How does nature use the energy of quantum fields to generate mass? What is the rest mass of a magnetic monopole? How does supersymmetry describe the structure of the dark matter particles that explain dark matter? How does nature use cosmological inflation to develop the very early universe? How does nature give a precise structure to the string landscape? How do the 11 dimensions of the M-theoretical fundamental domain curl up into observable spacetime? Are the preceding 6 questions actually wrong questions based upon the false assumption that nature is infinite? Is Wolfram a serious rival to Newton and Einstein?

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

"Most questions in science are never answered — they simply become obsolete and forgotten." — Sydney Brenner

What are the most important questions about the foundations of physics? Does Seiberg-Witten M-theory lead to a series of questions based upon the curling-up (or compactification) of the 11-dimensional fundamental domain? Does modified M-theory with Fredkin-Wolfram information lead to a series of questions based upon the building-up of an approximate 11-dimension domain from Fredkin-Wolfram information below the Planck scale? Why do time, space, and energy exist? What is virtual mass-energy? What is a quantum probability wave? What is measurement in term of the axiomatics of physics? Is M-theory the only mathematically plausible way to unite general relativity theory with quantum field theory? Is the string landscape empirically valid?

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

Have the string theorists ignored several important pioneers of new physics beyond the Standard Model? Is the Koide formula essential for understanding the foundations of physics?

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

Is Lestone's heuristic string theory essential for understanding the foundations of physics?

http://arxiv.org/pdf/physics.gen-ph/0703151v6 "Physics based calculation of the fine structure constant" by J. P. Lestone

Are strings the most fundamental form of physical information? Is nature finite and digital because the transformation of information can occur only in a finite and digital medium? Does energy exist because existence itself is a manifestation of invariance principles derived from the monster group and the 6 pariah groups? Are there 6 quarks because there are 6 pariah groups? Consider some numerical coincidences:

What is the order of the Monster group divided by ((2 pi)**64)/ 167 ? Answer: 3.99202...

If n= 1/2 and x = (electron mass) and y = (muon mass) and z = (tauon mass) then what is

((x y)^n + (y z)^n + (x z)^n)/(x + y + z)^(2 n) ? Answer: .25 approx.

If n= 2/pi and x = (electron mass) and y = (muon mass) and z = (tauon mass) then what is

((x y)^n + (y z)^n + (x z)^n)/(x + y + z)^(2 n) ? Answer: .16 approx.

.728**(1/64) = .99505206...

(8/5) * log(1.221/.652) = 1.00381...

(5/3) * log(.652/.357) = 1.00385...

((13.1) * (pi /180)) - (2/27) pi * (1 - 1/(5 pi**2)) = .000643267...

((2.4) * (pi /180)) - (2**(-3/2)) * (1/27) pi = .000750097...

((.2) * (pi /180)) - (1/32) * (1/27) pi = -.000145444...

(1 - .728)/.728 - 3/8 = -.001373626...

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

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

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

http://en.wikipedia.org/wiki/Lambda-CDM_model

http://vixra.org/pdf/1202.0092v1.pdf "Finite Nature Hypothesis and Space Roar Profile Prediction"

Is modified string theory with the finite nature hypothesis a viable alternative to string theory with the infinite nature hypothesis? What empirically testable calculations does string theory provide? According to Wikipedia, "Feynman diagrams are now fundamental for string theory and M-theory and have even been extended topologically. The "world-lines" of the diagrams have developed to become "tubes" to allow better modeling of more complicated objects such as "strings" and "membranes." However, shortly before his death, Feynman criticized string theory in an interview: "I don't like that they're not calculating anything," he said. "I don't like that they don't check their ideas. I don't like that for anything that disagrees with an experiment, they cook up an explanation—a fix-up to say, 'Well, it still might be true.'" These words have since been much-quoted by opponents of the string-theoretic direction for particle physics."

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

How can M-theory make precise predictions that are testable with contemporary technology?

http://en.wikipedia.org/wiki/M-theory

Consider the Milgrom Denial Hypothesis:

The main problem with M-theory is that M-theorists fail to realize that Milgrom is the Kepler of contemporary cosmology.

Is the preceding hypothesis true and, if so, what predictions should M-theory make? Both McGaugh and Kroupa claim that for all the evidence that they have considered, whenever Milgrom's acceleration law makes precise prediction, Milgrom's theory performs as well or better than the Lambda Cold Dark Matter theory.

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

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

"There is a tremendous amount of evidence for dark matter. Yet all this evidence is based on the assumption that Newton's theory can be safely applied to the scales of galaxies." — Stacy McGaugh

http://www.astro.umd.edu/~ssm/mond/MOND_sub.pdf "Mond over matter", 2002

"I think few people appreciate that the main difficulty for DM is that the host of regularities pointed out by MOND, if taken as just a summary of how DM behaves and interacts with normal matter, suggests that these two matter components are coupled and correlated very strongly in many ways. … if MOND does turn out to have some truth to it, the fact that it has encountered so much opposition will just show how nontrivial a thought it was." — Mordehai Milgrom, interview entitled "Dark-matter heretic", American Scientist, Jan.-Feb. 2003, Vol. 91, #1, p. 1

http://www.americanscientist.org/issues/pub/dark-matter-heretic

Combination of the ideas of Milgrom and Fernández-Rañada might suggest the Rañada-Milgrom effect, i.e., the -1/2 in the standard form of Einstein's field equations should be replaced by -1/2 + sqrt((60±10)/4) * 10^-5 .

http://vixra.org/pdf/1202.0083v1.pdf "Anomalous Gravitational Acceleration and the OPERA Neutrino Anomaly"

According to Witten, "Apart from gravity and gauge invariance, the most important general prediction of string theory is supersymmetry, a symmetry between bosons and fermions that string theory requires (at some energy scale). … Whereas in ordinary physics one talks about spacetime and ordinary fields it may contain, in string theory one talks about an auxiliary two-dimensional field theory that encodes the information."

http://www.sns.ias.edu/~witten/papers/Reflections.pdf "Reflections On the Fate of Spacetime", PHYSICS TODAY, 1996

Witten thinks highly of string theory — he wrote, "The idea of replacing point particles by strings sounds so naïve that it may be hard to believe that it is truly fundamental. But in fact this naïve-sounding step is probably as basic as introducing the complex numbers in mathematics."

http://www.sns.ias.edu/~witten/papers/mmm.pdf "Magic, Mystery, and Matrix", Notices of the AMS, 1998

According to Seiberg, "An important constraint on the emergence of gauge symmetries follows from the Weinberg-Witten theorem. It states that if the theory has massless spin one or spin two particles, these particles are gauge particles. Therefore, the currents they couple to are not observable operators. If these gauge symmetries are not present in some formulation of the theory, these currents should not exist there. In particular, it means that if an ordinary gauge symmetry emerges, the fundamental theory should not have this symmetry as a global symmetry. In the context of emergent general covariance, this means the fundamental theory cannot have an energy momentum tensor."

http://arxiv.org/pdf/hep-th/0601234v1.pdf "Emergent Spacetime", talk at the 23rd Solvay Conference in Physics, Dec., 2005

Are gauge invariance, supersymmetry, strings, time, space, and energy merely approximations that emerge from Wolfram's mobile automaton? From a mathematical viewpoint, is superstring theory the only hope for understanding dark matter and dark energy? Does the Heisenberg uncertainty principle with h-bar need to be replaced a string uncertainty principle with h-bar/alpha-prime incorporating uncertainty about unified information for spacetime and energy? If nature really does provide a string uncertainty principle then how might such an uncertainty principle be empirically tested? Consider 2 mutually incompatible hypotheses:

Seiberg-Witten 100% Successful Hypothesis:

Supersymmetry occurs in the form of particles, and some of these particles explain dark matter. The Rañada-Milgrom effect is not entirely valid. At sufficiently large energy-densities, spacetime shows evidence of being 11-dimensional instead of 4-dimensional. The free parameters of the Standard Model of particle physics are environmentally determined by the specific configuration of cosmological inflation occurring in our particular universe, or these free parameters are determined by some as yet undiscovered computational method based upon physical principles that somehow overcome an information explosion from quantum indeterminancy.

Seiberg-Witten Almost Successful Hypothesis:

Supersymmetry does not occur in the form of particles but does occur in the form of symmetry principles within Wolfram's mobile automaton. Nature is finite and

digital with a huge, but finite, number of alternate universes. The maximum physical wavelength is the Planck length times the Fredkin-Wolfram constant. Seiberg-Witten M-theory needs to be replaced by modified M-theory with Wolfram's automaton. Modified M-theory with Wolfram's automaton is the approximate limit of Seiberg-Witten M-theory as the neutralino mass approaches zero, provided that a bizarre Fermi pairing of neutralinos across alternate universes obscures most of the inertial mass-energy of the neutralinos. Seiberg-Witten M-theory is the ambiguous limit of modified M-theory with Wolfram's automaton as the Fredkin-Wolfram constant approaches infinity. The monster group and the 6 pariah groups together with a Wolframian network below the Planck scale somehow explain the function of the Fredkin delivery machine. A finite approximation to Seiberg-Witten M-theory explains the function of the Nambu transfer machine. The free parameters of the Standard Model of particle physics are completely and unambiguously determined by Wolfram's automaton.

Does the space roar suggest that the Wolframian updating parameter really does occur in nature? What is the physical significance of the space roar?

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

Where did Einstein go wrong? The answer might be "The Meaning of Relativity", 5th edn., page 84.

"I learned quickly, as I tell my graduate students now, there are no answers in the back of the book when the equipment doesn't work or the measurements look strange." — Martin Perl

"Progress in science depends upon new techniques, new discoveries and new ideas, probably in that order." — Sydney Brenner