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Plasma Astronomy: A Different View

By Joe Spears

Plasma astronomy has been of interest to some who are interested in the origin of the universe and in how galaxies, stars, and planets formed. Opinions vary on the validity and relevance of plasma astronomy. Astronomers and electrical engineers, in particular, seem to have different views on its validity. In this article we shall look into plasma astronomy and some evidence related to it.

What is plasma?

First, what is plasma? Plasma is an electromagnetic phenomenon. A plasma is a collection of electrically charged particles. Sometimes plasma has been described as a fourth state of matter, in addition to solid, liquid, and gas. In a gas, the particles (atoms or molecules) are electrically neutral. In a plasma each particle has an electric charge. Thus, electric and magnetic fields come into play and affect the behavior of the plasma. Science has told us that over 99% of the detectable normal (not “dark”) matter in the universe is plasma. We see plasma in lightning, fluorescent lights, neon signs, etc.

Because of the relationship between plasma and electromagnetism, in this paper these terms will be loosely used interchangeably:

- plasma
- plasma science
- plasma astronomy
- plasma cosmology
- electromagnetism
- electromagnetic physics
- electromagnetic science

Relevance to creation

There has been significant effort to consider basic conventional science, such as gravitational theory, in creation science that deals with astronomy and cosmology. For example, general relativity has been applied to starlight and time.¹ Plasma, or we could say electromagnetic science, seems not so well known.

It is helpful to have and utilize a basic understanding of relevant physics and science in origins research. This is why basic knowledge of plasma astronomy becomes important. However, there seems to be inadequate understanding in this area, even among scientists, particularly among astronomers. Therefore, increasing understanding and awareness of plasma phenomena among scientists, especially among origins and creation researchers, seems to be of obvious value. This is one reason for this article.

Often in science there has been a type of “intellectual inertia” regarding new ideas.² The classic example of this is the refusal by those individuals who functioned as vectors of “intellectual inertia” to look through the telescope of Galileo. It is good to have an open mind.

Recent research and developments have provided much information that lends support to plasma astronomy. In this article, I shall examine some of these data. Plasma astronomy concepts provide solutions to some puzzles that are difficult to answer in conventional (largely gravitationally based) astronomy.³

Let us therefore proceed to “look through” the “plasma astronomy telescope” to see if there is anything significant to be discovered!

¹ Humphreys DR (1994) *Starlight and Time*, Master Books, Green Forest, AK

² Spears J (2014 Oct) Bias. <https://tasc-creationscience.org/article/bias> Accessed 2022 Oct 17

³ One example is the galactic radial rotation velocity gradient, which plasma concepts predict, but which conventional gravitational astronomy cannot explain without invoking mysterious unobserved dark matter. This is dealt with in the section Galactic rotation curves.

Education of astronomers/astrophysicists

One might ask, “Why haven’t conventional astronomers promoted plasma astronomy?” To some extent they do, but only partially. There has been an increasing awareness of electromagnetic phenomena in astronomy, but it has been slow. (Remember the “intellectual inertia” referred to above.) Birkeland posited an electromagnetic explanation for the Northern Lights long ago, which took quite some time to become accepted among astronomers. But finally, it is now generally accepted that those Northern Lights are an electromagnetic phenomenon.

The situation described above with the Northern Lights seems to be the current situation with regard to the modern puzzle of galactic radial rotation velocity gradients, the mysterious speeds of rotation of galaxies at various radial distances from their galactic centers. Plasma concepts explain the galactic rotation anomaly without recourse to dark matter, while conventional astronomy has difficulty explaining galactic velocity profiles. The plasma explanation for the galactic rotation anomaly has not been widely accepted yet. Perhaps given more time, it will be. See the section below (**Galactic rotation curves**) for more on this anomaly.

One factor in astronomy’s slowness to accept electromagnetic explanations seems to be the education of astronomers. Nobel prize winner Hannes Alfvén⁴ stated that astrophysics students are *not knowledgeable* about electromagnetism/plasma (emphasis added):

A study of how a number of the *most used textbooks* in astrophysics treat *important concepts* such as double layers, critical velocity, pinch effects, and circuits is made. It is found that *students* using these textbooks remain essentially *ignorant of even the existence of these concepts*, despite the fact that some of them have been well known for half a century (e.g., double layers, Langmuir, 1929; pinch effect, Bennet, 1934).⁵

Note that the quote above comes from not only a Nobel prize winner, but the father of magnetohydrodynamics and the acknowledged father of plasma astronomy. He knows what he is talking about.

In college, I noticed that quite often our courses did not cover the entire textbook. Also, it has been often stated that college graduates forget much of what they learned within a few years after graduation. To these two factors, we can add a third: that the textbook, which was probably not completely covered, was itself incomplete regarding concepts of plasma and electromagnetic physics. This

suggests astronomers would know even less about those plasma concepts than is contained in their textbooks, which itself is not that much according to Alfvén. Alfvén pointed out that these ideas are not new; he said that some have been known for half a century! So there appears to be no reason for not including these in astrophysics textbooks. These concepts are not missing at all in electrical engineering textbooks. So, why would they be missing in the electromagnetic portion of astrophysics books? If they were unproven, they would also be excluded from electrical engineering plasma textbooks, and even more so, since lives may well depend on engineering being correct! Not so with astrophysics and cosmology, which are more theoretical. In astrophysics and cosmology, ideas can be readily discussed and also taught even without proof. Multiple parallel universes, dark energy, and dark matter, as well as modifications to Newtonian mechanics (MOND), for example, are readily written about and published in astronomical journals, even though the jury is arguably still out for these concepts. So, we should expect the electrical engineering plasma textbooks to be even more restrictive about including unproven concepts than the astrophysics textbooks referred to by Alfvén. But this is not the case. Therefore, the justification for omitting plasma concepts from astrophysics textbooks does not apply, for if it did, electrical engineering plasma textbooks would be even more lacking in these concepts, but they are not.

Problems with conventional views in astronomy

Now let’s look at some common ideas and problems found in conventional astronomy (which also provide evidence illustrating the aforementioned typical limited understanding of electromagnetism phenomena by astronomers).

Galactic rotation curves

Basic plasma concepts can explain phenomena that puzzle astronomers. One example is galactic rotation curves. These are plots of the speeds of rotation of objects contained within a large galaxy (including gas clouds, red giants, globular clusters, satellite galaxies, dwarf galaxies, blue stars, etc.) versus the distances of these objects from the center of the large galaxy. Figure 1 illustrates the problem; the curve predicted by conventional astronomy, considering gravitation without plasma effects, is not at all what is observed. Therefore, extra gravitational mass in

⁴ For a summary of Alfvén’s remarkable career see: Peratt AL (1988) Dean of the plasma dissidents. *The World and I*. <https://plasmauniverse.info/downloads/DeanOfPlasma.pdf> Accessed 2022 Oct 20

⁵ Alfvén H (1986) Double layers and circuits in astrophysics. *Transactions on Plasma Science* 14:6, 779–793

the form of invisible dark matter is typically invoked by conventional astronomy.

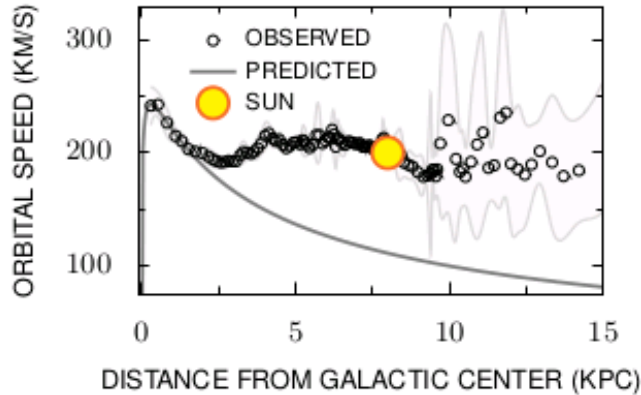


Figure 1. A rotation curve of the Milky Way showing observed versus predicted curves. The shaded region indicates measurement uncertainty for the observed data. Soon-claim, CC BY-SA 3.0 <<https://creativecommons.org/licenses/by-sa/3.0/>>, via Wikimedia Commons. Observed data are taken from arXiv:1110.4431, from Sofue Y (2012) Grand rotation curve and dark halo in the Milky Way galaxy. *Publ. Astron. Soc. Japan* 64(4), 75. <https://academic.oup.com/pasj/article/64/4/75/2898274?login=false> Accessed 2022 Oct 21

But plasma is typically *not* invoked to explain galactic radial rotation rate gradients as illustrated by the following:

The rotation curve of a disc galaxy (also called a *velocity curve*) is a plot of the orbital speeds of visible stars or gas in that galaxy versus their radial distance from that galaxy's centre. ...A significant discrepancy exists between the experimental curves observed, and a curve derived by applying gravity theory to the matter observed in a galaxy. Theories involving dark matter are the main postulated solutions to account for the variance.⁶

Though dark matter is by far the most accepted explanation of the rotation problem, other proposals have been offered with varying degrees of success. Of the possible alternatives, one of the most notable is modified Newtonian dynamics (MOND), which involves modifying the laws of gravity.⁶

The word “plasma” does not occur in the Wikipedia article from which the above quote is taken. Instead of applying the plasma solution, modern astronomers invoke either dark matter or MOND (possible changes to Newton's laws of motion). Both of these attempts appear to be drastic measures, which one would think of as “last resort” mechanisms to be used if and only if there is not

any other less drastic explanation available or *if astronomers were not aware of any less drastic explanations!* Modifying Newton's laws seems somewhat drastic. The other invokes the existence of hypothetical dark matter, “dark” referring to not having been previously detected, which also seems drastic.

Both these drastic hypotheses are unnecessary. Plasma concepts do solve this problem. A quote from the abstract of an article elaborating the plasma explanation of these galactic radial rotation rate gradients is below (emphasis added):

[The plasma model] shows that observed stellar velocity profiles in galaxies are now accurately predicted *without invocations of Dark Matter.*⁷

The article *How the Electric Plasma Universe Creates Galaxies and Stars* illustrates the result of invoking plasma (Fig. 2); the discrepancy in the galaxy rotation curves disappears!⁸

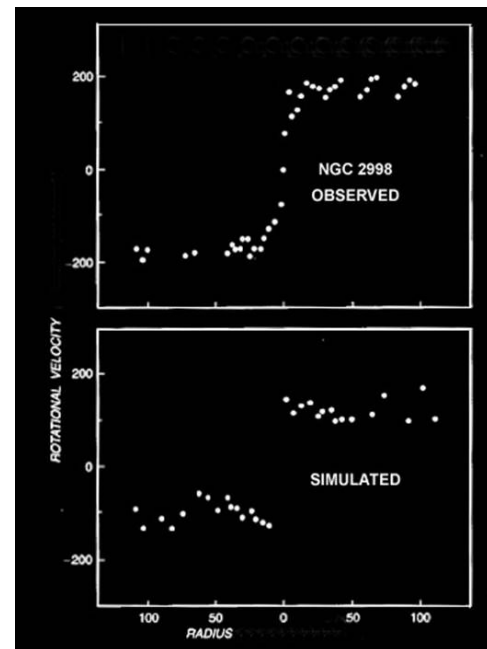


Figure 2. A comparison of measured rotation velocity with velocities simulated using plasma concepts

The horizontal axis of Figure 2 is the radial distance from the center of the galaxy, while the vertical axis is the speed of rotation of that part of the galaxy. The observed data are in the top graph, while the bottom graph is simulated

⁶ Galaxy rotation curve. Wikipedia. https://en.wikipedia.org/wiki/Galaxy_rotation_curve Last edited 2022 August 21. Accessed 2021 May 23

⁷ Scott D (2018) Birkeland currents and dark matter. *Progress in Physics* 14:2. <http://www.ptep-online.com/2018/PP-53-01.PDF> Accessed 2021 May 15

⁸ Ho M, How the electric plasma universe creates galaxies and stars. *Science in Society Archive*, http://www.i-sis.org.uk/How_the_Plasma_Universe_Creates_Galaxies_and_Stars.php, Accessed 2021 May 23

using plasma concepts. We can see the agreement between the plasma model with actual measurements.

Donald Scott tells us:

[T]he principal result presented here is the revelation of the actual cause of “anomalous” stellar rotation profiles in galaxies. Since the beginning of space research, most astrophysicists have asserted that electric fields, and currents, are not important in space phenomena. Because of this rejection of electrical science and experimental plasma engineering, all efforts to explain why the outer stars in galaxies revolve around their galactic centers with velocities that, according to Newtonian dynamics, are too high have failed.

This eighty-five-year quest for a dark matter explanation of galactic stellar rotation profiles has produced only null results. Inserting a galaxy’s charge density profile into the Birkeland Current Bessel function model...now provides an elegantly simple answer shown in figure 6.⁹

The figure referenced by Scott as figure 6 is reproduced below as Figure 3.

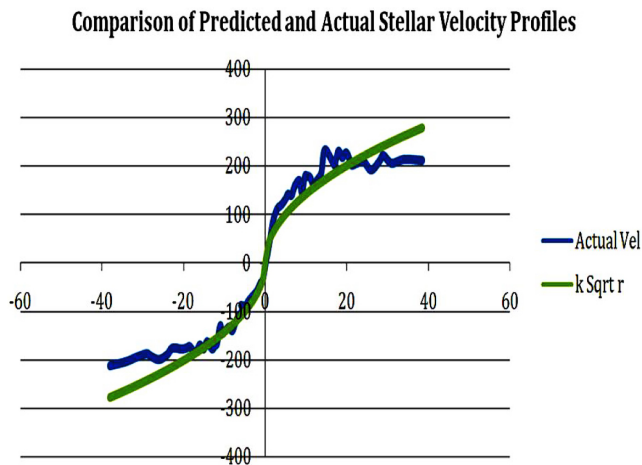



Figure 3. Comparison of the example galaxy’s measured velocity profile with the Bessel function model’s \sqrt{r} profile.

Summary

We have seen that plasma concepts can be applied to astronomy and that they would explain at least one puzzling phenomenon, the rotation curves of galaxies. Another point of this short article is that astronomers in general do not seem to understand plasma cosmology/astronomy well enough to be authoritative in evaluating, or discounting, it. Thus, this argument against plasma astronomy has been dealt with—the argument that

astronomers reject plasma astronomy, so there must be nothing to it.

There are many arguments in favor of plasma astronomy. Perhaps there will be a part 2. Stay tuned! 

COMING EVENTS

TASC Zoom Meeting, November 10, 7:00 pm EST

Jeff Gift will review Gary Bates’s recent book *Alien Intrusion*. In this landmark book (the only creation book ever to be an Amazon top 50 best-seller), Gary Bates unravels one of popular culture’s enduring and growing phenomena. UFOs, crop circles, Roswell, alien abductions—it’s all answered! The well-researched data leads the reader inexorably to one conclusion: there is an “intergalactic” battle over the history of life in the universe and for the souls of human beings. Its eye-opening insights have already won souls for Christ. This new edition contains more pictures and a new chapter about alleged abductions based on extra research Gary has conducted.

Join Zoom Meeting

<https://us02web.zoom.us/j/4490299372>

Meeting ID: 449 029 9372

Find your local number:

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⁹ Scott DE (2018) Birkeland currents and dark matter. *Progress in Physics* 2(14): 57–62. <http://www.ptep-online.com/2018/PP-53-01.PDF> Accessed 2022 Oct 25