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EXPLORING COMPOSITE DARK MATTER WITH SIDM AND CDM

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ABSTRACT: *Both baryonic matter (ordinary matter) and non-baryonic matter is needed to explain current observations about the universe, but dark matter candidates, such as the pion, SIMP, WIMP, axion, MACHO, Kaluza-Klein, gravitino, and any other supersymmetric particles, along with the case for composite dark matter particles, will take time to rule out, never mind the possibility multiple types of dark matter likely exist. James Bullock, a professor of physics and astronomy at UC Irvine and his colleagues have done simulations with strong interacting dark matter (SIDM) and have found them to be consistent with current observations of the universe, which often resembles similar halo profiles as cold dark matter (CDM), but solves larger than predicted elastic cross section problems, which could be the right size if dark matter is composite. This article explores composite dark matter, what it has in common with cold hydrogen and slow moving particles, including strong interactions and molecular structure, and what these atoms might resemble.*

KEYWORDS: Composite Dark Matter, Hydrogen, SIDM, CDM, Dark Matter

Background:

The Wilkinson Microwave Anisotropy Probe (WMAP) was monitoring the cosmic microwave background fluctuations of the early universe for several years. The European Space agency's Planck Probe has completed its census of the universe with greater accuracy and is now showing more matter and less energy, by as much as 4% of what was expected, which puts dark matter at 26.8%, ordinary matter at 4.9%, with a 4% drop in the amount of dark energy detected.

Introduction:

According to the Los Alamos National Laboratory, hydrogen (protons) make up more than 90 percent of all baryonic atoms, making up about 99.985% of all naturally occurring hydrogen, while atoms while neutrons-protons account for the rest.

Protons have an electron under normal temperatures and pressures, which is very chemically reactive. Hydride is a proton with two electrons, making it negatively charged. A lone proton is positively charged and easily combines with other atoms to form molecules, so it is rarely seen isolated except in solar winds.

Hydrogen primarily exists in a diatomic gaseous state known as molecular hydrogen, which has numerous therapeutic benefits. Burning hydrogen in air acts as a zero-emission fuel that reacts with the oxygen to release energy and forms water vaper.

Other stable forms of hydrogen exist that include one neutron in the nucleus, called a deuterium isotope, known as heavy hydrogen and used for heavy water, and two

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neutrons in the nucleus, known as a tritium isotope which is radioactive, often a by-product of nuclear reactions. This deuterium-tritium pair has great potential for next generation large-scale fusion power plants to supply the world's energy needs, all from ocean water. The ITER Tokamak complex is under construction and by 2027 is expected to produce more energy from the fusion plasma process than is used, which has not been achieved in any fusion reactor. NASA has similar plans for deuterium-tritium pair fusion plasma reactions to speed their first man mission to mars.

Dark matter is very much like hydrogen, and certainly includes hydrogen, with a single proton and electron(s). However, more complex atoms are formed without neutrons as part of the big bang, exploding stars, and with cold fusion, in ways where the atom is not only transparent, has less mass, and has significantly less weight as a result of gravity.

Cold hydrogen supports all of the known states of matter, including solids, liquids, gaseous and perhaps plasma, and even supports molecular hydrogen, including metallic hydrogen at extreme pressures. Hydrogen isotypes are often used in cold fusion experimentation, but theoretically, all it takes is kinetic energy and pressure to achieve cold fusion with protons.

Depending on the para and ortho nuclear spin, hydrogen can be considered both ordinary matter and dark matter. Partially dark atoms occur when a dark atom is fused to a proton making it smaller by as much as a few percent. All baryonic atoms and non-baryonic atoms get smaller with fusion, although this may not be the common perception.

In every conceivable way, the proton has potential for both positive and negative reactions and energies; however, it's important to recognize that negative energy is not photons (possibly a dark photon), goes well beyond negative ions, has its own negative energy density, includes negative gravitation, and could be described as cold thermodynamics.

Hydrogen demonstrates the fabric of space without getting in to composite dark matter atoms, which obviously has greater molecular structure and predominately negative influence, with the benefit of being observable, permitting experimentation and having thousands of supporting references that also apply to dark matter.

Composite Dark Matter:

Hot fusion in a star causes two proton atoms to bond, flipping one of them to a neutron, resulting in a release of hot positive energy, while the big bang and cold fusion results when two or more protons bond, achieving a new and smaller dark composite atom, with the release of cold negative energy.

A proton with a negative polarity potential would have similar poles reversed, such as negative energy, negative thermodynamics and negative electrodynamics, without a full inversion that results in an antiproton.

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With hot fusion reactions, antimatter and antiparticles are also produced, including antiprotons, antineutrons, and positrons, which have an inverse spin and charge, so when they come in contact with ordinary matter and particle pairs, they annihilate each other resulting in a release of hot energy in the form of photons.

Since ordinary matter has both a positive and negative counterpart, with a positive prevalence, it stands to reason that dark matter would be the same; however, it would be a negative prevalence, which may shed light on baryogenesis.

The structure of these composite dark matter atoms would consist of multiple electrons orbiting the atom, similar to how all baryonic atoms work where the spin isomer of the nuclei is reversed, which is demonstrated with molecular hydrogen (para and ortho) nuclear spins at lower temperatures and begins to explain the difference in dark matter electrodynamics and the process for which the composite atom actually gets smaller; such as 1 quark flipping, resulting in 3 up quarks. The resulting cold fusion will cause at least one proton to flip, eventually leading to all protons to flip, or otherwise results in dark matter decay, with various decay methods. Conversely, positive dark matter atoms would have 3 down quarks, making the atoms significantly larger. All composite dark matter atoms have to be fused together otherwise their lifespan in isolation is under a second.

Therefore, negative atoms (dark proton variants) would pass through ordinary matter with little to no resistance; however molecular structure could cause resistance, while positive atoms (dark neutron variants) could interact with ordinary matter and molecules. These interactions are weak and strong depending on the atoms and molecules involved.

Aside from protons, it’s not clear if any atoms in the dark matter periodic table have ever been observed by any scientific means, for any length of time, and yet they not only do exist, there lifetime is expected to be similar to protons, which is between 10^29 years to completely stable (infinity).

REFERENCE:

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