

Dark Matter as Manifestation of “Unmatter”

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Abstract

Dark Matter is rooted in the underlying topology of fractal spacetime above the electroweak scale and may be understood as a manifestation of “Unmatter”.

There are presently two mainstream views on the nature and composition Dark Matter (DM), namely:

1. DM consists of exotic objects such as weakly interacting massive particles (WIMP's), axions or neutralinos, falling outside the realm of the Standard Model for high-energy physics.
2. DM is a hidden aspect of classical gravitation that requires amendments to General Relativity and current cosmological models.

In light of the null results on DM searches recently announced by LUX and XENON [1-2], we wish to bring up a third possibility, developed in [3-7]. In this interpretation, DM is a manifestation of “Unmatter” and consists of arbitrary mixtures of particles and antiparticles whose attributes drastically depart from the familiar properties of ordinary matter. These non-trivial states may be seen as *composite topological objects* that emerge in fractional quanta, have arbitrary spin and arise from the underlying fractality of spacetime well above the electroweak

scale. It is presently unknown if this (currently only qualitative) model of DM will stand the test of time.

References:

[1] <http://arxiv.org/abs/arXiv:1310.8214>

[2] <http://arxiv.org/abs/1104.2549>

[3] <http://www.gallup.unm.edu/~smarandache/PP-15-02.pdf>

[4] http://www.ptep-online.com/index_files/2008/PP-14-15.PDF

[5] Available at the following site: <http://www.amazon.com/Proceedings-Introduction-Neutrosophic-Physics-International-ebook/dp/B00806SA76>

[6] <http://adsabs.harvard.edu/abs/2012APS..MAR.C1299S>

[7] <http://prespacetime.com/index.php/pst/article/view/348/360>