Wolframian String Theory and the MOND Acceleration Constant

ABSTRACT

Based upon the space roar and speculative ideas of Fredkin and Wolfram, I have suggested that the Big Bang recurs every (81.6 ± 1.7) billion years. (81.6 billion years)/(Planck time) = $4.773 * 10^{61}$ where Fredkin-Wolfram-constant * (Planck time) is approximately 81.6 billion years. G *((Planck mass) / (Planck length)^2) / ($1.165 * 10^{-10}$ meter/second^2) = $4.773 * 10^{61}$, where G is Newton's gravitational constant. Note that in Milgrom's MOND (MOdified Newtonian Dynamics) the fundamental MOND acceleration constant a_0 is $1.2 * 10^{-10}$ m/s^2. Newtonian-Einstein string theory needs to be replaced by Milgromian string theory. Why? There are 2 basic alternatives: Alternative (1). Milgrom is the greatest astrophysicist of his generation. Alternative (2). Milgrom's acceleration law is empirically wrong. Alternative (2) is not a real possibility, because if MOND were wrong then Milgrom could never have convinced McGaugh and Kroupa. This brief communication considers ideas concerning Milgromian string theory and Wolframian string theory.

WOLFRAM'S "A NEW KIND OF SCIENCE"

"Edward Fredkin, a physics professor at Boston University and the Massachusetts Institute of Technology's Media Laboratory and a longtime proponent of something called "digital physics," viewing nature as a computer, said: "For me this is a great event. Wolfram is the first significant person to believe in this stuff. I've been very lonely." Dr. Gregory Chaitin, a mathematician at the I.B.M. Watson Research Laboratory in New York, called it "a remarkable book," a courageous attempt to create a new way of viewing the world. But many scientists, while evincing admiration for some of his results, also said they wondered how far the book went in a fundamental sense beyond what had been said before, including by Dr. Wolfram himself in the 1980's, before he left academia." — Dennis Overbye, June 11, 2002 review of "A New Kind of Science"

http://www.nytimes.com/2002/06/11/science/did-this-man-just-rewrite-science.html
"Did This Man Just Rewrite Science?" - New York Times

STRING THEORY: INFINITE NATURE OR FINITE NATURE?

Does any plausible formulation of Fredkin and Wolfram's ideas need string theory? Note that Edward Witten, perhaps the world's most famous string theorist, has won many prizes. A plausible guess is that the prizes indicate that Witten is fundamentally correct about string theory; however, Milgrom's MOND needs to be explained by string theory.

http://en.wikipedia.org/wiki/Edward_Witten

According to Witten, the three main implications of M-theory are gravity, nonabelian gauge symmetry, and supersymmetry.

http://www.ams.org/notices/199809/witten.pdf "Magic, Mystery, and Matrix" by Edward Witten, 1998

"Gravity and gauge symmetry have a common origin. With closed and open strings, the identical quantisation procedure yields respectively gravitons and gauge bosons. Moreover gravitons arise by combining a "vector" state from the left- and right- movers of the closed string, making them in some sense the "square" of gauge fields." — Sunil Mukhi

http://arxiv.org/abs/1110.2569 "String theory: a perspective over the last 25 years", Sunil Mukhi, 2011

Do string theorists need to explain non-relativistic MOND? How can string theorists explain the space roar?

http://en.wikipedia.org/wiki/Space_roar

I have suggested that string theory with the infinite nature hypothesis implies supersymmetry (i.e. superpartners) while string theory with the finite nature hypothesis implies Wolframian quasi-supersymmetry (i.e. no superpartners). I have also suggested the Milgrom Denial Hypothesis: The main problem with string theory is that string theorists fail to realize that Milgrom is the Kepler of contemporary cosmology.

http://vixra.org/abs/1410.0186 "Where Are the Dark Matter Particles?"

http://vixra.org/abs/1407.0113 "Lambda-VDM Model: A Testable Modification of Lambda-CDM"

http://vixra.org/abs/1401.0226 "What Is Measurement? Why Does Measurement Exist?"

STRING THEORY AND THE STRING LANDSCAPE

"Physicists learned rather unexpectedly, beginning in the early 1970s, that the problem of quantum gravity could be overcome by introducing a new sort of fuzziness. One replaces "point particles" by "strings". ... In this theory stringiness and quantum uncertainty both contribute to smearing things out; together they tame the $1/r^2$ singularity of gravity." — Edward Witten, 1998 Willard Gibbs Lecture

http://www.ams.org/notices/199809/witten.pdf "Magic, Mystery, and Matrix" by Edward Witten, 1998

The string landscape is the only theoretical framework I am aware of that can explain why Λ is small without conflicting with other data." — Raphael Boussa

http://arxiv.org/pdf/1203.0307.pdf "The Cosmological Constant Problem, Dark Energy, and the Landscape of String Theory", 2012

The string landscape might not be refutable because cleverly contrived D-brane interactions might explain any plausible (or implausible) physics. Wolfram's "A New Kind of Science", Chapter 9, might not be refutable because there might be 4 levels of physics: Fredkin-Wolfram information underlying the string landscape, the string landscape itself, quantum field theory, and macroscopic classical mechanics. However, my particular formulation of Wolframian string theory has 3 decisive empirical tests.

MILGROMIAN STRING THEORY

"What makes MOND particularly intriguing is that it predicted many effects that could not even be tested when I formulated it."

http://en.wikiquote.org/wiki/Mordehai_Milgrom

String theorists have obstinately ignored the work of Milgrom, McGaugh, Kroupa, and Pawlowski. String theorists ignore MOND because Newtonian-Einsteinian string theory implies MOND is wrong. However, the empirical evidence backs MOND. It is not MOND that should be rejected — instead Newtonian-Einsteinian string theory needs to be replaced by Milgromian string theory (whatever that might be).

http://www.scilogs.com/the-dark-matter-crisis/2013/11/22/pavel-kroupa-on-the-vast-polar-structures-around-the-milky-way-and-andromeda/ Pavel Kroupa on "The vast polar structures around the Milky Way and Andromeda", The Dark Matter Crisis"

THE MOND ACCELERATION CONSTANT

Does Wolframian string theory lead to an understanding of the value of the MOND acceleration constant a_0? Fredkin-Wolfram-constant = (81.6 billion years)/(Planck time) $4.773 * 10^{61}$ = G *((Planck mass) / (Planck length)^2) / ($1.165 * 10^{-10}$ meter/second^2), where G is Newton's gravitational constant. Note that in Milgrom's MOND (MOdified Newtonian Dynamics) the fundamental MOND acceleration constant a_0 is $1.2 * 10^{-10}$ m/s^2.

http://arxiv.org/abs/1301.3907 "The Failures of the Standard Model of Cosmology Require a New Paradigm" by Kroupa, Pawlowski, & Milgrom, 2013

On 12 Dec. 2014 C.E. I sent the following email:

Professor Milgrom: If you use $1.165 * 10^{-10}$ m/sec^2 instead of $1.2 * 10^{-10}$ m/sec^2 then is the substitution worse, the same, or better? — D. Brown

On 13 Dec. 2014 C.E. Professor Milgrom replied by email:

At present, a0 is not determined from the data to better than about 20%, which means that with present data, changing it by 4% would not make much of a difference.