Supersymmetry versus Wolframian Pseudo-supersymmetry

ABSTRACT

Does string theory with the infinite nature hypothesis imply supersymmetry while string theory with the finite nature hypothesis implies Wolframian pseudo-symmetry? I conjecture 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. Is the Koide formula merely a coincidence with little or no significance for physics? Does reality consist of a string landscape with many different string vacua? Consider two approximations: (muon mass)/(electron mass) = 206.7683 and
exp(pi * squareroot(72/25)) – (mass muon)/(mass electron) = –.0288 — so what? Is spacetime 4-dimensional? Is spacetime 26-dimensional? Measurements of spacetime using clocks and surveying instruments demonstrate that spacetime is 4-dimensional. I say that, from one point of view, spacetime is 26-dimensional. 26 dimensions = 1 dimension of matter time + 1 dimension of antimatter time + 24 dimensions of (±, ±, ±)-space. What is (±, ±, ±)-space? For the measurement of space, employ 6 particle beams consisting of 3 electron beams and 3 positron beams. For each dimension of space, employ all 3-tuples of beams selected from the 6 beams. By definition, (±, ±, ±)-space consists of 3 dimensions of ordinary space, each of which is measured in 8 different ways by using all of the possible 3-tuples of the 6 beams. The 24 dimensions of (±, ±, ±)-space reduce to the 3 dimensions of ordinary space because quantum field theory is empirically valid — however, (±, ±, ±)-space might be useful for representational redundancy (because of the role that the Leech lattice plays in the foundations of physics.) This brief communication offers speculations concerning Wolframian pseudo-symmetry and the Koide formula.

QUANTUM FIELD THEORY AND SUPERSYMMETRY

“There are many quantum field theories, depending on free parameters, because one can introduce fairly arbitrary rules governing the branching and joining of particles.” — Edward Witten
http://www.sns.ias.edu/sites/default/files/Reflections(3).pdf “Reflections on the Fate of Spacetime”, 1996
“Since supersymmetry transformations change bosons and fermions into each other, bosons and fermions occur in the same multiplets (representations) of the supersymmetry transformations.”
https://books.google.com/books?id=NugSt4i2-KIC&pg=PA147 ‘Chapter 6. A philosopher looks at string theory’ by Robert Weingard, in “Physics meets philosophy at the Planck scale: contemporary theories in quantum gravity” edited by Craig Callender & Nick Huggett, 2001
Can string theory with the finite nature hypothesis drastically restrict the branching and joining of particles and still retain the successes of quantum field theory? Is supersymmetry a mathematical theory based upon a physical assumption that involves the philosophical belief that we live in an infinite universe?
According to Einstein, “The only justification for our concepts and systems of concepts is that they serve to represent the complex of our experiences; beyond that they have no legitimacy. I am convinced that philosophers have had a harmful effect upon the process of scientific thinking in removing certain fundamental concepts from the domain

of empiricism, where they are under our control, to the intangible heights of the *a priori*." https://books.google.com/books?id=cWKBAgAAQBAJ "The Meaning of Relativity", 5th edition, 1956
Is a complete infinity an *a priori* assumption that is not convincingly demonstrated by experiments?

MILGROM, LESTONE, AND KOIDE
I say that my 3 most important ideas are: (1) Milgrom is the Kepler of contemporary cosmology. (2) Lestone's heuristic string is essential for understanding the foundations of physics. (3) The Koide formula is essential for understanding the foundations of physics. Will the 3 preceding ideas revolutionize the foundations of physics?

https://arxiv.org/abs/1301.3907 by Pavel Kroupa, Marcel Pawlowski, and Mordehai Milgrom. "The failures of the standard model of cosmology require a new paradigm." *International Journal of Modern Physics* D 21.14 (2012): 1230003.
http://www.weizmann.ac.il/particle/milgrom/ Mordehai (Moti) Milgrom, Weizmann Insitute of Science
https://arxiv.org/abs/physics/0703151 "Physics based calculation of the fine structure constant" by John P. Lestone, 2009
http://permalink.lanl.gov/object/tr?what=info:lanl-repo/lareport/LA-UR-16-27659 Los Alamos Report LA-UR-16-27659 "Semi-classical Electrodynamics: A Short Note" by John Paul Lestone, issued 2016-10-05
http://en.wikipedia.org/wiki/Koide_formula

Consider a conjecture concerning string theory: Define
A = exp(pi * squareroot(72/25)) and
B = exp (pi * squareroot (128/19)). Then
f(x) = a(1) x – a(2) x^2 + a(3) x^3 – a(4) x^4 + …
g(x) = b(1) x – b(2) x^2 + b(3) x^3 – b(4) x^4 + …
f(A) / g(B) = (2/3 + y), where y is a small positive number, a(1) is approximately = 1, b(1) is approximately = 1, and y together with the sequences a(1), a(2), a(3), … and b(1), b(2), b(3), … can be calculated in terms of string theory. Is the preceding conjecture nonsense?

From Wolfram Alpha:
(muon mass)/(electron mass) = 206.7683
exp(pi * squareroot(72/25)) – (mass muon)/(mass electron) = –.0288
(mass tauon)/(mass electron) = 3477.48
exp(pi * squareroot(128/19)) – (mass tauon)/(mass electron) = .26
Why might be 72 an important number in the foundations of physics? Strings might vibrate at 3 distinct energy levels in 3 copies of the Leech lattice.
http://en.wikipedia.org/wiki/Leech_lattice
Note that 1728 * 19/128 = 256.5 .

https://en.wikipedia.org/wiki/J-invariant
In the abstract of this communication, (±, ±, ±)-space is defined. We can think of 3 copies of the Leech lattice as the combination of 3 multidimensional spaces:
1) (±, ±, ±)-space;
(2) (±, ±, ±)-space with electron beams replaced by muon beams and with positron beams replaced by antimuon beams; and
(3) (±, ±, ±)-space with electron beams replaced by tauon beams and with positron beams replaced by antitauon beams.

STANDARD MODEL
http://en.wikiipedia.org/wiki/Standard_Model
Mogens Dam wrote concerning the Future Circular Collider with electron-positron beams, “With all of the Standard Model parameters precisely known, the predictions of a number of observables sensitive to electroweak radiative corrections become absolute, and any deviations between measurements would be a demonstration of the existence of new, weakly interacting particles. With the dramatic increase in precision, sensitivity to new energy scales up to 100 TeV can be expected …”
https://arxiv.org/abs/1601.03849 Dam, Mogens. "Precision Electroweak measurements at the FCC-ee." arXiv preprint arXiv:1601.03849 (2016).
Supersymmetry predicts superpartners that can in theory be measured. Wolframian pseudo-symmetry predicts that the Wolframian analogue of supersymmetry occurs only in terms of Fredkin-Wolfram information that cannot be directly measured. My guess is that Wolframian pseudo-symmetry, whatever its empirically valid theory might be, predicts that the only 3 fundamental particles that need to be added to the Standard Model are the axion, the inflaton, and the graviton. Also, Wolframian pseudo-supersymmetry might suggest that there should be precisely 21 free parameters in the Standard Model. Think of a complete graph with 7 vertices. The vertices represent the monster group and the 6 pariah groups. The edges represent the free parameters resulting from the interactions arising among the 7 groups. A complete graph with 7 vertices has 21 edges.
http://en.wikipedia.org/wiki/Monster_group
http://en.wikipedia.org/wiki/Pariah_group
http://en.wikipedia.org/wiki/Complete_graph

BLACK HOLES, BERNOULLI NUMBERS AND IMAGINARY QUADRATIC FIELDS
“For every positive integral value *m* of the magnetic charge invariant of the black hole, our analysis leads to a special mock Jacobi form of weight two and index *m*, which we characterize uniquely up to a Jacobi cusp form.”
https://arxiv.org/abs/1208.4074 Dabholkar, Atish, Sameer Murthy, and Don

Zagier. "Quantum black holes, wall crossing, and mock modular forms." arXiv preprint arXiv:1208.4074 (2012).
“Apart from pure mathematics, the Bernoulli numbers appear prominently in perturbative quantum field theory.”
https://arxiv.org/pdf/math/0406610v2.pdf Dunne, Gerald V., and Christian Schubert. "Bernoulli number identities from quantum field theory and topological string theory." *arXiv preprint math/0406610* (2004).
“Crucially, Kummer's theorem is complemented by a simple numerical criterion for regularity that involves the Bernoulli numbers.”
http://smf4.emath.fr/Publications/Gazette/2008/118/smf_gazette_118_42-49.pdf "Bernoulli numbers and ideal classes" by Kenneth A. Ribet, 2008
“Mock modular forms are interesting functions playing an increasingly important role in various areas of mathematics and theoretical physics.”
https://arxiv.org/pdf/1406.0619v3.pdf Cheng, Miranda CN, and Sarah Harrison. "Umbral moonshine and K3 surfaces." *Communications in Mathematical Physics* 339, no. 1 (2015): 221-261.
"... The Umbral groups now appear as precise symmetries of string compactification; and upon decompactification to type II on K3 (where there existence was originally inferred), we obtain a clear picture of which subgroups should remain unbroken, at which loci in K3 moduli space.”
https://arxiv.org/pdf/1603.07330v2.pdf Kachru, Shamit, Natalie M. Paquette, and Roberto Volpato. "3D String Theory and Umbral Moonshine." arXiv preprint arXiv:1603.07330 (2016).
"The use of random matrix theory to model statistics of L-functions grew out of the connection between eigenvalue statistics of matrices in the unitary group and the statistics of the zeros of the Riemann zeta function ..."
https://arxiv.org/pdf/1511.05805v1.pdf Cooper, Ian A., Patrick W. Morris, and Nina C. Snaith. "Beyond the excised ensemble: modelling elliptic curve L-functions with random matrices." *Journal of Physics A: Mathematical and Theoretical* 49, no. 7 (2016): 075202.

Note the following 9 facts about class numbers for imaginary quadratic fields:
$Q(\sqrt{-5})$ has class number 2 & 5 is congruent to –19 modulo 24
$Q(\sqrt{-23})$ has class number 3 & 23 is congruent to –1 modulo 24
$Q(\sqrt{-47})$ has class number 5 & 47 is congruent to –1 modulo 24
$Q(\sqrt{-71})$ has class number 7 & 71 is congruent to –1 modulo 24
$Q(\sqrt{-167})$ has class number 11 & 167 is congruent to –1 modulo 24
$Q(\sqrt{-191})$ has class number 13 & 191 is congruent to –1 modulo 24
$Q(\sqrt{-383})$ has class number 17 & 383 is congruent to –1 modulo 24
$Q(\sqrt{-311})$ has class number 19 & 311 is congruent to –1 modulo 24
$Q(\sqrt{(-647)})$ has class number 23 & 647 is congruent to –1 modulo 24
http://www.numbertheory.org/classnos/ "Tables of imaginary quadratic fields with

small class numbers”
https://en.wikipedia.org/wiki/Quadratic_field
http://mathworld.wolfram.com/ClassNumber.html
The prime numbers that divide the order of the monster group are:
2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 41, 47, 59, & 71
http://en.wikipedia.org/wiki/Monster_group
Are the preceding facts part of a well-known theory that relates class numbers to the monster group?
I conjecture that the preceding 9 facts about the class number of imaginary quadratic number fields have some profound meaning in terms of the foundations of physics.
https://www.quantamagazine.org/20150312-mathematicians-chase-moonshines-shadow/