

A Synopsis of The Electric Universe

by Wal Thornhill
from [Holoscience](#) Website

1. Preface

'The most merciful thing in the world ... is the inability of the human mind to correlate all its contents... The sciences, each straining in its own direction, have hitherto harmed us little; but someday the piecing together of dissociated knowledge will open up such terrifying vistas of reality... That we shall either go mad from the revelation or flee from the deadly light into the peace and safety of a new dark age.'

- H. P. Lovecraft

In a broadly interdisciplinary inquiry such as this, communication itself can pose quite a challenge.

Typically, the greatest difficulties in communication will occur when one is questioning something already "*known*" to be true. On matters of underlying principle, the confidence behind established ideas can be so high that discussion itself may seem quite senseless. This difficulty is aggravated by fragmentation of the process by which information is gathered and evaluated. The specialization of intellectual inquiry carries with it certain risks when assumptions within one discipline rest upon prior assumptions in other disciplines. No one can be an expert on everything, and when considering possibilities outside one's personal expertise, it is only natural to defer to what specialists in other studies claim to know. But what are the consequences of this when theoretical suppositions, though perceived as fact, cannot account for compelling new fields of data?

Given the extreme fragmentation of established science today it is difficult to imagine that the enterprise as a whole could ever "correlate all its contents." Yet extraordinary strides toward that "someday" envisioned by **Lovecraft** may now be possible through a new approach - one in which electrical phenomena receive the full attention they deserve, and all appropriate fields of evidence are included. To some, the prospects may appear every bit as disturbing as **Lovecraft** imagined. But for those who instinctively seek out unifying principles, the new horizons will be at once breathtaking and hopeful.

This introduction will present a new "*deep focus lens*" for viewing the physical universe, from sub-atomic particles to galactic realms unknown before the Hubble telescope. The ***Electric Universe*** is a holistic answer to myopia* - that narrowing of vision which naturally accompanies the fragmentation of knowledge and learning. For those with the courage to see clearly, the required "unlearning" of fashionable ideas carries no real cost whatsoever. The terror **Lovecraft** envisioned is only the first rush of uncertainty, when ideas long taken for granted are thrown into question by facts and simple reasoning previously ignored. The "piecing together of dissociated knowledge" will only require us to confront the deep contradictions in things experts have long claimed to know. With the courage to see clearly, the adventure itself could well be "*the most merciful thing in the world*," adding new insights into the greatest dramas of early human history and vital perspective to humanity's situation in the cosmos. **Lovecraft** did not realize that the "*terrifying vistas*" are but a mirage seen through an open door. The truth is always unified, and as such it can only be friendly to those who seek the truth first. As we pass through the door, it is not fear that goes with us, but the exhilaration of discovery.

* **Myopia** - a disinclination to acknowledge the existence of something.

2. The Electric Universe

The ***Electric Universe model*** is a coherent "*Big Picture*" of our situation in the universe, spanning many disciplines. It highlights repeated electrical patterns at all scales that enable laboratory experiments to explain the strange, energetic events seen, for example, in deep space, on the ***Sun***, and on ***Jupiter's*** moon, ***Io***. The ***Electric Universe*** works backward in time using observations rather than forward from some idealized theoretical beginning. It provides simple answers to problems that are now clothed in fashionable metaphysics and mysticism. It is more interdisciplinary and inclusive of information than any prior cosmology. It points to practical possibilities far beyond the limits set by current science.

The ***Electric Universe model*** grew out of a broad interdisciplinary approach to science. It is not a technique taught in universities. The ***Electric Universe*** is based more on observations and experiment than *abstract theory*. It recognizes connections between diverse disciplines. It concludes that the crucial requirement for understanding the universe is to take fully into account the basic electrical nature of atoms and their interactions. Strangely, this is not the case in conventional cosmology where weaker magnetism and the infinitely weaker force of gravity rule the cosmos. Such a simplification may suit a theoretical physics based on electrical neutrality of matter in Earthly laboratories but it does not apply in space where plasma dominates.



Plasma has been called the "fourth state" of matter, after solids, liquids and gases. ***Most of the matter in the universe is in the form of plasma.*** A plasma is formed if some of the negatively charged electrons are separated from their host atoms in a gas, leaving the atoms with a positive charge. The negatively charged electrons, and the positively charged atoms (known as positive ions) are then free to move separately under the influence of an applied voltage or magnetic field. Their net movement constitutes an electrical current. So, one of the more important properties of a plasma is that it can conduct electrical current. It does so by forming current filaments that follow magnetic field lines. Filamentary patterns are ubiquitous in the cosmos.

3. A Little History

"To be sure, nature distributes her gifts unevenly among her children. But there are plenty of the well-endowed, thank God, and I am firmly convinced that most of them live quiet, unobtrusive lives."
- **Albert Einstein**

The pieces of the ***Electric Universe "Big Picture"*** are supplied by some remarkable individuals, most of them unknown and who have lived or are living "quiet, unobtrusive lives" away from universities. For those with a sense of history this fact should serve to increase curiosity rather than dull it. Most revolutions in science have come from people who taught themselves outside the academic system and were not constrained by the fallacies and fashions of the day. It has been well documented that modern institutions of science operate in such a way as to enforce conformity and prevent research and publication of revolutionary ideas. **J. R. Saul** argues that medieval scholasticism was re-established during the 20th century. If so, the new "*Enlightenment*" will have to come, as before, from ***outside academia***.



For me, enlightenment began with the controversial polymath and author of *Worlds in Collision*, ***Immanuel Velikovsky***. In 1950 he demonstrated an interdisciplinary, comparative technique for uncovering hard evidence of planetary catastrophe from the recorded memories of the earliest civilizations. His method was forensic in that he looked for reports of physical events of a highly unusual nature that were nonetheless corroborated globally by totally separate cultures.

Then by applying scientific knowledge of cause and effect, it was possible to build a very detailed model of the sequence of those events. Finally, the model enabled specific predictions to be made and confirmed - a requirement of a good scientific theory. Some of the predictions he made were outrageous at the time: ***Venus*** would be near incandescently hot, ***Jupiter*** would emit radio noise, the ***Moon*** rocks would be

magnetized, and so on. **Velikovsky** was right, astronomers of the day were wrong. However, you will not find any textbook that gives him credit because his theory was judged to be wrong. Presumably they were all lucky guesses!

It became clear to **Velikovsky** that *Newton's concept of gravity* was insufficient to explain the reported behaviour of the planets. And it certainly could not answer the obvious question, "why do the skies look so peaceful now?" This allowed a dogmatic response by academia to **Velikovsky's** seminal breakthrough. It was said his theory didn't obey *Newton's laws*. But what did **Newton** know of electricity? And if anyone believes that Newton's laws guarantee a stable planetary system - think again! Any gravitational system with more than two orbiting bodies is unstable.

Yet the question is hardly ever asked, let alone answered, "what produces the observed stability of the solar system?" **Velikovsky** was convinced that the clue lay in his discovery that electrical forces dominate the incredibly weak force of gravity at times of planetary close encounters. Although he was unable to explain at the time how this would create the observed stability of the solar system, with his uncanny prescience he had pointed the way to **the Electric Universe**.

Since then *skeptical scholars* have shown **Velikovsky's** historical perspective of cataclysmic events to be wrong. However, his basic premise of planetary encounters has been confirmed and the details fleshed out to an extraordinary degree. Several pioneering researchers in this new field now agree that awe-inspiring planetary encounters did occur in pre-history. To the most ancient civilizations they were a culturally defining memory.



They were the inspiration for pyramids, megaliths, statues, totems and sacred rock art. The survivors of global upheaval felt it imperative that the memory be preserved and passed down faithfully to future generations in the expectation that the "*gods*" would return. The memorialization took the form of architecture, ritual and story to re-enact the apocalyptic power of the *planetary gods* over human destiny.

Such a catastrophic beginning explains why civilization appeared like a thunderclap out of nowhere. Unfortunately, with no reference points in the present behavior of the planets, the stories lost their real meaning. This short explanation may seem contrived until the wealth of supporting evidence can be presented. However, it highlights the crucial distinction between the *planetary catastrophism of the Electric Universe* and that of *neo-catastrophists* who attempt to explain the evidence for planetary encounters in terms of *cometary phenomena*.

Modern **comets** simply do not fit the descriptions from the past. Nor can they account for abundant evidence of fresh looking planetary cratering and scarring. Besides, in an **Electric Universe** comets are not the apocalyptic threat to the Earth imaginatively portrayed by artists. Such pictures are entirely fanciful because a comet would be disrupted electrically by a cosmic thunderbolt before it hit the Earth. The only visible evidence remaining would be an **electric arc crater** like **Meteor Crater in Arizona**.

The **Electric Universe model** grew from the realization that a new plasma cosmology and an understanding of electrical phenomena in space could illuminate the new work being done in comparative mythology. In return the images of events witnessed in the prehistoric sky and their sequence could help unravel the recent history of the **Earth, Mars and Venus**. By accepting data over a far wider span of knowledge and human existence than conventional cosmology allows, the Electric Universe model began to provide pragmatic and common sense answers to many questions that seem unrelated.

It followed the entreaty of the Nobel Prize winning plasma physicist and cosmologist, **Hannes Alfvén** to work backwards in time from observations rather than forward from some idealized theoretical beginning.

"We have to learn again that science without contact with experiments is an enterprise which is likely to go completely astray into imaginary conjecture."
- Evolution of the Solar System, NASA 1976,
H. Alfvén & G. Arrhenius, p. 257.



The result is now a "*Big Picture*" that emphasizes our dramatic prehistory and essential connectedness to the universe. No longer do we have to look at ourselves and the universe through the distorting sideshow mirrors of modern science.



The implications of electrical activity between planets will be profoundly disturbing for those who have built their cosmology around the weak force of gravity, acting in an electrically sterile universe. This strange, dogmatic oversight guarantees that nothing will remain in future of the *fanciful Big Bang theory* or the *simplistic story of the formation of the solar system*.

4. What Big Bang'



The Big Bang is already dead! The unheralded "Galileo of the 20th century", [Halton Arp](#), has proven that the universe is not expanding. The *Big Bang theory* is *based on a misinterpretation of redshift*. The **redshift** of a distant galaxy is measured in the light coming from that galaxy. Lines in the spectrum of that galaxy show a shift toward the red compared with the same lines from our Sun. **Arp** discovered that high and low *redshift objects* are sometimes connected by a bridge or jet of matter.

So **redshift cannot be a measure of distance**. Most of the *redshift* is intrinsic to the object. But there is more: **Arp** found that the *intrinsic redshift* of a quasar or galaxy took discrete values, which decreased with distance from a central active galaxy. In **Arp's** new view of the cosmos, active galaxies "give birth" to high redshift quasars and companion galaxies. **Redshift** becomes a measure of the **relative ages** of nearby quasars and galaxies, **not their distance**. As a quasar or galaxy ages, the redshift decreases in discrete steps, or quanta.

The huge puzzle for astrophysicists is why a galaxy should exhibit an atomic phenomenon. So we turn to particle physics. This difficulty highlights the fact that quantum "mechanics" applied to atoms is a theory without physical reality. The weirdness of quantum theory has been attributed to the subatomic scale to which it applies.

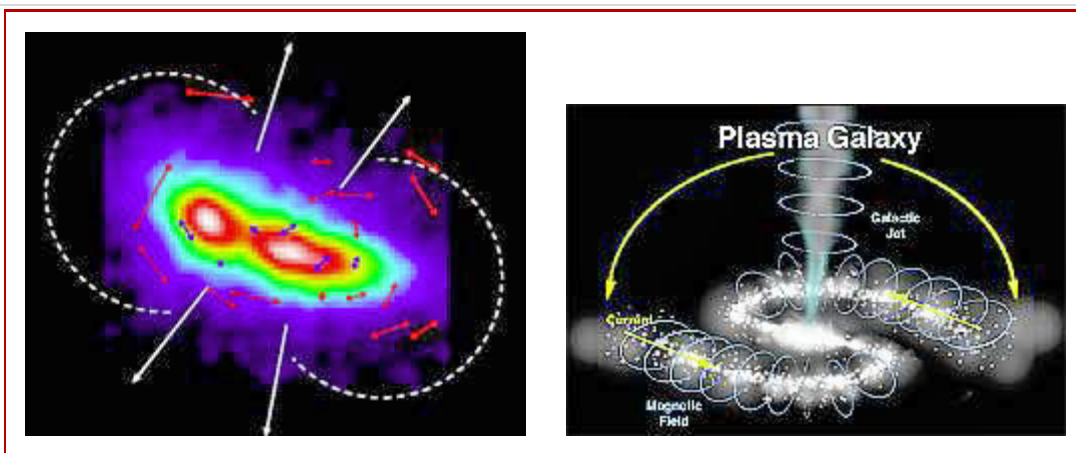
But now that we have quantum effects in something the size of a galaxy, this convenient nonsense is exposed. If **Arp** is right many experts are going to look very silly. His discovery sounded the alarm in some halls of Academe and since nobody likes a loud noise - particularly if they are asleep - the knee-jerk response was to attack the guy with his finger on the alarm button.

Arp's telescope time was denied, papers rejected, and he was forced to leave the US to pursue his work.

5. Electric Galaxies

For more than 10 years plasma physicists have had an electrical model of galaxies. **It works with real-world physics**. The model is able to successfully account for the observed shapes and dynamics of galaxies without recourse to invisible *dark matter* and *central black holes*. It explains simply the **powerful electric jets** seen issuing along the spin axis from the cores of active galaxies.

Recent results from mapping the magnetic field of a spiral galaxy confirm the electric model.



On the other hand, cosmologists cannot explain why **spiral shapes** are so common and they have only ad-hoc explanations for galactic magnetic fields. More recently, inter-galactic magnetic fields have been discovered which is the final straw to break the camel's back. Incredible gravitational models involving *invisible "black holes"* have had to be invented in a desperate attempt to explain how the attractive force of gravity can result in matter being ejected in a narrow jet at relativistic speeds.



Why do we accept such science fiction as fact when an **Electric Universe** predicts spiral shapes, magnetic fields and jets? The cosmic magnetic fields simply delineate the electric currents that create, move and light the galaxies.

6. Electric Stars

Plasma physicists argue that stars are formed by an electromagnetic "*pinch*" effect on widely dispersed gas and dust. The "*pinch*" is created by the magnetic force between parallel current filaments that are part of the huge electric currents flowing inside a galaxy. It is far more effective than gravity in concentrating matter and, unlike gravity, it can remove excess angular momentum that tends to prevent collapse. Stars will form like beads on a wire until gravity takes over.

The late **Ralph Juergens**, an engineer from Flagstaff, Arizona, in the 1970's took the next mental leap to suggest that the electrical input doesn't stop there and that stars are not thermonuclear engines! This is obvious when the Sun is looked at from an electrical discharge perspective. The galactic currents that create the stars persist to power them.

Stars behave as electrodes in a galactic glow discharge. Bright stars like our Sun are great concentrated balls of lightning! The



matter inside stars becomes positively charged as electrons drift toward the surface. The resulting internal electrostatic forces prevent stars from collapsing gravitationally and occasionally cause them to "give birth" by electrical fissioning to form companion stars and gas giant planets.



Sudden brightening, or a nova outburst marks such an event. That elucidates why stars commonly have partners and why most of the giant planets so far detected closely orbit their parent star. Stellar evolution theory and the age of stars is an elaborate fiction. The appearance of a star is determined largely by its electrical environment and can change suddenly. *Plasma physicists and electrical engineers **are best able to recognize plasma discharge phenomena***.

Stellar physics is in the wrong hands.

7. Planets

Earth-like planets and moons are similarly "born" by electrical expulsion of part of the positively charged cores of dwarf stars and gas giants. That explains the dichotomy between the dense rocky planets and moons and the gaseous giant planets. In the Electric Universe model, gravity itself is simply an electrostatic dipolar force. So planetary orbits are stabilized against gravitational chaos by exchange of electric charge through their plasma tails (*Venus* is still doing so strongly, judging by its "cometary" *magnetotail*, and it has the most circular orbit of any planet) and consequent modification of the gravity of each body.

Planets will quickly assume orbits that ensure the least electrical interaction. Impacts between large bodies are avoided and capture rendered more probable by exchange of electric charge between them. Capture of our Moon becomes the only option, it cannot have been created from the Earth. Evidence of past planetary instabilities is written large on the surfaces of all solid bodies in the solar system.

That evidence is in the form of *electric arc cratering*.

8. Electrical Cratering

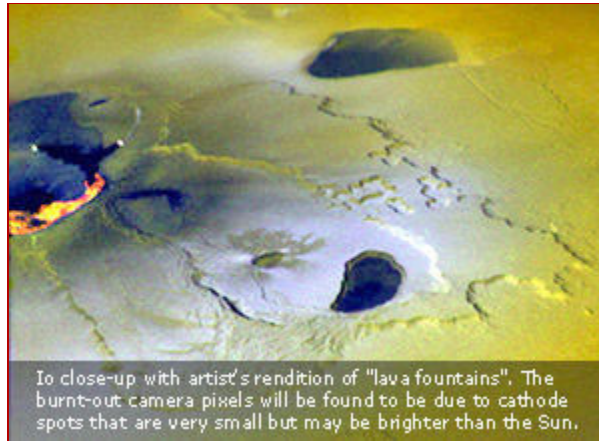


Electric discharges between closely approaching bodies takes the form of "*thunderbolts of the gods*", or distinctively shaped *helical plasmoids*. Such **plasmoids** were sculpted by many ancient cultures when depicting *Jupiter hurling his thunderbolt*.

Jupiter's thunderbolt raises questions about the history of mankind and the **Earth** that have never before been asked. When it comes to dating planetary surfaces, **plasmoids** cause characteristic electrical arc scarring in the form of sinuous channels and neatly circular craters with steep walls and occasional central peaks. Such **craters** are universally misinterpreted as impact craters. The sinuous channels are wrongly classified as riverbeds or lava channels.

Minutes or hours of electrical scarring can produce a surface like that of the **Moon**, which is later interpreted in ad hoc fashion to be billions of years old. Hemispheric differences in **cratering** are expected in this model. And for the skeptics, subdued electric arc machining of a planet-sized body continues to this day on *Jupiter's innermost moon, Io*.

See the many successful predictions about the discoveries that would be made as close-up images of Io became available.



Planetary geologists are not trained to recognize electric arc scarring otherwise they would have seen at a glance the characteristic **cathodic surface erosion** and **cathode jets on Io**. They are definitely not volcanos as we know them from *geology textbooks*.

9. Electrical Weather

Most people are unaware that we have no understanding of how *lightning is created in clouds*. The simplest answer is that lightning is not generated there at all. Clouds merely form a convenient path to Earth for **electricity originating in space**. Without clouds it is possible to have a "bolt from the blue". That is happening on **Venus** (although the sky certainly isn't blue). Weather systems are driven primarily by external electrical influences.

Consequently the **Sun** has weather patterns. And the most distant planet, **Neptune**, has *the most violent winds in the solar system though it receives very little energy from the Sun*. Electric discharges from space cause **Mars'** huge dust devils and planet-wide dust storms.

They are responsible for **Jupiter's Great Red Spot** and the **"spokes" in Saturn's rings**. It is why **Venus** has lightning in its smog-like clouds and *its mountain-tops glow with St. Elmo's fire*. It is why the **Earth** has lightning stretching into space in the form of "red sprites" and "blue jets", and why tethered satellites *"blow a fuse"*.

However, nobody is trained to consider electrical energy input to weather systems.

The image on the right is **NASA** artist's view of lightning on **Venus** during the descent of one of the *Pioneer probes*. **Venus** has smog-like clouds that are not expected to generate lightning and yet the planet suffers intense lightning.



This argues against the *popular notion of what causes lightning*.

10. Life Itself

It seems that when a **dwarf star** or **gas giant planet** "gives birth" to a rocky satellite, parent and child usually remain closely bound. Our solar system, with its widely spaced orbits and chaotic features, appears to be the result of a recent cosmic "*traffic accident*". This seemingly wild conjecture is supported by the global stories of

prehistoric planetary encounters.

So to use our situation as a measure of a normal planetary system will give wildly misleading ideas of how life begins and estimates of the likelihood of life elsewhere in the universe. The most benign situation for life in an **Electric Universe** is inside the electrical cocoon of a brown dwarf star. Radiant energy is then evenly distributed over the entire surface of any planet orbiting within the **chromosphere** of such a star, regardless of axial rotation, tilt, or orbital eccentricity.

The exceedingly thin atmosphere of such stars has the essential water and carbon compounds to mist down onto planetary surfaces. The *reddish* light is ideal for *photosynthesis*. Such a model provides one reason why the *Search for Extra-Terrestrial Intelligence (SETI)* project is unlikely to succeed. Any advanced civilization on such a planet will be unaware that the universe exists outside its own stellar environment, and radio communication through the glow discharge of the star is impossible!

Our education systems are not suited to the broad interdisciplinary knowledge required in an **Electric Universe**.

11. Some Basics

"The machines that are first invented to perform any particular movement are always the most complex, and succeeding artists generally discover that with fewer wheels, with fewer principles of motion than had originally been employed, the same effects may be more easily produced. The first philosophical systems, in the same manner, are always the most complex."

- **Adam Smith**

The **Electric Universe** takes a simplifying leap by unifying the nuclear forces, magnetism and gravity as manifestations of a near instantaneous electrostatic force. Instead of being "*spooked*" by the concept of action-at-a-distance, like most physicists this century, the Electric Universe accepts it as an observational fact. Anyone who has tried to force two like poles of magnets together has demonstrated action-at-a-distance.

"Electromagnetic" radiation is then simply the result of an oscillating electrostatic force.

At the level of the atom, the Electric Universe model takes a lead from the work of **Ralph Sansbury**, an independent New York researcher. Foremost is the simple recognition of the basic electrical nature of matter and the primacy of the electrostatic force** in matter interactions. It also rests upon the simple assumption that the proton, neutron and electron are composed of smaller charged particles, orbiting each other in a classical sense in stable, resonant orbits.



That is, the energy exchanged between those sub-particles in elastic deformation during each orbit sums to zero. Being charged, the sub-particles interact via the electrostatic force. A simple calculation shows that ***the sub-particles that form an electron must travel at a speed far in excess of the speed of light*** - some 2.5 million light-years per second, or *from here to the far side of the Andromeda galaxy in one second!*

So the **electrostatic force** must act at a speed which is almost infinite on our scale for the electron to be stable. It is the stable orbital resonances of these sub-particles, both within and between particles that give rise to the phenomena of *protons, neutrons, electrons and atoms*. Other denizens of the **particle "zoo"** are merely transient resonant states of the same charged sub-particles.

The so-called "*creation*" of matter from energetic photons is an illusion in which pre-existing matter is reorganized into new resonant states that give the impression that a particle has suddenly materialized. **Antimatter** is a misnomer since it too is formed from the same sub-particles as "*normal*" matter except that the total charge is mirrored.

Matter cannot be created or annihilated.

A Conventional View of Forces in Physics

1. Nuclear forces keep the nucleons (protons and neutrons) together in the atomic nucleus. They are the dominating forces in the nucleus, but of no importance at large distances from it.

2a. Electric forces. A positive charge and negative charge attract each other, but similar charges repel. Electric forces keep the atoms together ("*bind*" the electrons to the nucleus). They are of a certain importance in the nucleus. At large distances electric forces are usually not so important because of a screening effect. For example, a positive charge attracts negative charges to its neighborhood so that they screen off the field from the positive charge.

2b. Magnetic forces are closely related to the electric forces. Because they cannot be screened very easily, they are efficient at larger distances than electric forces. Example: the Earth's magnetic field.

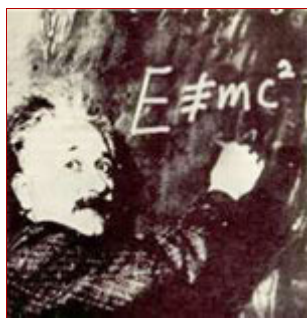
3. Gravitation is much weaker than electric forces and therefore of no importance in the atom. As the gravitation cannot be screened, it is the dominating force at large distances. The orbits of the planets and the motions of stars and galaxies are ruled by gravitation.

- H. Alfvén

Quantum Theory

For the first time the highly successful **quantum theory** gains a physical explanation in terms of resonant motion of charged particles, mediated by a near-instantaneous electrostatic force. A quantum electron orbit is one in which the exchange of energy between all of the sub-particles in the nucleus of an atom and those in an orbiting electron, sum to zero over the orbit.

Exchange of energy takes the form of distortion of a particle to form an electrostatic dipole or a move to a new resonant orbit.



Relativity Theory Einstein's Special Theory was designed to define simultaneity in a universe where the fastest force or signal was restricted to the measured speed of detection of light from a distant source. With an electrostatic force of near-infinite speed acting between the sub-particles of all matter, relativity theory reduces to classical physics. This leaves open the question of what we are measuring when we determine the speed of light.

The speed of light in galactic terms is exceedingly slow, requiring about 150,000 years to cross our galaxy. However, the astronomer **Halton Arp** has shown that the **redshifts** of entire galaxies are quantized which requires some form of near instantaneous, galaxy-wide communication at the sub-atomic level. There are now several reported experiments that demonstrate faster than light effects.

With *the Special Theory gone*, and the *universe in communication with its parts effectively in real-time*, there can be no time travel as space and time are independent. Common sense has always suggested that this was so. **Einstein's General Theory** was devised to explain gravity. It attempts to discard the observed action-at-a-distance of gravity by proposing a counter-intuitive warping of space in the presence of massive objects. This unnecessary complication of space is then added to the current *metaphysical concepts* of what constitutes the mass of an object.

But space must also "*warp*" at near infinite speed to produce the observed planetary orbits. Common sense, observation, and parsimony of hypotheses all suggest that **the electrostatic model of gravity** (see below) is superior. There is now experimental evidence from gravity measurements at the time of a total solar eclipse that supports the Electric Universe model and *discounts the General Relativity model*.

$$E = mc^2$$

Einstein's famous mathematical expression $E=mc^2$, equating energy and mass is known by almost everyone. However, most textbooks go on to use the word 'matter' in place of 'mass.' *But nowhere has it been shown that mass and matter are interchangeable.* In fact, we are entirely ignorant of what constitutes the **mass of an object**. So it is inadmissible to imply that energy and matter are interchangeable.

The ultimate expression of this idea led to the nonsense of the big bang. It seems simpler and more sensible to suggest that both nuclear and chemical energy is released or absorbed by the rearrangement of the resonant orbits of charged particles. It is then common sense to suggest that **mass is the measured response of a system of charged particles to an external electrostatic force.**

The more massive an object, the more the electrostatic force contributes to the elastic deformation of its protons, neutrons and electrons, rather than their acceleration. This is the phenomenon seen in particle accelerators and conventionally attributed to relativistic effects. But relativity reduces to classical physics in a universe where the electrostatic force has near-infinite speed. The first question to be asked is - if it is that simple, why hasn't it been thought of long ago? The answer seems to lie in the propensity for mathematical theory to supersede common sense and observation.

There is also a problem of language *when mathematicians attempt to provide real meaning for their symbols.*

12. So What'

The consequences and possibilities in an **Electric Universe** are far-reaching. First we must acknowledge our profound ignorance!

- We know nothing of the origin of the universe.
- There was no Big Bang.
- The visible universe is static and much smaller than we thought.
- We have no idea of the age or extent of the universe.
- We don't know the ultimate source of the electrical energy or matter that forms the universe.
- Galaxies are shaped by electrical forces and form plasma focuses at their centers, which periodically eject quasars and jets of electrons.
- Quasars evolve into companion galaxies.
- Galaxies form families with identifiable "parents" and "children".
- Stars are electrical 'transformers' not thermonuclear devices.
- There are no neutron stars or Black Holes.
- We don't know the age of stars because the thermonuclear evolution theory does not apply to them.
- Supernovae are totally inadequate as a source of heavy elements.
- We do not know the age of the Earth because radioactive clocks can be upset by powerful electric discharges. The powerful electric discharges that form a stellar photosphere create the heavy elements that appear in their spectra.
- Stars "give birth" electrically to companion stars and gas giant planets.
- Life is most likely to form inside the radiant plasma envelope of a brown dwarf star!
- Our Sun has gained new planets, including the Earth. That accounts for the 'fruit-salad' of their characteristics. It is not the most hospitable place for life since small changes in the distant Sun could freeze or sterilize the Earth.
- Planetary surfaces and atmospheres are deposited during their birth from a larger body and during electrical encounters with other planets.
- Planetary surfaces bear the electrical scars of such cosmic events.
- The speed of light is not a barrier.
- Real-time communication over galactic distances may be possible. Therefore time is universal and time travel is impossible.
- Anti-gravity is possible.
- Space has no extra dimensions in which to warp or where parallel universes may exist.
- There is no "zero-point" vacuum energy.
- The invisible energy source in space is electrical.

- Clean nuclear power is available from resonant catalytic nuclear systems.
- Higher energy is available from resonant catalytic chemical systems than in the usual chemical reactions.
- Biological enzymes are capable of utilizing resonant nuclear catalysis to transmute elements.
- Biological systems show evidence of communicating via resonant chemical systems, which may lend a physical explanation to the work of Rupert Sheldrake.
- DNA does not hold the key to life but is more like a blueprint for a set of components and tools in a factory.
- We may never be able to read the human genome and tell whether it represents a creature with two legs or six because the information that controls the assembly line is external to the DNA.
- There is more to life than chemistry.

We are not hopelessly isolated in time and space on a tiny rock, orbiting an insignificant star in an insignificant galaxy. We are hopefully connected with **the power and intelligence of the universe**.

The future in an ***Electric Universe*** looks very exciting indeed!

[Return to The Electric Universe](#)

Electric Universe

From RationalWiki

“ Science has a very poor understanding of Electricity.
Electric Engineers have a great understanding of
Electricity. ”

—SaveTheLivingEntities, Godlike Productions^[1]

The "**Electric Universe**" (EU) is an umbrella term that covers various pseudo-scientific cosmological ideas built around the claim that the formation and existence of various features of the universe can be better explained by electromagnetism than by gravity. The exact claims are diverse and vary from ~~er~~rank author to author. A common motif is the insistence that all science should be done in a laboratory — an attempt to throw away gravity from the very beginning, because one can't put a solar system or a galaxy in a laboratory. Most Electric Universe proponents claim some kind of relation to the "plasma cosmology" of the Nobel Prize laureate Hannes Alfvén. Too bad his model was rendered obsolete by the missing observations of the radio emission predicted by his cosmology.^[2]

EU advocates can be roughly split into two groups: garden-variety physics cranks who are convinced that they have a legitimate revolutionary scientific theory, and various woo-peddlers who use EU claims to prop their main ideas (because mainstream physics would blow them apart). One subset of the latter comprises some of the more loony global warming deniers (such as Vault-Co), who try to use it to "prove" that climate change is being caused by *some* process outside human control.

Immanuel Velikovsky was an enthusiastic early adopter of electric universe ideas, seeing in them a possible mechanism to explain his scenario of planetary billiards, cosmic thunderbolts, and the notion that Earth was previously a satellite of Saturn.

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Style over substance

Pseudoscience



Popular pseudosciences

- Alternative medicine
- Astrology
- Creation science
- Homeopathy
- Supernatural
- Ufology
- Woo

Random examples

- Bigfoot
- Christian Science
- Garra rufa fish
- Pseudoscientific method
- Taylorism
- The Positive Case for Design

Resources

- Pseudoscience portal
- List of pseudosciences

v - t - e (<http://rationalwiki.org/w/index.php?title=Template:Pseudosciencenav&action=edit>)

Claims

- Stars do not shine because internal nuclear fusion caused by gravitational collapse. Rather, they are anodes for galactic discharge currents.
- Impact craters on Venus, Mars and the Moon are not caused by impacts, but by electrical discharges.^[3]
The same applies to the Valles Marineris (a massive canyon on Mars) and the Grand Canyon on Earth.^[4]

External links

Supporters

- thunderbolts.info (<http://thunderbolts.info>) , probably the most popular EU advocate website
- Electric Cosmos (<http://www.electric-cosmos.org/>) (by "Donald E. Scott, Ph.D. (Electrical Engineering)")
- The Electric Universe (<http://www.the-electric-universe.info/>) , László Körtvélyessy's website

Dissection

- Dealing with Creationism in Astronomy (<http://dealingwithcreationisminastronomy.blogspot.com/>) , a blog that deals with Electric Universe claims along with other things (posts labeled Electric Universe (<http://dealingwithcreationisminastronomy.blogspot.com/search/label/Electric%20Universe>))
- Electric Universe Theory debunked (<http://neutrinodreaming.blogspot.com/2011/09/electric-universe-theory-debunked.html>) , a blog entry which discusses 5 major claims by EU

Footnotes

- ↑ <http://www.godlikeproductions.com/forum1/message1540489/pg1#25433260> (the thread is about Comet Elenin)
- ↑ The Electric Sky, Short-Circuited (<http://www.theplasmaverse.com/pdfs/the-electic-sky-book-by-donaldescott-review-discussion-against.pdf>) , page 2:
This loss of interest was very possibly the result of the all-sky microwave maps of COBE and later WMAP, which exhibited no evidence of radio emission from these galaxyforming currents.
- ↑ <http://www.electric-cosmos.org/planets.htm>
- ↑ http://www.holoscience.com/views/view_mars.htm

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Category: Pseudoscience

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Plasma cosmology

Plasma cosmology is a non-standard cosmology whose central postulate is that the dynamics of ionized gases and plasmas play important if not dominant roles in the physics of the universe beyond the Solar System.^{[2][3]} Consensus by cosmologists and astrophysicists strongly support that astronomical bodies and structures in the universe are mostly influenced by gravity, Einstein's theory of general relativity and quantum mechanics, to explain the origin, structure and evolution of the universe on cosmic scales. Presently, plasma cosmology is openly rejected by the vast majority of researchers because it does not match modern observations of astrophysical phenomena or accepted cosmological theory.

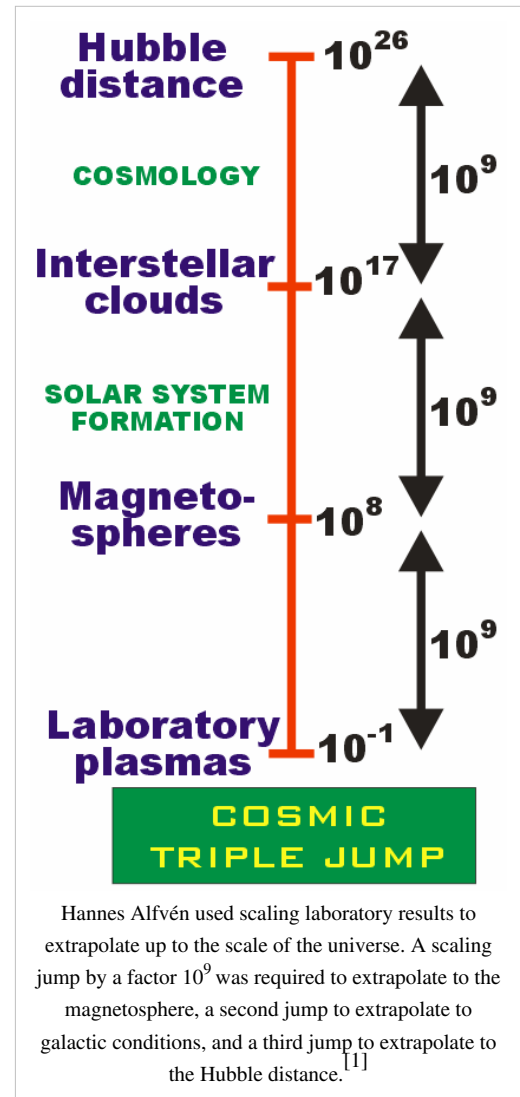
Some general concepts about plasma cosmology have been attributed to Hannes Alfvén, who was awarded the 1970 Nobel prize for his other unrelated work into magnetohydrodynamics (MHD).^{[2][4]} Alfvén proposed the use of plasma scaling to extrapolate the results of laboratory experiments and space plasma physics observations and scale them over many orders-of-magnitude up to the largest observable objects in the universe (see box).

The term **plasma universe** is sometimes used as a synonym for plasma cosmology, as an alternative description of the plasma in the universe.

Alfvén-Klein cosmology

In the 1960s, the theory behind plasma cosmology was introduced by Alfvén, Oskar Klein and Carl-Gunne Fälthammar, and Alfvén's 1966 book *Worlds-Antiworlds*. Klein in 1971 extended Alfvén's *Worlds-Antiworlds* proposals and developed the "Alfvén-Klein model" of the universe,^[5] or metagalaxy, an earlier term to distinguish between the universe and the Milky Way galaxy. In this **Alfvén-Klein cosmology**, sometimes called **Klein-Alfvén cosmology**, the universe is made up of equal amounts of matter and antimatter with the boundaries between the regions of matter and antimatter being delineated by cosmic electromagnetic fields formed by double layers, being thin regions comprising two parallel layers with opposite electrical charge. Interaction between these boundary regions would generate radiation, and this would form the plasma. Alfvén introduced the term **ambiplasma** for a plasma made up of matter and antimatter and the double layers are thus formed of ambiplasma. According to Alfvén, such an ambiplasma would be relatively long-lived as the component particles and antiparticles would be too hot and too low-density to annihilate each other rapidly. The double layers will act to repel clouds of opposite type, but combine clouds of the same type, creating ever-larger regions of matter and antimatter. The idea of ambiplasma was developed further into the forms of heavy ambiplasma (protons-antiprotons) and light ambiplasma (electrons-positrons).

Alfvén-Klein cosmology was proposed in part to explain the observed baryon asymmetry in the universe, starting from an initial condition of exact symmetry between matter and antimatter. According to Alfvén and Klein, ambiplasma would naturally form pockets of matter and pockets of antimatter that would expand outwards as



annihilation between matter and antimatter occurred in the double layer at the boundaries. They concluded that we must just happen to live in one of the pockets that was mostly baryons rather than antibaryons, explaining the baryon asymmetry. The pockets, or bubbles, of matter or antimatter would expand because of annihilations at the boundaries, which Alfvén considered as a possible explanation for the observed expansion of the universe, which would be merely a local phase of a much larger history. Alfvén postulated that the universe has always existed^{[6][7]} due to causality arguments and the rejection of *ex nihilo* models, such as the Big Bang, as a stealth form of creationism.^[8] The exploding double layer was also suggested by Alfvén as a possible mechanism for the generation of cosmic rays,^[9] x-ray bursts and gamma-ray bursts.^[10]

In 1993, theoretical cosmologist Jim Peebles criticized the cosmology of Klein (1971) and Alfvén's 1966 book, *Worlds-Antiworlds*, writing that "there is no way that the results can be consistent with the isotropy of the cosmic microwave background radiation and X-ray backgrounds".^[11] In his book he also showed that Alfvén's models do not predict Hubble's law, the abundance of light elements, or the existence of the cosmic microwave background. A further difficulty with the ambiplasma model is that matter–antimatter annihilation results in the production of high energy photons, which are not observed in the amounts predicted. While it is possible that the local "matter-dominated" cell is simply larger than the observable universe, this proposition does not lend itself to observational tests.

Plasma cosmology and the study of galaxies

Hannes Alfvén from the 1960s to 1980s argued that plasma played an important if not dominant role in the universe because electromagnetic forces are far more important than gravity when acting on interplanetary and interstellar charged particles.^[12] He further hypothesized that Birkeland currents (here meaning currents in space plasmas which are aligned with magnetic field lines) were responsible for many filamentary structures and that a galactic magnetic field and associated current sheet, with an estimated galactic current of 10^{17} to 10^{19} amperes, might promote the contraction of interstellar clouds and may even constitute the main mechanism for contraction, initiating star formation.^[13] The current standard view is that magnetic fields can hinder collapse, that large-scale Birkeland currents have not been observed, and that the length scale for charge neutrality is predicted to be far smaller than the relevant cosmological scales.

In the 1980s and 1990s, Alfvén and Anthony Peratt, a plasma physicist at Los Alamos National Laboratory, outlined a program they called the "plasma universe".^{[14][15][16]} In plasma universe proposals, various plasma physics phenomena were associated with astrophysical observations and were used to explain extant mysteries and problems outstanding in astrophysics in the 1980s and 1990s. In various venues, Peratt profiled what he characterized as an alternative viewpoint to the mainstream models applied in astrophysics and cosmology.^{[17][18]}

For example, Peratt proposed that the mainstream approach to galactic dynamics which relied on gravitational modeling of stars and gas in galaxies with the addition of dark matter was overlooking a possibly major contribution from plasma physics. He mentions laboratory experiments of Winston H. Bostick in the 1950s that created plasma discharges that looked like galaxies.^[19] Peratt conducted computer simulations of colliding plasma clouds that he reported also mimicked the shape of galaxies. Peratt proposed that galaxies formed due to plasma filaments joining in a z-pinch, the filaments starting 300,000 light years apart and carrying Birkeland currents of 10^{18} Amps. Peratt also reported simulations he did showing emerging jets of material from the central buffer region that he compared to quasars and active galactic nuclei occurring without supermassive black holes. Peratt proposed a sequence for galaxy evolution: "the transition of double radio galaxies to radioquasars to radioquiet QSO's to peculiar and Seyfert galaxies, finally ending in spiral galaxies". He also reported that flat galaxy rotation curves were simulated without dark matter. At the same time Eric Lerner, an independent plasma researcher and supporter of Peratt's ideas, proposed a plasma model for quasars based on a dense plasma focus.

As an IEEE fellow of the IEEE Nuclear and Plasma Sciences Society and guest editor of the journal *Transactions on Plasma Science*, Peratt supported the publication of a number of special issues dedicated to plasma cosmology, the

last one appearing in 2007.^[20] Additionally, in 1991, Lerner wrote a popular-level book supporting plasma cosmology titled *The Big Bang Never Happened*.

Comparison to mainstream astrophysics

Standard astronomical modeling and theories attempt to incorporate all known physics into descriptions and explanations of observed phenomena, with gravity playing a dominant role on the largest scales as well as in celestial mechanics and dynamics. To that end, both Keplerian orbits and Einstein's general theory of relativity are generally used as the underlying frameworks for modeling astrophysical systems and structure formation, while high-energy astronomy and particle physics in cosmology additionally appeal to electromagnetic processes including plasma physics and radiative transfer to explain relatively small scale energetic processes observed in the x-rays and gamma rays. In contrast to plasma cosmology, plasma physics is accepted as having influence on many astrophysical phenomena. Much of the matter in the universe is thought to be ionised or exist as plasma, and it is this plasma that can generate magnetic fields. (See astrophysical plasma for more.)

Proponents of plasma cosmology claim electrodynamics is as important as gravity in explaining the structure of the universe, and speculate that it provides an alternative explanation for the evolution of galaxies and the initial collapse of interstellar clouds. In particular plasma cosmology is claimed to provide an alternative explanation for the flat rotation curves of spiral galaxies and to do away with the need for dark matter in galaxies and with the need for supermassive black holes in galaxy centres to power quasars and active galactic nuclei. However, theoretical analysis shows that "many scenarios for the generation of seed magnetic fields, which rely on the survival and sustainability of currents at early times [of the universe are disfavored]", i.e. Birkeland currents of the magnitude needed (10^{18} Amps over scales of megaparsecs) for galaxy formation do not exist.^[21] Additionally, many of the issues that were mysterious in the 1980s and 1990s, including discrepancies relating to the cosmic microwave background and the nature of quasars, have been solved with more evidence that, in detail, provides a distance and time scale for the universe. Plasma cosmology supporters therefore dispute the interpretations of evidence for the Big Bang, the time evolution of the cosmos, and even the expanding universe; their proposals are essentially outside anything considered even plausible in mainstream astrophysics and cosmology.

Some of the places where plasma cosmology supporters are most at odds with standard explanations include the need for their models to have light element production without Big Bang nucleosynthesis which, in the context of Alfvén-Klein cosmology, has been shown to produce excessive x-rays and gamma rays beyond that observed.^{[22][23]} Plasma cosmology proponents have made further proposals to explain light element abundances, but the attendant issues have not been fully addressed.^[24] In 1995 Eric Lerner published his alternative explanation for the cosmic microwave background radiation (CMB).^[25] He argued that his model explained the fidelity of the CMB spectrum to that of a black body and the low level of anisotropies found, even while the level of isotropy at $1:10^5$ is not accounted for to that precision by any alternative models. Additionally, the sensitivity and resolution of the measurement of the CMB anisotropies was greatly advanced by WMAP and the Planck satellite and the statistics of the signal were so in line with the predictions of the Big Bang model, that the CMB has been heralded as a major confirmation of the Big Bang model to the detriment of alternatives.^[26] The acoustic peaks in the early universe are fit with high accuracy by the predictions of the Big Bang model, and, to date, there has never been an attempt to explain the detailed spectrum of the anisotropies within the framework of plasma cosmology or any other alternative cosmological model.

Further reading

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 - "On hierarchical cosmology" ^[27], *Astrophysics and Space Science* (ISSN 0004-640X ^[28]), vol. 89, no. 2, January 1983, pp. 313-324
 - "Cosmology in the plasma universe" ^[29], *Laser and Particle Beams* (ISSN 0263-0346 ^[30]), vol. 6, August 1988, pp. 389-398 Full text ^[31]
 - "Model of the plasma universe" ^[32], *IEEE Transactions on Plasma Science* (ISSN 0093-3813 ^[33]), vol. PS-14, December 1986, pp. 629-638 Full text ^[34] (PDF)
 - "The Plasma Universe" ^[35], *Physics Today* (ISSN 0031-9228 ^[36]), vol. 39, issue 9, September 1986, pp. 22 - 27
- Peratt, Anthony:
 - "Physics of the Plasma Universe", (Springer, 1992) ISBN 0-387-97575-6
 - "Simulating spiral galaxies" ^[37], *Sky and Telescope* (ISSN 0037-6604 ^[38]), vol. 68, August 1984, pp. 118-122
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- Cambridge University Press journal *Laser and Particle Beams*: Particle Beams and Basic Phenomena in the Plasma Universe, a Special Issue in Honor of the 80th Birthday of Hannes Alfvén, vol. 6, issue 3, August 1988 ^[52]
- Various authors: "Introduction to Plasma Astrophysics and Cosmology" ^[53], *Astrophysics and Space Science*, v. 227 (1995) p. 3-11. *Proceedings of the Second IEEE International Workshop on Plasma Astrophysics and Cosmology*, held from 10 to 12 May 1993 in Princeton, New Jersey

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- [2] It was described as this in the February 1992 issue of *Sky & Telescope* ("Plasma Cosmology"), and by Anthony Peratt in the 1980s, who describes it as a "nonstandard picture". The Λ CDM model big bang picture is typically described as the "concordance model", "standard model" or "standard paradigm" of cosmology here (<http://www.slac.stanford.edu/spires/find/hep/www?rawcmd=FIN+T+STANDARD+COSMOLOGICAL+MODEL>), and here (<http://lanl.arxiv.org/pdf/astro-ph/9505066>).
- [3] Alfvén, Hannes O. G., "Cosmology in the plasma universe - an introductory exposition", *IEEE Transactions on Plasma Science* (ISSN 0093-3813), vol. 18, Feb. 1990, p. 5-10.
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 - [52] <http://journals.cambridge.org/action/displayIssue?decade=1980&jid=LPB&volumeId=6&issueId=03&iid=4334096>
 - [53] <http://adsabs.harvard.edu/abs/1995Ap%26SS.227....3P>

External links

- Wright, E. L. "Errors in *The Big Bang Never Happened*" (http://www.astro.ucla.edu/~wright/lerner_errors.html). See also: Lerner, E. J. "*Dr. Wright is Wrong*" (<http://photoman.bizland.com/bbnh/p25.htm>), Lerner's reply to the above.

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