesn't work - search the title – that usually works.

We will see how ‘dark energy’ drives atoms !

It is way beyond our technology to connect a power meter on any one atom. That does not prevent one from getting a good estimate. I believe that dark energy drives the electrons that drive photons, measured by observation of light when we strike a match. Adding to our power study we note that, a tremendous amount of power is released in a chain reaction and in stars. So by inference when we change/disrupt a system one can observe the different effects.

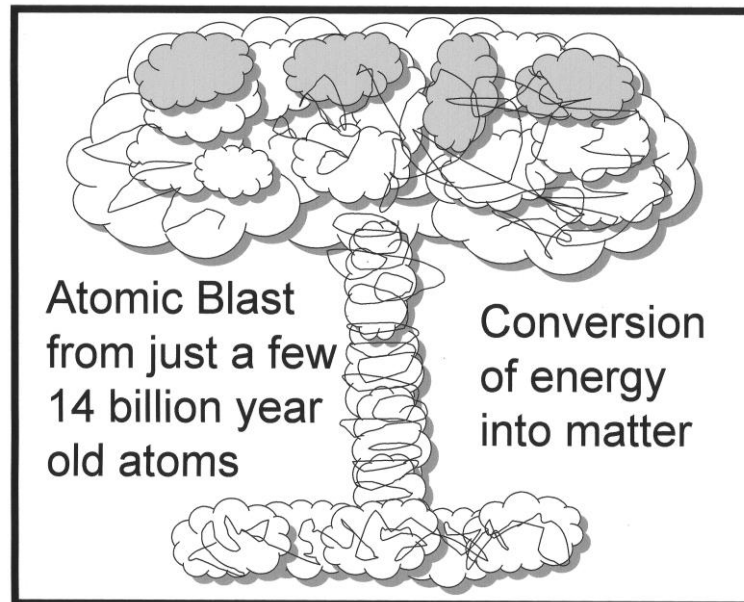
For example, a short in a small electric line or motor creates a small spark. Like a match – small power involved. Knock down an overhead power line and much greater electric flashes or sparks are seen, jumping thru space. By observation one can compare different levels of power involved.

Figure 7 Spark – Chaotic Electricity – Jumping thru Space



Without putting a meter on some Uranium atoms we can readily see that disrupting the normal flow in a chain reaction that a tremendous amount of energy, chaotically destroys the atom and jumps thru space, in effect redirecting ‘dark energy’.

Fig.8 Atomic Bomb – Chaotic ‘Dark Energy’ Observed– compared to a match – Jumping Thru Space



Only a tiny amount of Uranium 235 atoms were used in the atomic bomb — just 0.6 tenths of a gram — the number of atoms found in ¼ of a dime.

[<http://www.unmuseum.org/buildabomb.htm> or see also <http://www.atomicarchive.com/Fission/Fission1.shtml>]

To just drive light/photons emitted from a match one might not expect a great deal of power involved but —

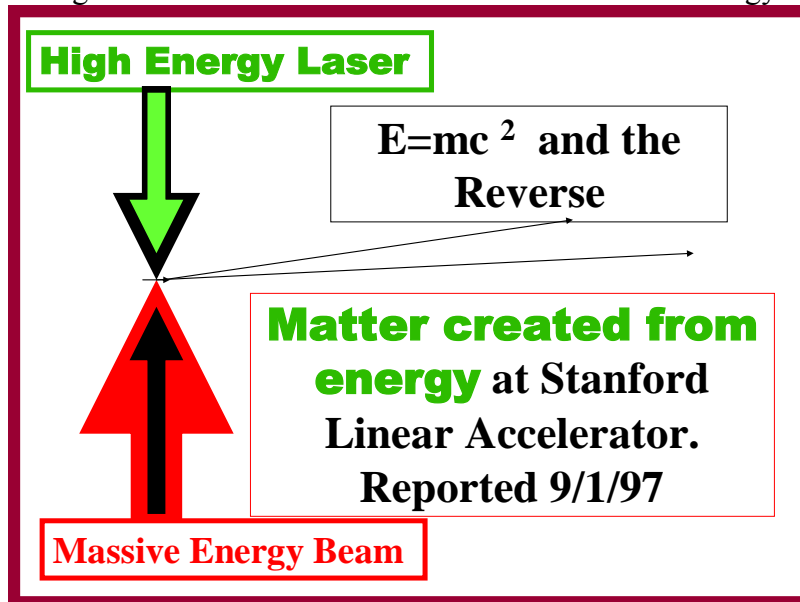
— the power discharged from atoms in a chain reaction is huge, as observed in the chaotic destructive energy coming out of the atomic bomb. This power must be, in effect, the redirecting of dark energy that is used to power all the great variety of forces working within the atom.

Dark Energy drives U235 atoms !

This redirecting must consist of a tremendous amount of dark energy, redirected instead of absorbed by uranium atoms, thereby fueling the sun, stars and driving the atomic bomb chain reactions — all with dark energy.

And now the reverse:

Figure 9 Stanford Lab's Creation of Matter from Energy



<https://www.slac.stanford.edu/vault/pubvault/tip19902000/tip1997dec.pdf>

A study made by the Stanford Linear Accelerator Center in California in '97, converted energy into matter by colliding a trillion-watt green laser beam smashed into an accelerated beam 10 billion times more powerful, creating two very tiny bits of matter the opposite of the bomb's huge release of energy. Reported in the New York Times. See — <http://www.nytimes.com/1997/09/16/science/scientists-use-light-to-create-particles.html>

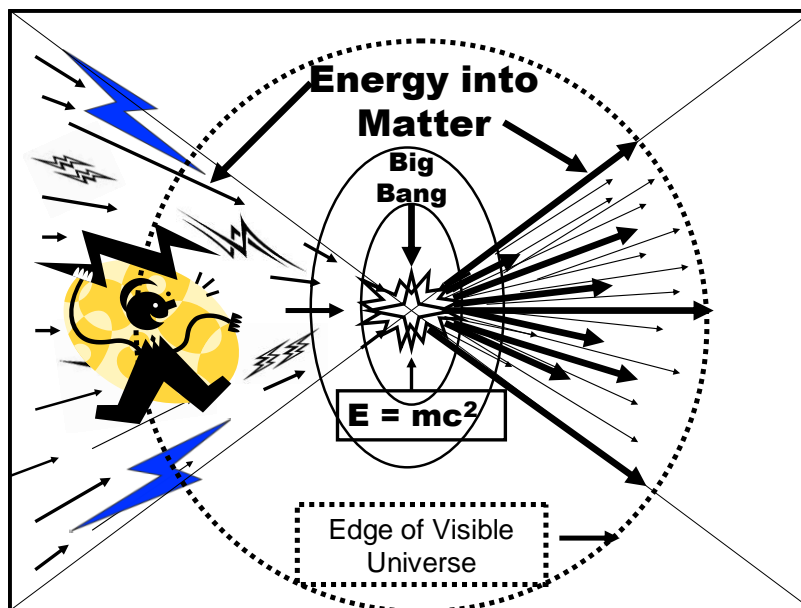
This bit of evidence depicts the tremendous amount of energy needed to convert energy into matter during the Big Bang Explosion — the opposite of the atomic bomb's conversion of the uranium/atomic matter into energy.

It was always theoretically possible and now is physically accomplished: Very high energy is released from matter via chain reactions, such as the atomic bomb, and now matter converted from the reverse; huge amounts of energy were smashed together at Stanford. This is one of the roles dark energy played in space – creating matter via the Big Bang and now dark energy continuous to power all the many complicated forces operating in the atom.

Dark Energy is keeping all our Universe and body atoms alive, fueling stars, and last, supplied the fuel for the Big Bang. This dark energy took an unlimited amount of time to run [in preexisting space] every available, chaotic, turbulent pattern possible leading up to the Big Bang. This energy must have filled all of space for eons till finally a sufficient amount converged into a small enough space that set off the conversion of energy into matter – just like at Stanford.

The key to all of this was recognizing that some 13+ billion year old atoms found in a match, drive photons at light speed based on web reports made by NASA, US/Japan Kamiokande study, Stanford labs, and other equivalent studies.

Figure 10 The Big Bang's conversion of dark energy into matter shot out into pre-existing space:



This concludes the first step – finding the key, that match, that lit up the evidence needed to explain how matter was created in our Universe.

This is How the Big Bang Banged

The How of this Big Bang Explosion – is the conversion of dark energy into atomic matter shot into pre-existing space – the Creation of our Universe.

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