

Standard Model and Superstring Theory

What we depend a lot upon when it comes to polishing certain theories dealing with energies above what we can create is the natural observational path. We utilize the information of nature via observations as a form of natural experiment looking to see if we can find support for certain theories within this.

Yes indeed. I think it is also important to find those who realize the limitations that were recognized, to help validate this thinking and the attempts then to show how resolve might have been attempted. I am thinking of Gabriele Veneziano, "was struggling to make sense of various experimentally observed properties of the string nuclear force"

However, we also still recognize a difference between experiments we can conduct in our labs testing certain ideas out and the observational evidence approach. The problem is with certain theories is the energies they require for experimental support mostly only existed at the first moments of creation.

Absolutely. The idea here was thought of, in concert with the model of Mendeleev, and how we might use this framework to test the curvatures in the particle pathways, as expressed, by their energy determinations.

In this understanding, part of this thinking goes along with the idea, that the euclidean expressions no longer suit, the move to non-euclidean realms, yet the consistency is the lineage we move through too, in the metrics. From an energy standpoint, you use the pattern established, point line plain and exchange for one in the understanding of energy manipulation. That between any two points, and here the essence of, quark to quark measure reveals the dimensional significance of that distance. Hence it becomes an energy visualization, married to euclidean's perspective, yet it is, a metric realization of that distance, that we see the ideas in supersymmetry.

Yes, we can observe the end results in the present. However, there is a direct observational limit range on all this that still leaves us somewhat guessing, so to speak in the dark.

Why the geometry of expression is of so much importance. This is the logic and the math needed, in its various forms, that define the pathway of expression, and becomes the link, between all the rules of space and hyperspace.

One thing to remember in all this, is our theories of the particles and forces are simply constructs of the human mind to help us understand and explain nature. Those constructs as good as they are may or may not be reality at some unseen level. We cannot get down in human form to the size of say a quark and say, yes, we have these smaller particles being exchanged and one is blue and one is green, etc. However, the theory of color force does work out with decent predictions giving us what we can observe. So the construct works irrespective of whether it is exactly the way nature is or not.

Yes such a journey and how they come to this process, works out as you say.

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What is even more important, is the geometry that underlies all this observation. This too is a human construct. Is math created or natural, and we see where man's hands are describing something that is real if validated through a projection of this model apprehension. Much like Eddington's validation of Einstein's work.

What is Nature really like at microscopic scales is anyone's guess.

Those [tracks](http://www.upscale.utoronto.ca/PVB/DBailey/SubAtomic/Lectures/LectF22/Omega.gif) give us some realization, as an indicator.

But we have certain theories about all this that allow us to predict certain aspects close enough that for all intents and purposes the theory and its constructs might as well be reality. Certain Ancients once said the World is framed upon things unseen. We today attempt, through our constructs, to generate a picture or model of that unseen part. But it must be remembered those ancient words are still valid today because a large portion of this universe still remains directly unseen.

AS I journeyed through the history, I saw this too, as defining the model creation and validation one might get from comprehension, of Laughlin, as well as Mendeleev.

But here again we can go back to the Pythagoreans, or Plato's solids, and we see how this pattern identification has made its way through a complex scenario of the "unseen" to become a certain framework of reality constructs as you have pointed out. Yet there are still things of the unseen that reveal themselves to our ever watchful eye, causes disruptions in the framework we have so carefully constructed.

So not only this realization, of what can still be valid from that historical perspective, but of what reality is still unexplained.

* A Brief History of String Theory, in the **Elegant Universe**, by Brian Greene, page 136