

Is the space roar an empirical proof that the inflaton field exists?

ABSTRACT: What is dark energy and why does it exist? What is dark matter and why does it exist? Assume that the monster group and the 6 pariah groups enable M-theory to have a computational method. Wolfram's mobile automaton might use Fredkin-Wolfram information below the Planck scale to create approximations to quantum field theory and general relativity theory. Is there some decisive way of testing this seemingly crackpot theory? CONJECTURE 1: The universe has a maximum physical wavelength if and only if the Space Roar Profile Prediction is empirically valid. CONJECTURE 2: The multiverse operates according to Wolfram's mobile automaton if and only if the alleged Fernández-Rañada-Milgrom effect is empirically valid. CONJECTURE 3: Superpartners occur in nature if and only nature is infinite. CONJECTURE 4: The space roar is empirical evidence that the inflaton field occurs in nature. Photons and gluons never escape from a measurable universe into the interior of the multiverse. Gravitons travel at the speed of light on average. A statistically few gravitons travel slightly slower than the speed of light and thereby generate the Fernández-Rañada-Milgrom effect. A statistically few gravitons travel slightly faster than the speed of light and escape from a measurable universe into the interior of the multiverse; the escape process generates both the nonzero cosmological constant and the inflaton field. CONJECTURE 5: M-theory has a satisfactory computational method if and only nature is finite.

#### COSMOLOGICAL INFLATION

"... inflation can explain the size, the Hubble expansion, the homogeneity, the isotropy, and the flatness of our universe, as well as the absence of magnetic monopoles, and even the characteristics of the nonuniformities." — Alan Guth

<http://arxiv.org/pdf/hep-th/0702178v1.pdf> "Eternal inflation and its implications", 2007

Is the space roar the type of effect one would expect by tracing the evolution of the inflaton field backward in cosmological time? In other words, did the ARCADE2 science team arrive at the space roar finding BECAUSE they ignored the inflaton field (as they naturally would because no one has a satisfactory quantitative theory of the inflaton field)?

[http://en.wikipedia.org/wiki/Space\\_roar](http://en.wikipedia.org/wiki/Space_roar)

Is David Brown's Space Roar Profile Prediction essentially a quantitative prediction for the inflaton field? Is understanding the space roar closely related to understanding Milgrom's MOND? Is MOND an essential key to understanding string theory? Do string theorists need to explain cosmological inflation?

"String theory is the only known generalization of relativistic quantum field theory that makes sense." — Edward Witten

<http://www.sns.ias.edu/~witten/papers/Unravelling.pdf> "Unravelling string theory", Dec. 2005

As a theoretical physicist, is Witten in the same ballpark as Einstein? Has Witten failed to explain cosmological inflation? On the basis of the mathematics of string theory, Witten has suggested that superpartners occur in nature. Do superpartners occur in nature if and only if nature is infinite? Has Witten underestimated Wolfram? Has Witten made a dreadful mistake in underestimating Milgrom? Could there be bizarre Fermi pairings of dark matter fermions across alternate universes, thus yielding an explanation of Milgrom's MOND? Have string theorists rejected Milgrom's empirical findings because string theorists are locked into a possibly false paradigm?

ARE MILGROM, McGAUGH, AND KROUPA CONTEMPORARY GIANTS OF SCIENCE?

Is Milgrom the Kepler of contemporary cosmology? If Milgrom were wrong, then how could he possibly have convinced McGaugh and Kroupa?

"I was quite happy with the CCM, as everyone else ..." — Pavel Kroupa  
[http://www.astro.uni-bonn.de/~pavel/kroupa\\_cosmology.html](http://www.astro.uni-bonn.de/~pavel/kroupa_cosmology.html) Pavel Kroupa: Dark Matter, Cosmology and Progress

"The current standard model of cosmology (SMoC) requires The Dual Dwarf Galaxy Theorem to be true ... the Dual Dwarf Galaxy Theorem is falsified by observation and dynamically relevant cold or warm DM cannot exist." — Pavel Kroupa  
<http://arxiv.org/abs/1204.2546> "The dark matter crisis: falsification of the current standard model of cosmology", 2012

According to McGaugh and Milgrom, "MOND appears to be in good agreement with the observed velocity dispersions of the dwarf spheroidals of M31."  
<http://arxiv.org/pdf/1301.0822v2.pdf> "Andromeda Dwarfs in Light of MOND", Feb. 2013

According to Kroupa, Pawlowski, and Milgrom, "Understanding the deeper physical meaning of MOND remains a challenging aim. It involves the realistic likelihood that a major new insight into gravitation will emerge, which would have significant implications for our understanding of space, time and matter."

<http://arxiv.org/pdf/1301.3907v1.pdf> "The failures of the standard model of cosmology require a new paradigm", Jan. 2013

WHAT IS THE MAIN PROBLEM WITH STRING THEORY?

Have string theorists failed to understand that Milgrom is the Kepler of contemporary cosmology? Are Green, Schwarz, and Witten immensely great physicists who have woefully underestimated Milgrom, McGaugh, and Kroupa?

<http://quantumfrontiers.com/2013/11/05/fundamental-physics-prize-prediction-green-and-schwarz/#comments>

Have string theorists been remiss in studying the empirical facts of cosmology?

"... the string theorists in general will not attend lectures on experimental physics. They will not be terribly concerned about the results of experiments. They will talk to one another."  
— Sheldon Glashow <http://www.pbs.org/wgbh/nova/elegant/view-glashow.html>

I have suggested that the alleged Fernández-Rañada-Milgrom effect and the Space Roar Profile Prediction are 2 decisive empirical tests for the hypothesis that the monster group and the 6 pariah groups enable M-theory to have a computational method. If I am wrong, then can string theorists suggest one or more decisive empirical tests for string theory?

Do dark energy and dark matter obey the equivalence principle? What are dark energy and dark matter and what is their role in quantum gravity?

Is there any experimental proof that dark energy and dark matter obey the equivalence principle? Is there any experimental proof that dark matter particles exist? Have string theorists failed to explain string theorists to experimental physicists?

"The process of learning what string theory is still has a long way to run. I don't think we are close to seeing the end of it." — Edward Witten, Newton Medal Ceremony, July 1, 2010

Einstein: Measurements show that inertial mass-energy equals gravitational mass-energy.

Brown: String theory might require a rethinking of Einstein's equivalence principle. All measured mass-energy occurs on the boundary of the multiverse. All non-measured mass-energy occurs in the interior of the multiverse. For measured mass-energy, inertial mass-energy equals gravitational mass-energy. For non-measured mass-energy, the inertial mass-energy is always zero but virtual mass-energy that is not measured always has nonzero gravitational mass-energy. Dark energy has zero inertial mass-energy and negative gravitational mass-energy. Dark matter has zero inertial mass-energy and positive gravitational mass-energy. Is the preceding a meaningless farrago of verbiage? Is David Brown a nutcase? The alleged Fernández-Rañada-Milgrom effect might yield a decisive test.

<http://vixra.org/pdf/1207.0049v1.pdf> Gravity Probe B and the Rañada-Milgrom Effect

[http://www.fqxi.org/data/essay-contest-files/Brown\\_spaceroaessay.pdf](http://www.fqxi.org/data/essay-contest-files/Brown_spaceroaessay.pdf) "Does Information Below the Planck Scale Explain the Space Roar?"

Is Milgrom the Kepler of contemporary cosmology? Are Milgrom's acceleration law and the space roar the two main keys to unlocking the mysteries of string theory?

IF MILGROM WERE WRONG, THEN HOW COULD HE HAVE CONVINCED McGAUGH AND KROUPA? Do string theorists need to understand the work of Milgrom, Guth, and the ARCADE2 science team? How can string theorists explain cosmological inflation?