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Is Dark matter the Cause of Cold in the Universe?

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Abstract

Ancient and medieval scientists knew that there should be a matter that filled the universe, which was necessary to explain the nature of the universe, they called this type of matter "ether", modern scientists due to observation in the rotation of galaxies, concluded the existence of such ether but called it dark matter, and the most advanced research concluded that this hypothetical matter does not emit enough electromagnetic radiation to be detected with current technical means, but whose existence can be inferred from the gravitational effects it causes on visible matter, as well as on the anisotropies of the cosmic microwave background present in the universe. This work responds to this mystery and to each of the known characteristics of dark matter.

To respond to dark matter or ether, we must first understand how matter originated in the universe, the most accepted explanation, is known as the big bang, it explains that the whole universe was filled with a plasma, and as we all know that plasmas are mostly composed of ions, Then all the matter that filled the universe were ions, the scientific explanation also tells us that these ions when they began to cool down, the universe was filled with a gas, what we know as the dark age, but a mystery happened, the gas became transparent, now we know that matter is neither created nor destroyed, it is only transformed, knowing that the matter that filled the universe in its principles were ions, we can say that today it is still full of the same ions, but transformed into crystalline ionic state, Because their atoms are solid, and because crystals have the entropy to reach temperatures of zero K, where their atoms do not emit enough radiation to be detected, this matter has become as the ancient ether, or the modern dark matter, but very easy to detect because of its very cold temperature.

Keywords:* *Plasma; Ion gas; Ionic crystals; Dark Matter; Ions; Anions

Introduction

This work presents a hypothetical response to one of the greatest mysteries in astrophysics and in physical cosmology called dark matter, which does not emit enough electromagnetic radiation to be detected with the current technical means

In 1933 Fritz by Zwicky was the first to suggest the presence of invisible matter in the galaxies, following their observations in the Mount Wilson Observatory seven of them in the Coma cluster, but hardly convince his colleagues about the importance of his discovery, which will be forgotten by almost forty years.

In astrophysics and cosmology physics is called dark matter to the hypothetical matter that does not emit enough electromagnetic radiation to be detected with current technical means, but whose existence can be deduced from the gravitational effects it causes in visible matter, such as the stars or galaxies, as well as in the anisotropies of the cosmic microwave background present in the universe [1].

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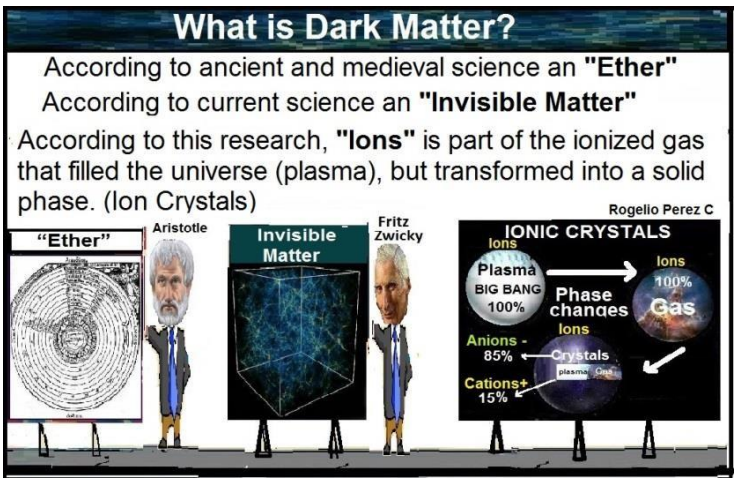

FIG.1. **What is darkmatter.**

"On Equal Terms, the Simplest Explanation is usually the most likely". This work proposes that if all matter originated from ions, then dark matter must be by logic also ions, although dark matter has some characteristic, this work shows that plasma in the solid phase (crystalline), has the known characteristics of dark matter as shown in FIG. 1.

Methodology

The Super Symmetry as Response

The dark matter is a matter that has never been seen, that scientists know that exists on the gravitational effects in the visible matter. And in that search the scientists were raised the possibility that there is another kind of matter, whose particles were beyond the standard model known, based on the existence of an invisible matter, studied the particles of the standard model and found an anomaly in the standard model, in a particle known as "quark beauty", then to explain this anomaly emerged an explanation of new particles known as super symmetry, "Susy" which explains that every fundamental particle has a super partner, proving that the lightest of the group of particles theorized (not discovered), could have the properties hypothetical dark matter, known as particle super symmetry, “WIMP” [2].

Many were the experiments to try to prove the particles super symmetry, and mainly the particle WIMP, on the part of the scientific community as the laboratories of snolab, the Sasso, jinpinp in china etc, but still have not found anything.Then if we can say is that in the Large colisionador of adrones of Europe (LHC), it showed the results of the study of the anomaly of the fundamental particle “quark beauty”, of whose anomaly causes the new physics or supersymmetry, showing as results that this anomaly does not exist, and that the particle "quark beauty", behaves as predicted in the standard model [3].

Characteristics of the Dark Matter “Invisible”

According to this work, for this plasma to be invisible, it should have evolved or changed state, thermodynamic physics teaches us, that any substance that changes temperature or pressure conditions can evolve between several aggregation states, without that to happen a change in its composition. We know that this kind of conditions was in the universe while expanding and cooled, Plasma is composed mainly of ions, some ions that filled the universe negatively charged by gain electrons, changed phases, making the universe transparent, and this matter causes the cold that fills everything. So these ions in plasma state must have evolved, first to an ion gas, and then to the state of ion crystals, the crystals by their known characteristics, it is very difficult to observe with astronomical instruments today.

Gravitational Effects

The main effect of dark matter, which allowed modern science to detect it was the gravitational effect, seen by Fritz Zwicky 1933, discovered a lack of matter due to the rotational speed of galaxies, we all know that this effect can be explained by normal matter, but the mystery was that this matter could not be seen, but if we explained this gravitational effect with invisible ionic matter, we could solve the mystery.

Does not Emit Enough Electromagnetic Radiation to be Detected

I think that the most difficult features to explain, which induced the scientific community, to seek the answers to dark matter outside the known particles, is the little or no emission of radiation from this matter, but since this work says that dark matter are ionic crystals, and one of the characteristics of crystals, is its entropy to reach temperatures close to absolute zero, where electromagnetic radiation is not emitted by matter. In other words, the entropy of crystals in space allows it to emit so low radiation, that they cannot be detected.

The Anisotropy of the Cosmic Microwave Background

As this work says that dark matter are crystals, and one of the characteristics of crystals is their anisotropy.

Anisotropy is the opposite of isotropy, and this is the general property of matter, and the anisotropy observed at the cosmic bottom of microwaves is strong evidence of a molecular order (matter), ordered in crystals.

Of the microwaves in the cosmic background, we can know that they are the traces of primitive plasma, and the anisotropy of the cosmic background, we can see the traces of a matter ordered in crystals, which is the evolution or change of natural phase, from the primal plasma to solid ionic or crystals.

To conclude this explanation of dark matter made of ionic crystals, based on thermodynamic phase changes, for plasma matter, science has found the first direct evidence that white dwarf stars, dense bodies and stars like our sun, can crystallize or turn from a liquid into a solid.

Statement of Theory and Definitions

According to the big bang theory the universe was a hot plasma, and as the universe expanded this was cooled, but this cooling was called adiabatic, which would mean that the cooling was due to a change in phase, and between 300,000 and 800,000 the plasma that filled the universe, plasma change to gas, both that light could not escape, this is called "dark age". After took place a mysterious process, the gas became transparent [4].

Stars like our sun can turn into crystals in the final stages of their lives, bringing a whole new meaning to those glittering jewels in the sky. Astronomers from the University of Warwick say they've found the first direct evidence that white dwarf stars – the dense, stellar corpses of stars like our sun – can crystallize, or turn from a liquid into a solid. The discovery was published Wednesday in the journal Nature [5].

The Ionic Crystals

The positive and negative ions are supported in the crystalline network by electrostatic attractions. Because the forces are strong, the substances ionic have high melting points. The ionic crystals are hard and fragile. Due to the movement of a plane of ions on other, the ions with the same load are repelled mutually. The crystal breaks in pieces, these are good electricity drivers when they are melted or in solution (Mortimer, 1983).

The anisotropy of the material is most pronounced in the crystalline solids, due to its atomic structure and molecular regulate [6] The crystalline state of matter is the higher-order, that is, the one where the internal correlations are greater and greater range of astronomical instruments today.

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The crystals are distinguished from amorphous solids, not only by its regular geometry, but also by the anisotropy of their properties (they are not the same in all directions) and by the existence of elements of symmetry [8].

The refractive index of the air (Vv/V) to the pressure level of the sea is 1.00029 indicating that the speed of light in air is weakly less than its speed in a vacuum. Normally this value is set equal to 1 and all of the values of indices of refraction of the crystals will be higher than this value as the light diminishes its speed when entering them. Most of the mineral crystals have refractive indices between 1.32 and 2.40 [10].

What is the anisotropy? (Opposite of isotropy) is the general property of matter according to which qualities as: elasticity, temperature, conductivity, speed of propagation of the light, etc., vary depending on the direction in which they are examined. Something anisotropic may present different characteristics depending on the direction. The anisotropy of the material is most pronounced in the crystalline solids, due to its atomic structure and molecular regular [9].

The razor of Ockham (sometimes spelled Occam or Ockam), economy or principle of parsimony (lex parsimoniae), is a philosophical and methodological principle attributed to the philosopher, Franciscan friar and Scholastic logic William of Ockham (1280-1349), according to which: "On equal terms, the simplest explanation is usually the most likely".

Cations are positively charged ions that form when neutral atoms lose electrons; anions are negatively charged ions that form when neutral atoms gain electrons.

Results

The name of dark matter is the name that has been designated to everything that astronomers cannot see or detect directly because it does not emit enough electromagnetic radiation to be detected with current technical means.

The behavior of light in a crystal is primarily controlled by the crystal structure, and the main feature of the crystals is its low

refractive index of light, which in the ground is between 1.32 and 2.40. But in the vacuum of space this level decreases making them invisible to telescopes on Earth and almost invisible to the located in the space, and that you have to add the great distances of space.

The business of mapmaking is complicated when the stuff being mapped is invisible and millions of light years away. To spot dark matter, astrophysicists must pick out distortions - caused by dark matter's gravitational "lensing" of passing light - within very accurate images.

The distortions are much smaller than the warping of light by our own atmosphere, and even the irregularities added by the telescope itself. So those quantities first have to be subtracted.

Most of the hard work goes into trying to remove those effects, to be able to uncover the gravitational lensing effect underneath, "Prof Bridle said [10].

Discussion

Can plasma change of state?

Any substance or mixture, modifying their conditions of temperature or pressure can be obtained different states or phases, called states of aggregation of matter, in relation to the forces of union of the particles (molecules, atoms or ions) that constitute it.

In physics and chemistry is called status change to the evolution of substance between several states of aggregation without entailing a change in its composition. The three states most studied and common on Earth are the solid, liquid and gas; however, the state of aggregation more common in the universe is the plasma, material of which they are composed the stars (if the dark matter is discarded).

Deionization: It's the change of plasma to a gas, but plasma when it has evolved into gas, is said to be it an ionic gas. Reverse

sublimation; i.e. the direct passage of the State from gas to solid state. But when an ionic gas evolves into a solid, they are called Ionic solid, and an ionic solid is a crystal.

The feature of the dark matter is the gravitational effects it causes in visible matter, and its main effect qualified of gravitational lens is the best way of the study of dark matter. But the ionic crystals can also same this effect.

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The crystalline state of matter is the higher-order, that is, the one where the internal correlations are greater and greater range of distances. And this is reflected in their properties that are anisotropy and discontinuous.

For this reason, the anisotropy of the material is most pronounced in the crystalline solids, due to its atomic structure and molecular regular of the microwaves in the cosmic background, we can know that they are the traces of primal plasma, and the anisotropy of the cosmic background, we can see the traces of a matter ordered in crystals, which is the evolution or change of natural phase, from the primal plasma to solid ionic or crystals.

CONCLUSION

It concludes that the ions that filled the universe did not disappear, but became a solid phase, so the universe is still full of the ion atoms explained by the big bang, but in phase ionic crystalline, the ions can explain why the universe became transparent, also explain the matter that does not emit radiation, also explain that the cold of the outer space, originates from these cooled and frozen ions.

Finally, it can be said that the known characteristics of dark matter, the invisibility to the technical means used by scientists,

gravitational effects and anisotropy on the cosmic microwave background of the universe, everything can be explained perfectly, with the natural characteristics of crystals.

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