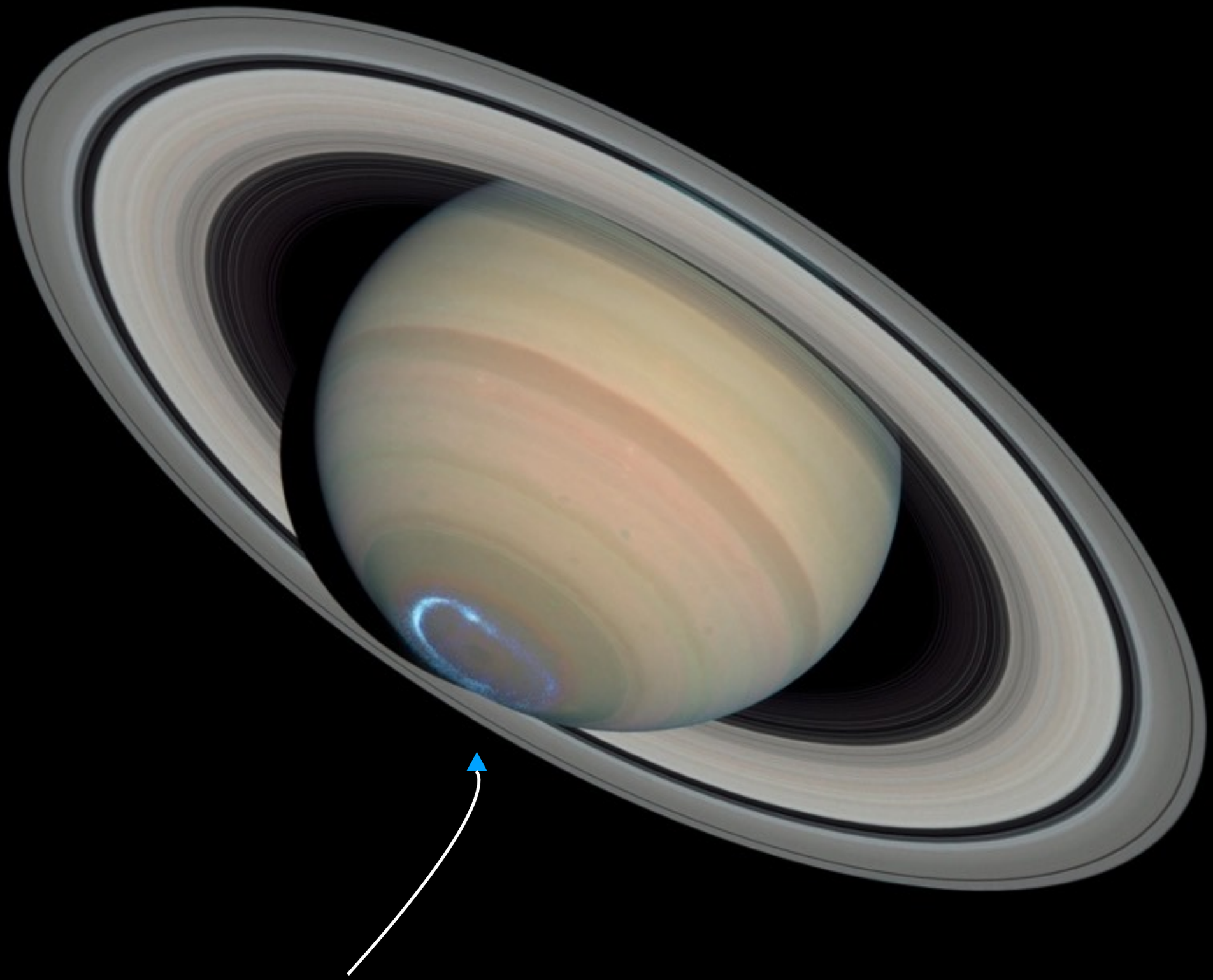

Aurora borealis ... as seen on earth ...



Big Bang?
or
Proton Dominated Infinity?

by
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Basic outline:

- The ”Big Bang” defined
- Shortfallings of the ”Big Bang”
- How have we fooled ourselves for so long?
- Requirements of a new theory
- Explanation of the hypothesis ”Proton Dominated Infinity”
- Implications
- Summary

The ”Big Bang” defined:

- Massive expansion of the Universe beginning 13.7 billion years ago from a ”singularity” (not of the material in the Universe, but of space itself).

- Evidenced from the redshift of galaxies correlated with the distance from the Earth by Edwin Hubble in 1929 and confirmed by later observations. The redshift infers a ”cosmological expansion of the Universe” currently estimated to be between 68 & 73 m/sec./Mpc.

- Observed Cosmic Microwave Background (CMB) is highly homogeneous and isotropic which is explained well by the ”reionization” of the Universe when it was about 3000 degrees K approximately 380,000 years after the Big Bang. This background radiation is currently ”cosmologically redshifted” to approximately 2.7 degrees K.

- Abundances of molecules are predicted by the Big Bang theory to be initially 75% hydrogen, 25% helium with small quantities of Li and Be. This prediction is supported by observational evidence.

Shortfallings of the ”Big Bang”

- Historically the Big Bang theory has suffered from accepted problems called the ”flatness problem” and the ”horizon problem”. Both are resolved if one accepts a theory called ”Inflation” ... a sudden increase in expansion rate of the very early universe, followed by a dramatic reduction and eventual slow acceleration (currently measured). In the author’s opinion ”Inflation” is simply beyond simplistic elegance and reason; it is a modern version of ”epicycle bandaging”.

- The Big Bang theory requires the existence of an energy currently labelled ”Dark Energy” ... that has yet to be defined.

- ”Dark Matter” ... currently an unknown matter that seems to only react gravitationally. The Big Bang theory predicts that about 26% of the universe’s energy/mass is made up of matter ... 22% ”Dark Matter” and 4% baryonic (known) matter. The remaining 74% i estimated to be ”Dark Energy”.

- There is no explanation of what initiated the ”Big Bang” or of what happened BEFORE the ”Big Bang”.

Shortfallings of the ”Big Bang” cont.

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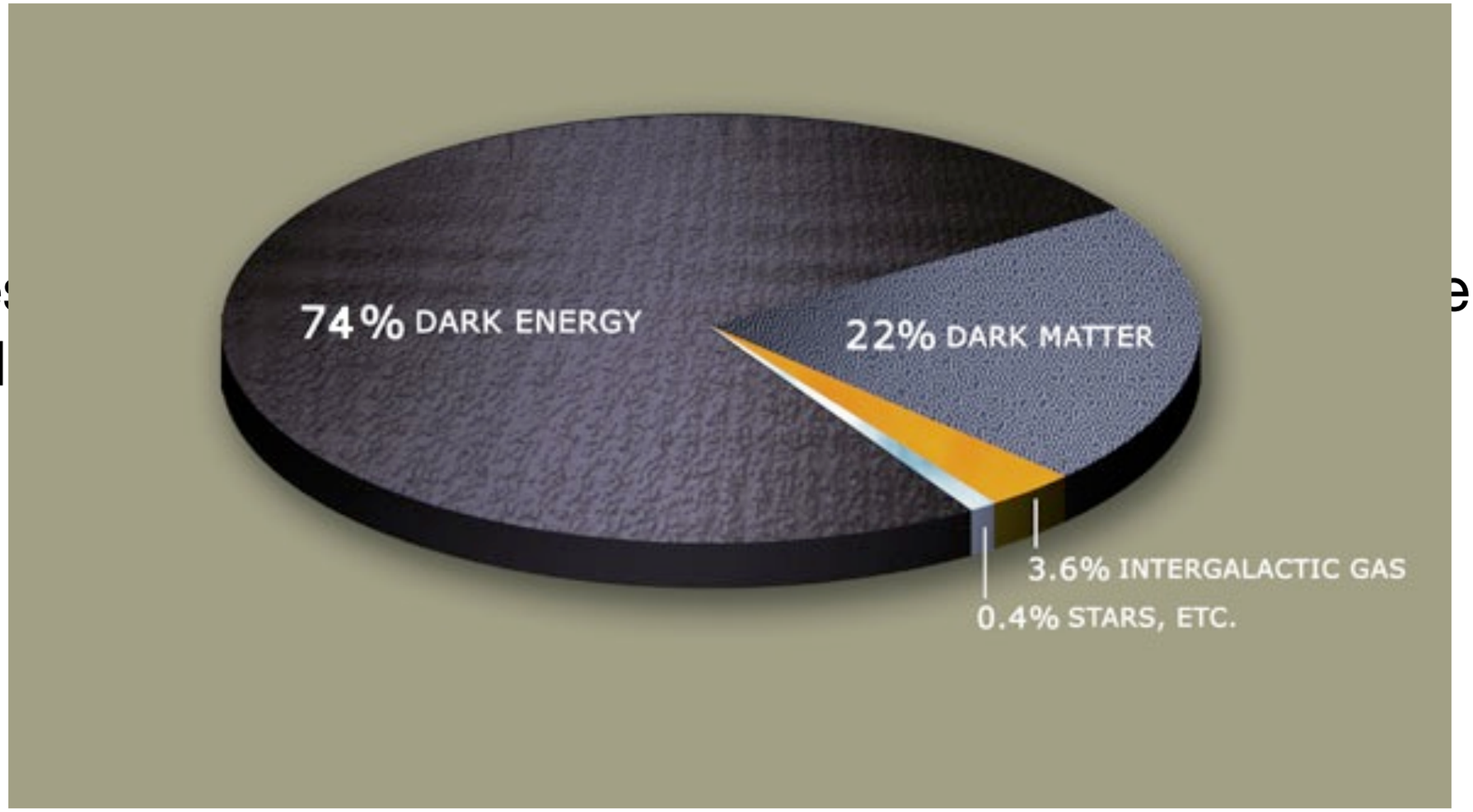


Shortfallings of the ”Big Bang”
Shortfallings of the ”Big Bang”
cont.

- Missing Anti-Matter Problem (Baryon Asymmetry Problem): Quantum field theory and experimental results show that energy can only transform into equal amounts of matter and anti-matter. However, when anti-matter and matter interact with each other they annihilate creating energy. In short, the Big Bang theory cannot explain why we currently find ourselves in a Universe filled with matter.

- Note that the same arguments require that the Universe be charge neutral. I.e. it should not possible that energy, within the Big Bang construct, can transform into a particle with positive charge without also creating a particle of equal negative charge.

Shortfallings of the ”Big Bang”

Shortfallings of the ”Big Bang”
cont.

- <u>Cosmological constant problem</u>: Quantum field theory predicts a zero-point energy that differs by as much as 10^{120} times the required vacuum energy density (cosmological constant used in the benchmark solution to the Friedmann equation). Physicists have called this ”the largest discrepancy between theory and experiment in all of science”[1].

[1] Adler, Ronald J.; Casey, Brendan; Jacob, Ovid C. (1995). "Vacuum catastrophe: An elementary exposition of the cosmological constant problem". *American Journal of Physics*. 63 (7): 620–626. doi:10.1119/1.17850. ISSN 0002-9505

Shortfallings of the ”Big Bang” cont.

- Hubble Constant problem: Recent measurements of cepheid stars in the Large Magellanic Cloud have calculated that the Hubble Constant (H_0) differs from the value determined by the Planck satellite on the CMB, using the assumptions of the ”Lambda Cold Dark Matter” model, by 4.4 standard deviations.[1] The authors suggest that their results are, ”evidence for physics beyond LCDM”.[1]

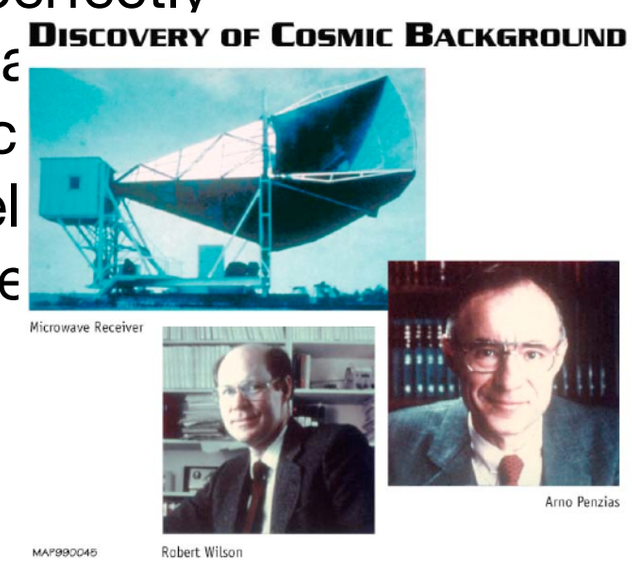
[1] Riess et. al. 2019, ”Large Magellanic Cloud Cepheid Standards Provide a 1% Foundation for the Determination of the Hubble Constant and Stronger Evidence for Physics Beyond LambdaCDM”, arXiv:1903.07603 [astro-ph.CO]

How have we fooled ourselves for so long?

- Religion has always presented answers to the questions that couldn't be resolved by science. The Catholic church has supported the "Big Bang T
  an occurrence so amazing that only a "higher power" could be its cause?

- The "Big Bang Theory" does explain documented observations better than earlier competing theories like the "Steady State Universe" theory.

- The "Big Bang Theory" predicted the presence of an almost perfectly homogeneous and isotropic background radiation ... which wa serendipitously found by Penzias and Wilson in 1964 (who rec Prize for this discovery in 1978). Cosmologists et.al. overwhel this "prediction come true" as virtual proof of the Big Bang the theory will therefore have a steep uphill road to success.



Any new hypothesis must be able to explain current observations:

- ”Hubble” relationship between radial velocities of galaxies and their distances (relative to the Milky Way)
- Cosmic Microwave Background (CMB) radiation
- Current observable abundances of atoms in the Universe as a whole
- Star velocity distribution in galaxies as well as ”relativistic bending of light” indicating the need for the existence of ”dark matter”

... and hopefully do so in a more elegant way.

Basic premises of

”Proton Dominated Infinity”

- An overabundance of protons (vs. electrons) were more homogeneously distributed in the earlier states of the Universe.

- Light (electromagnetic waves) redshifts naturally as it transverses the positively charged electric matrix of protons over extremely large distances ... a version of the ”tired light theory”.

- Time is infinite, in both forward and reverse modes.

- Space is infinite, static on the largest of scales, and flat (i.e. the Universe’s supposed radius of curvature is infinite) in line with the Cosmological Principle (i.e. the spacial distribution of matter is homogeneous and isotropic on very large scales).

Implications of the hypothesis: ”Proton Dominated Infinity”

- The Universe ”becomes” more homogeneously filled with neutrally charged matter as time is considered ... in reverse.

- In forward mode, available electrons quickly connect with protons to form neutrally charged hydrogen atoms.

- The neutrally charged hydrogen atoms then clump together due to gravity. Stars form. Galaxies form. Groups of galaxies form.

tions continued:

The following is a simplified way to picture the changes of the distribution of neutrally charged mass over immense periods of time.

-
time
+

- Now add the protons to the picture:
- The electrical repulsiveness and abundance of the protons causes a rapid and persistent homogeneity of the protons throughout the universe as time progresses in the ”forward” mode.
- However, once the neutrally charged matter accumulates into significant ”clumps”, then the weak effect of gravity (vs. electromagnetic force) becomes strong enough to distort the proton formation into higher densities around these ”clumps of neutrally charged matter”.

tions continued:

- Hot plasma (electrons, protons & ions) is ejected from the stars of a galaxy as ”stellar winds”. Their high temperature (measure of vibration energy et.al.) prevent their recombination.

- The cold protons from the intergalactic medium (IGM) are eventually able to capture the hotter electrons from the stellar winds forming hydrogen. The hot protons and ions continue outwards mixing with the remaining cold protons while creating a temperature gradient in the protons near the emitting galaxy.

tions continued:

- Given the large difference between the gravitational force and the electromagnetic force one would expect a relatively flat distribution of the proton excess around and within a given galaxy.

- Over time, galaxies will have a massive black hole in their centers, surrounded by revolving stars, which are in turn filled and surrounded by hydrogen and a large spherical formation of protons.

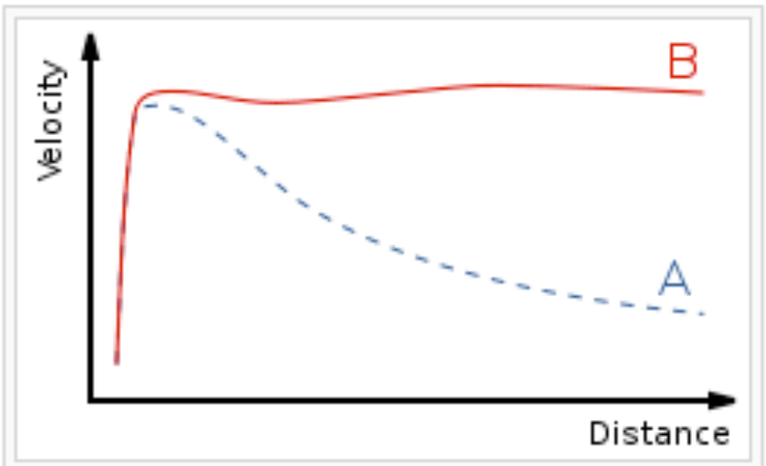
- This prediction should be evident in the current Universe.

- A galaxy's star distribution is clearly visible.

Work by Matt Walker and Jorge Penarrubia imply that Dark Matter is formed as a ”pitless peach” around two studied dwarf galaxies. http://www.spacedaily.com/reports/Dark_Matter_Mystery_Deepens_999.html

tions continued:

- Protons have mass and shoul due to gravitation. This additional proton mass ir alaxies easily explains the currently measur tars in their galaxies.



Rotation curve of a typical spiral galaxy: predicted (**A**) and observed (**B**). The discrepancy between the curves is attributed to dark matter.

- According to Wikipedia: ”Dark matter was postulated by Fritz Zwicky in 1934 to account for evidence of "missing mass" in the orbital velocities of galaxies in clusters. Subsequently, other observations have indicated the presence of dark matter in the universe; these observations include the rotational speeds of galaxies, gravitational lensing of background objects by galaxy clusters such as the Bullet Cluster, and the temperature distribution of hot gas in galaxies and clusters of galaxies.”

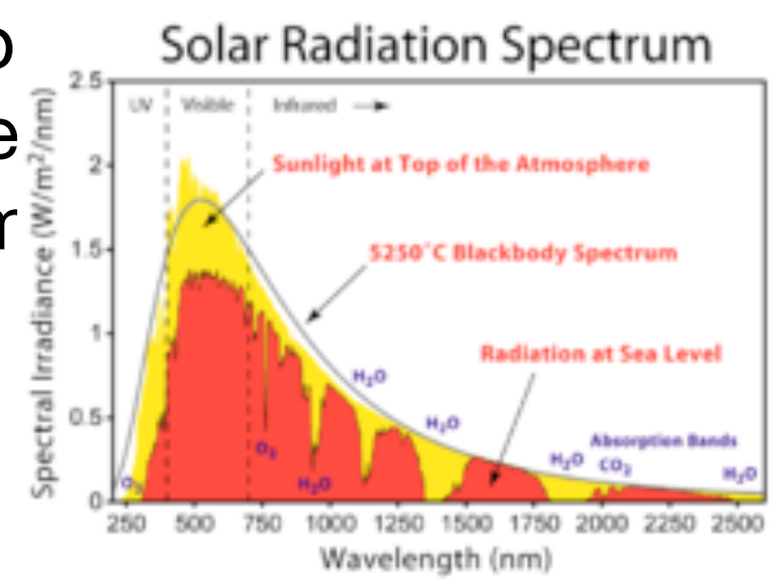
tions continued:

- ... hence ”Dark Matter” is therefore predicted by this cosmological hypothesis to be a proton excess in and around individual galaxies made possible by the overabundance of protons in the Universe.

tions continued:

- Stars emit a blackbody electromagnetic spectrum based on their temperature. The peak of the curve corresponds to the emitting body's temperature according to Planck's law. The sun's photosphere can therefore be measured to be about 5600 degrees K.

- Due to the presence of electrons that ab
wavelength photons when changing ene
have a rich overlay of absorption and em
radiation.

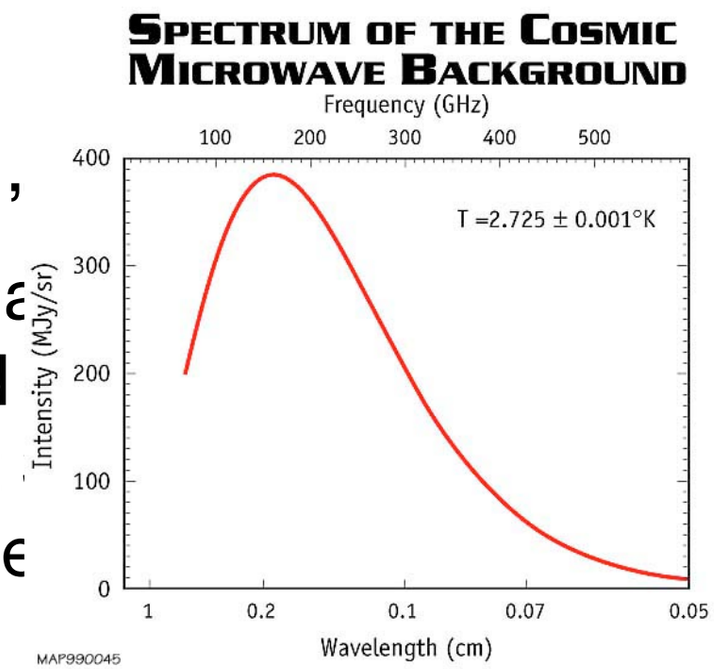


tions continued:

- Abundant quantities of protons must also emit a blackbody emission based on their temperature.
- The expected temperature should be higher than zero degrees K due to their own absorption characteristics.
- However, given their extreme age they should be colder than almost all other known molecules in space. It is therefore reasonable to guess/assume a temperature of approximately 2.73 degrees K.
- In addition, since there are no atomic electrons involved, there should be no absorption or emission lines present in their radiation.

tions continued:

- This is, of course, a preordained prediction. However, the facts are evident. There is indeed a virtually perfect black body radiation emanating from all directions with a measured temperature at 2.73 degrees K.

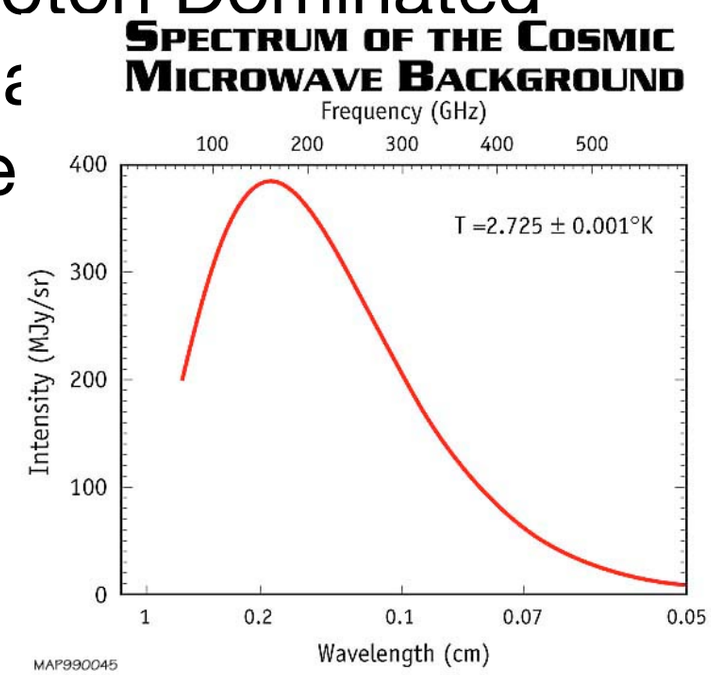


- This emission is currently considered to be the ' Microwave Background" or CMB. It was origina discovered by Penzias and Wilson in 1964, and the radiation from the reionization period about after the "Big Bang". A Nobel Prize was awarde Wilson in 1978 for their find.

- However, Proton Dominated Infinity was not an option at the time and therefore was not considered.

tions continued:

- ... hence, the cosmological hypothesis Proton Dominated Infinity (PDI) suggests that the overabunda the universe is the true source of what we Cosmic Microwave Background (CMB).

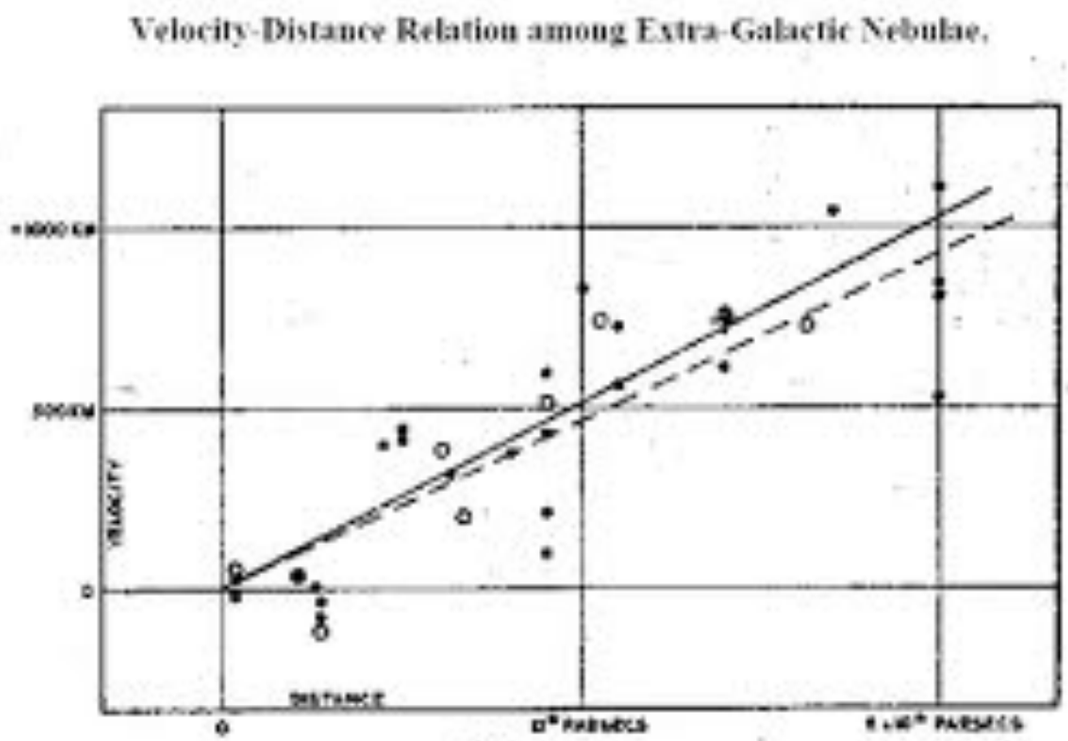


tions continued:

- It is proposed that light red-shifts naturally over extremely large distances as it traverses the positively charged matrix of protons … and thereby the ”tired light theory” (first suggested by Fritz Zwicky in 1929) explains the observed relationship between the redshift of light (not velocity) and distance, measured in mega parsecs (Mpc).

tions continued:

- Ever since Edwin Hubble identified the relationship between the nd its calculated c ed that the redshift is ca between our galaxies.



tions continued:

- The assumption of a doppler shift due to the expansion of the universe was made to explain the observed redshift of light from distant galaxies.

- Hubble's Law was therefore written as $V=H_o*D$ where H_o is called the Hubble constant, V is velocity and D is distance.

- However, no measurements of the velocity have ever been confirmed in some other way.

- More and more astronomers now refer to the Hubble relationship in its true essence:

tions continued:

$$C * z = H_o * D$$

... where C is the speed of light in a vacuum, z is a measure of red shift, D is distance and HO is the Hubble constant.

tions continued:

- Notice that there is now no reference to a ”velocity”.
- Now consider the possibility that the redshift of light is caused by some other physical process.
- Proton Dominated Infinity uses as a premise that light redshifts naturally over astronomical distances in general accordance with the idea of ”Tired Light” which was first proposed by Fritz Zwicky in 1929.

tions continued:

- One might ask, ”what could be the logic or reasoning behind this tiring?”

- A competing hypothesis to Proton Dominated Infinity, the ”plasma theory of the universe” points out the ”importance of temporal and spatial fluctuations of the random plasma field for the emission and propagation of electromagnetic waves” and states that, ”it is the plasma micro-field which is also responsible for the redshift of galaxies”.

- Check it out at: http://www.plasmaphysics.org.uk/research/redshift.htm

tions continued:

- Perhaps the idea of plasma micro-field fluctuations affecting redshift might also apply to a plasma field including only protons.

- In any case, any non-doppler shift explanation for the redshift-distance relationship would obviate the need for a currently unknown energy dubbed ”Dark Energy” to explain an apparently accelerating expansion of the Universe.

tions continued:

- ... hence, Proton Dominated Infinity claims that there is no ”Dark Energy” in the Universe.

tions continued:

- A curious implication becomes evident: the resulting calculation used in many textbooks and astronomy classrooms for the age of the universe (= 1/Ho = 13.7 billion years) becomes irrelevant ... in line with the Proton Dominated Infinity's other premise that time is infinite in both the forward and reverse modes.

tions continued:

- Since helium (He) is formed by fusion in virtually all stars ... as well as other elements of higher atomic weight ... and since time is extensively longer than the current estimation by the Big Bang Theory (13.7 billion years) ... then it is reasonable to expect that stellar element abundances could be at least 25% He and maximumly 75% H, as currently observed.

tions continued:

- The Missing Anti-Matter (Baryon Asymmetry) problem is resolved in that no initial condition of zero total baryons is required unless there was a singularity Universe at a ”beginning of time” implied by the Big Bang Theory.

- The existence of an over-abundance of matter therefore logically allows for the existence of an over-abundance of positive charge (protons).

and in summary ...

- Dark Matter is really an ”overabundance of protons”

- There is no Dark Energy.

- The relationship between redshift
  and distance is caused by ”tired light”

- There has been time enough to form the observable elements in the Universe.

Naturally some questions remain ...

- **Would Thompson/Compton Scattering by protons put a limit on the distance that light could travel to us before it is completely scattered?** -According to theory Thompson Scattering is proportional to $1/\text{mass}^2$. This would indicate that protons would scatter light almost 4 million times less effectively than electrons. Assuming that the absorption coefficient of the protons dominates over the scattering coefficient then the real effect should be an overall darkening of the Universe (additional explanation of Olber's paradox) and not a hazing.

- **If time is infinite in both forward and reverse modes then why hasn't the process of neutral mass clumping and proton accumulation around galaxies already happened long long ago?** -This philosophical question is well taken. However, our own existence is dependent on the existence of the current state of the Universe in its infinite progression from homogeneity to super massive black holes separated by immense astronomical distances. Indeed we have a preferential observation point in the Universe's development.

Naturally some questions remain ...

- **Is the existence of cosmic rays (highly energetic protons, alpha particles etc.) supported by PDI?** No, it would seem unreasonable that energetic protons could stream through the Universe without imparting their momentum and energy onto the web of positive charges suggested by PDI via the electromagnetic force. So, unless the origin of these cosmic rays is the nearby sun, this could be the observation that obviates the validity of PDI.

Occam's Razor

- "When multiple competing hypotheses are equal in other respects, the principle recommends selecting the hypothesis that introduces the fewest assumptions and postulates the fewest entities" - the sense that Occam's razor is usually understood .... according to Wikipedia.com
  In essence, simplicity matters in the world of competing hypotheses.

- What do you think? Write your questions or comments in the logbook.

Thanks.

by
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