THE ORIGIN OF DARK MATTER - TEST COLLECTION AT THE MOON'S SOUTH POLE

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Introduction: Hydrogen is the most abundant element in the universe, this means that dark matter must originate from it. Then, the best candidate that would fulfill this characteristic is the protium because it has a composition of a proton and an electron. This composition lacks its neutron, and given the other variations that hydrogen can have, this composition is the only one that loses its neutron, so it is the key to find the dark matter.

This separation of the neutron from the protium nucleus causes it to transform. That is to say that the neutrons of the protium (has a value of 0.00797) are not lost but are scattered throughout the universe and that later form the halo of galaxies thanks to the union with the gluon, which leads to the existence of a small effective section of interaction with strong and weak force.

Development: The following equation expresses the modification of the solution of Peccei-Quinn and this is given as a function of the neutron of the protium. Where np is neutrons of the protium, with this equation, you can see a new particule also I called this new particle "particle E". Then the particle E needs the interaction of the gluon with the neutron of the protium, if one galaxy moves away from the others then the decrease of the vacuum energy (Galaxy NGC 1052-DF2) can be evidenced by lack of interaction with protium neutrons.

The distribution of dark matter (DM): The collision between protium neutron with gluon (DM) probocates the distribution of dark matter in the universe. That is to say, they take a perfectly elastic form. That means that $dP = p\pi d^2 v dt$. Therefore, the collision between the protium neutron with gluon (DM) allow to establish an objective area equal to $\sigma = \pi d^2$. This is the point where the collision takes place.

Now, this section allows a sheet of material of the particle E and thickness dx to have an effective target area equal to $pE\sigma\ dx$, this blocked section gives rise to $pE\sigma \frac{dx}{E} = p\sigma\ dx$. From this we will obtain that: $dP = p\sigma\ dx$. This allows us to establish the distribution of free, for this we must calculate the probability, Q (x), that a particle does not make a collision in the distance x, then we will have to: $dQ = -Qp\sigma\ dx$. Therefore, we establish the difference in $R(x) = \left|\frac{dQ}{dx}\right| = p\sigma e^{-p\sigma x}$.Therefore, the free distribution is given by $l = \int_0^\infty xR(x)\ dx = \int_0^\infty poe^{-p\sigma}x\ dx = \frac{1}{p\sigma}$

Then, for the interconnection of dark matter is that the dark matter therefore must have correlations among itself between galaxies however this correlation will depend on the distance of a galaxy A (a) to a galaxy B (b). Therefore, we will have to establish: $C_{ab} = \overline{x^a p^b} - (\bar{x})^a(\bar{p})^b$.Then to calculate the fluctuation and correlation $\bar{f}(x,p) = \overline{\Sigma A_{ab} x^a p^b} = \Sigma A_{ab}\overline{x^a p^b}$. Hence: $C_{ab} = \frac{1}{2}\int \psi^* \left[x^a \left(\frac{\hbar}{i}\frac{\partial}{\partial x}\right)^b + \left(\frac{\hbar}{i}\frac{\partial}{\partial x}\right)^b x^a\right]\psi dx - \left(\int \psi^* x^n \psi\ dx\right)\left[\int \psi^* \left(\frac{\hbar}{i}\frac{\partial}{\partial x}\right)^b \psi\ dx\right]$

Thanks to this correlation, it can be established that dark matter establishes connecting lines which I have called "Paths v" between galaxies and it is precisely what we observe.

Therefore, if we observe the density of matter and its fluctuations in the universe with values of 0.25 for Omega_M and a value of 0.8 for sigma_8 (simulation and observation), we can see the "Paths V".

Then, the density of dark mater produce the peaks of dark matter density, this means that the higher density galaxies have high density of dark matter and if the galaxy does not have too much density due to its composition it can be established low dark matter indices as is the case of the Galaxy NGC 1052-DF2.

Conclusion: Then, the only way to prove that the neutrons of the protium are the ones that originate the dark matter are found in the frozen water of the poles of the Moon, so the sampling would be done like the samples that are taken in the poles of the planet Earth, that is to say that the program Artemis III, becomes an opportunity to find this proof of dark matter. Then, in the frozen water we would find at greater depth more neutrons of the protium of value 0.00797, while at less depth we would find less evidence, however this is due to the dispersion of the dark matter in the universe and its correlation of origin.

References:

[1] Lectures on Dark Matter Physics, Authors: Michelle l., arXiv: 1603.03797, 2019.

[2] A Robust Excess in the Cosmic-Ray Antiproton Spectrum: Implications for Annihilating Dark Matter, Authors: Ilias Cholis, Tim Linden, Dan Hooper, arXiv: 1903.02549, 2019.
[3] On the Generalized-Faber Jackson relation for NGC 1052 DF2 galaxy, Authors: Carlos E. Navia, arXiv: 1903.02479,2019.
[4] Refracting into Ultra Diffuse Galaxy NGC 1052-DF2 by Passing near the Center of NGC 1052, Authors: Ran Huo, arXiv: 1903.02434, 2019.
[5] Dynamics of nonlinear interacting dark energy models, Authors: Andronikos Paliathanasis, Supriya Pan, Weiqiang Yang, arXiv: 1903.02370, 2019.
[6] Axion Dark Matter Search with Interferometric Gravitational Wave Detectors, Authors: Koji Nagano, Tomohiro Fujita, Yuta Michimura, Ippei Obata, arXiv: 1903.02017, 2019.
[7] New mass bound on fermionic dark matter from a combined analysis of classical dSphs, Authors: Denys Savchenko, Anton Rudakovskyi, arXiv: 1903.01862, 2019.
[8] Rotation curves and orbits in the scalar field dark matter halo spacetime, Authors: Yen-Kheng Lim, arXiv: 1903.01645, 2019.
[9] The Milky Way's Halo and Subhalos in Self-Interacting Dark Matter, Authors: Victor H. Robles, Tyler Kelley, James S. Bullock, Manoj Kaplinghat, arXiv: 1903.01469, 2019.
[10] Determination of the quark-gluon string parameters from the data on pp, pA and AA collisions at wide energy range using Bayesian [11] Gaussian Process Optimization, Authors: Vladimir Kovalenko, arXiv: 1902.11082, 2019.
[12] Dark energy beyond quintessence: Constraints from the swampland, Authors: Suddhasattwa Brahma, Md. Wali Hossain, arXiv: 1902.11014, 2019.
[13] The Cosmological Constant and the Electroweak Scale, Authors: Stefano Andriolo, Shing Yan Li, S. H. Henry Tye, arXiv: 1812.04873, 2018.
[14] QCD gluon vertices from the string-inspired formalism, Authors: Naser Ahmadiniaz, Christian Schubert, arXiv: 1811.10780, 2018.
[15] A distinctive signature of extra-dimensions: The enhanced open string pair production", Authors: J. X. L, arXiv: 1808.04950, 2018.
[16] Leptogenesis from Heavy Right-Handed Neutrinos in CPT Violating Backgrounds, Authors: Thomas Bossingham, Nick E. Mavromatos, Sarben Sarkar, arXiv: 1712.03312, 2017.
[17] Higgs and superparticle mass predictions from the string theory landscape", Authors: Howard Baer, Vernon Barger, Hasan Serce, Kuver Sinha, arXiv: 1712.01399, 2017.
[18] Massive mixed symmetry field dynamics in open bosonic string theory, Authors: V. A. Krykhtin, arXiv: 1711.10252, 2017.
[19] E-String Theory on Riemann Surfaces, Authors: Hee-Cheol Kim, Shlomo S. Razamat, Cumrun Vafa, Gabi Zafrir, arXiv: 1709.02496, 2017.
[20] The Classical Moment Problem and Generalized Indefinite Strings, Authors: Jonathan Eckhardt, Aleksey Kostenko, arXiv: 1707.08394, 2017.
[21] Glueball dark matter in non-standard cosmologies, Authors: Bobby Samir Acharya, Malcolm Fairbairn, Edward Hardy, arXiv: 1704.01804, 2017.
[22] Kerr-Newman Black Holes with String Corrections, Authors: Anthony M. Charles, Finn Larsen, arXiv: 1605.07622, 2016.
[23] More on Non-supersymmetric Asymmetric Orbifolds with Vanishing Cosmological Constant, Authors: Y. Sugawara, arXiv: 1605.07021, 2016.
[24] Commutative deformations of general relativity: nonlocality, causality, and dark matter, Authors: P. G. N. de Vegvar, arXiv: 1605.06011, 2017.
[25] Cosmology and Supergravity, Authors: S. Ferrara, A. Kehagias, A. Sagnotti, arXiv: 1605.04791, 2016.

Theories: General Theory of Relativity by Albert Einstein, Supergravity, Superstring theory and M theory, loop quantum gravity Abhay Ashtekar, Lee Smolin and Carlo Rovelli, canonical quantum gravity Bryce DeWitt), noncommutative geometry of Alain Connes, The "R = T" (dilaton) by Robert Mann and Tony C. Scott theory, Twistor theory of Roger Penrose, Euclidean quantum gravity or "Hartle-Hawking state" by Stephen Hawking and Hartle James, Sets grounds for Rafael Sorkin, dynamic causal Renate Loll triangulating, Jan and Jerzy Jurkiewicz Ambjörn, scale4 cosmic expansion of C. Johan Masreliez, John Wheeler geometrodynamics, Holographic universe of Gerard 't Hooft and Leonard Susskind, Olaf Dreyer internal relativity,Graficidad quantum Fotini Markopoulou, Einstein quantum gravity Martin Reuter, E8 theory Garrett Lisi, Vafa theory Cumrun F, S theory of Itzhak Bars, Theory 2-T by Itzhak Bars, 26D theory by Richard Ruquist, KT transition by Berezinskii, Kosterlitz, Thouless, Lambda Model – CDM, Standard Model, Quantum Electrodynamics, Lamb effect, Gauge field Theory., Dirac Equation, Law of Coulomb, Peccei-Quinn Theory, Quantum Mechanic, Effect Vainshtein.