

Lost in Math ? Try Thinking Like a Physicist

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If you think that today's dominant Physics Theory - Superstrings -
is All Math and No Connection to Experimental Results (LHC etc)
and
if that has you feeling Lost in Math
then

I suggest you go back to Physics 101 and methodically Think Physics:

(Note - There is Math in this outline and some of it is Advanced,
but here Physics Intuition tells you what to do
and the Math is just there to carry out the Physics Ideas.

Also

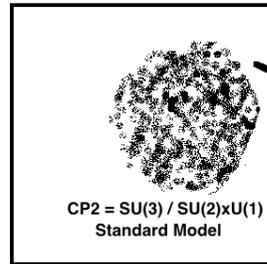
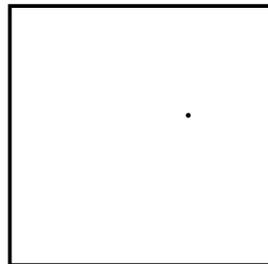
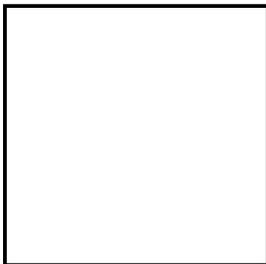
For Details about this Construction,
see viXra 1602.0319)

Start with a familiar thing - 4-dimensional Minkowski Spacetime M_4 .
Then put just one Initial Fermion (lepton or quark) in it.
Then the Dirac Equation shows that a cloud of virtual particle-antiparticle pairs
will surround the Initial Fermion.

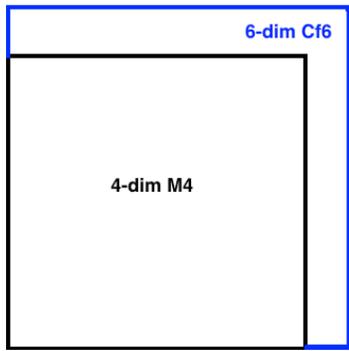
Consider the Virtual Cloud containing the Initial Fermion
to be a Schwinger Source. What is the Geometry of the Schwinger Source ?
Experiment has shown that it has Symmetry of Standard Model Gauge Groups
 $U(1)$ and $SU(2)$ and $SU(3)$ all of which are in an Internal Symmetry Space CP^2
 $CP^2 = SU(3) / SU(2) \times U(1)$

Batakis has shown that those Standard Model Gauge Symmetries
work as expected if Spacetime is expanded to (4+4)-dim Kaluza-Klein $M_4 \times CP^2$
Each Fermion Schwinger Source Cloud has Gauge Symmetry Structure
of Symmetric Space and Bounded Complex Domain with Shilov Boundary
and Poisson Kernel and Bergman Kernel.

Bergman Kernel defines a Green's Function Propagator for each Schwinger Source.
Wylter has shown that ratios of Invariant Measures (or, equivalently,
ratios of related Compact Volumes) determine Particle Masses and Force Strengths.



Bergman Kernel \Rightarrow Green's Function \Rightarrow
 \Rightarrow Particle Masses and Force Strengths



Conformal Gravity + Dark Energy
Spin(2,4) = SU(2,2)

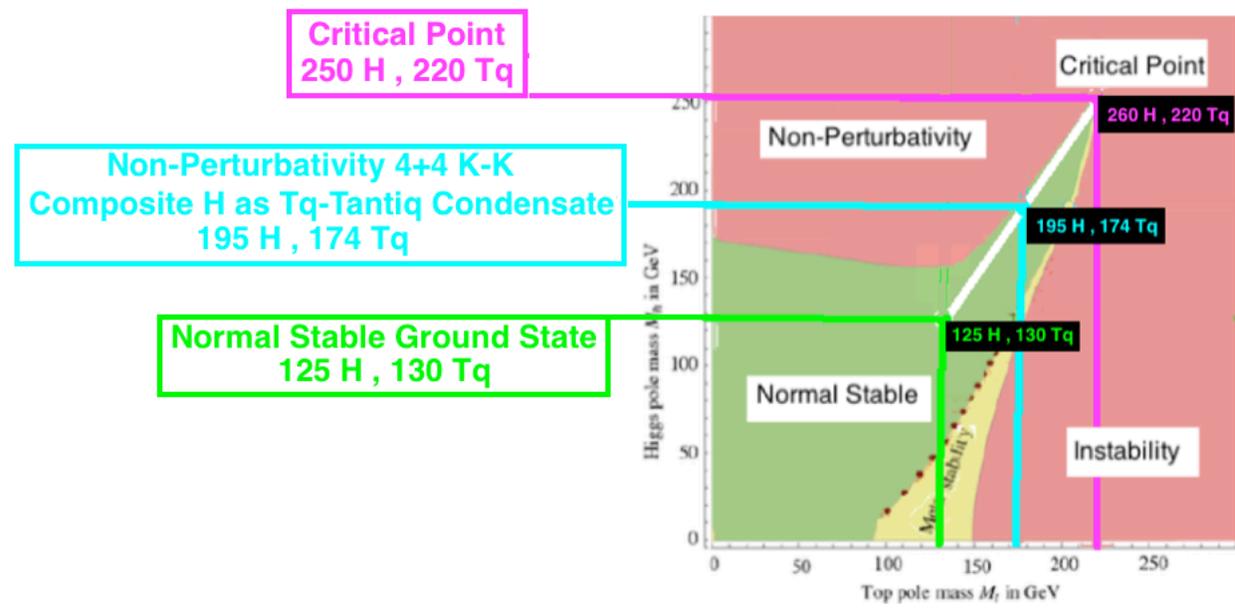
Cf6 x CP2 Kaluza-Klein => Octonionic M(1,9) Spacetime
with Symmetry Spin(1,9) = SL(2,O) =>
=> 64-dim Dixon Spinor T = CxHxO
which represents 8 First-Generation Fermion Particles
Adding 8 First-Generation Fermion AntiParticles
gives 128-dim TxT = T2 Half-Spinors of D8 = Spin(16)

The 8+8 = 16 Fermion States are represented by Orbifolds in 26-10 = 16 dimensions
of 26-dim String Theory in which Strings are Physically interpreted as World-Lines
and the spin-2 parts are Bohmian carriers of Bohm Quantum Potential
with Sarfatti Back-Reaction that enable Penrose-Hameroff Quantum Consciousness
based on Clifford Algebra of Tubulin States in Microtubules.

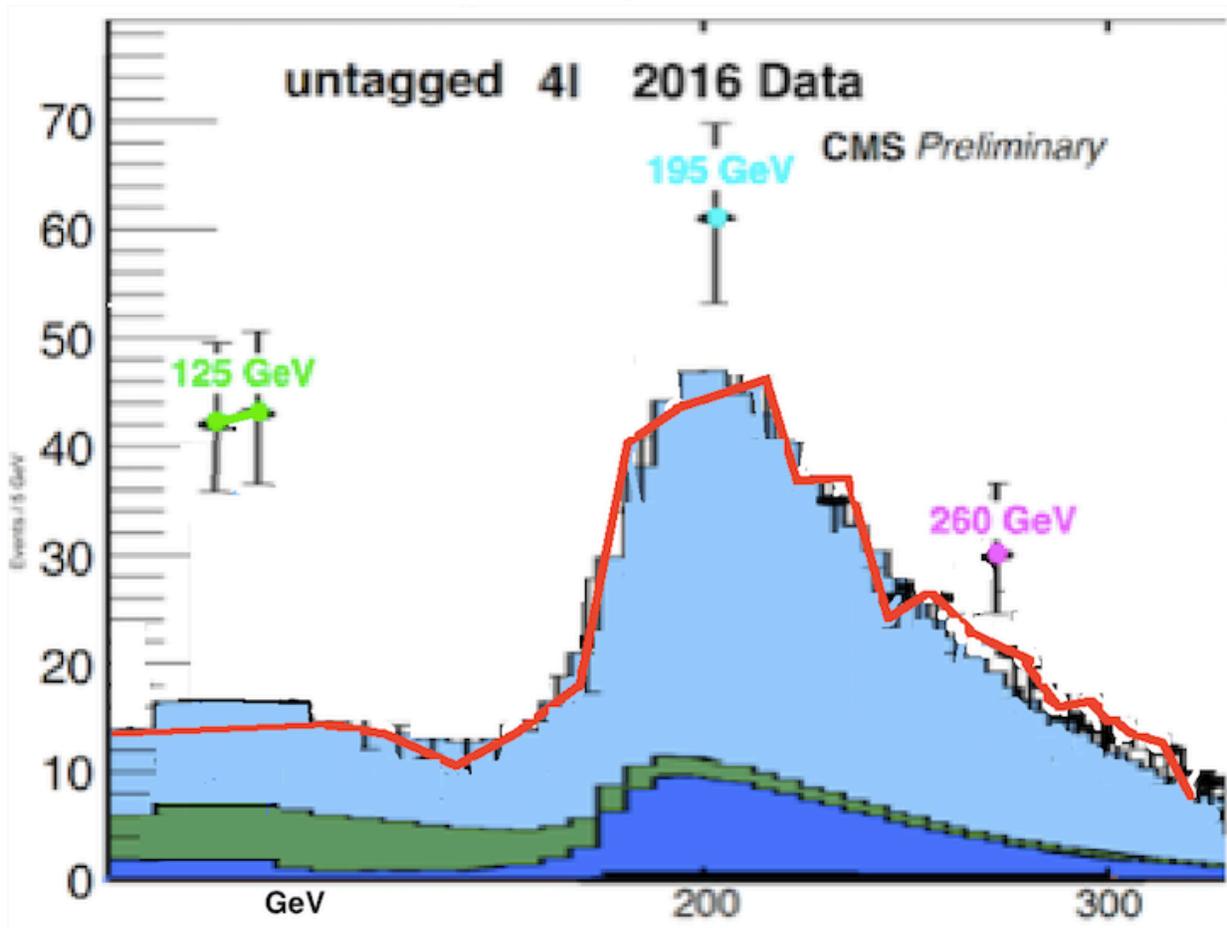
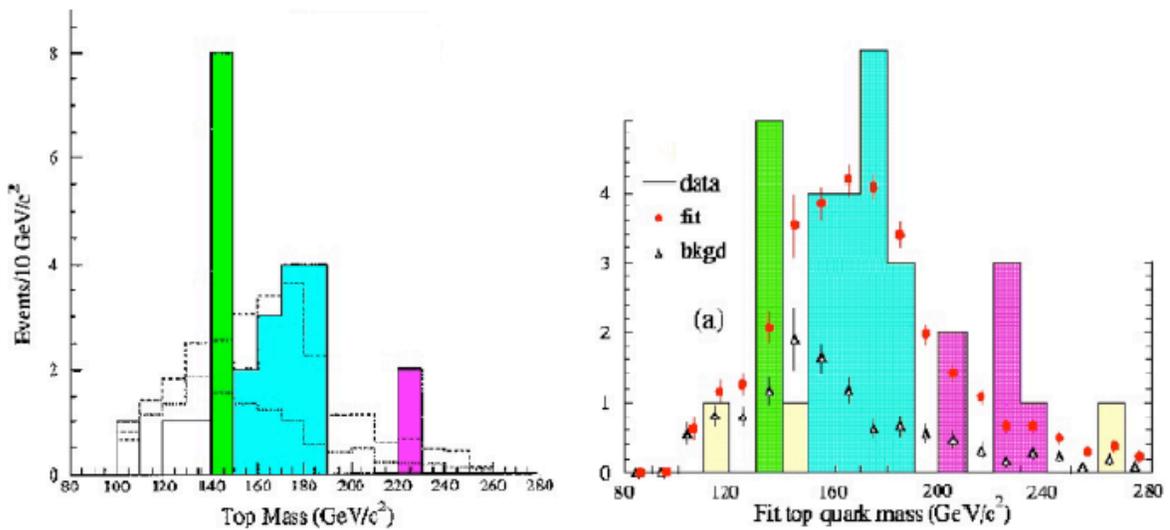
The remaining 26-16 = 10 dimensions of 26-dim String Theory represent Octonionic M(1,9) Spacetime.

When Octonionic M(1,9) Spacetime is reduced to Cf6 x CP2 Kaluza-Klein and then to M4 x CP2 Kaluza-Klein the Higgs is produced by the Mayer-Trautman mechanism and the Second and Third generations of Fermions appear.

The Higgs is seen to be related to Tquark-Tantiquark Condensate by a phase diagram with Normal Stable, Vacuum Instability, and Non-Perturbativity - Triviality - (4+4)-dim Kaluza-Klein Higgs Compositeness plus Critical Point, showing 3 Mass States of Nambu-Jona-Lasinio type Higgs-Tquark Systems:



Fermilab and LHC Experiments from 1994 to 2016 have indicated the existence of the 3 Mass States of the Higgs-Tquark Nambu-Jona-Lasinio type System.



(For Details, see viXra 1712.0344.)

At this point we have

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Nambu-Jona-Lasinio Higgs-Tquark System with 3 Mass States

and

(4+4)-dim M4 x CP2 Kaluza-Klein Spacetime with 8 Position components
and 8 Momentum components for 8x8 = 64 dimensions representing Spacetime

and

SU(3) SU(2) U(1) Standard Model Gauge Groups with
SU(2)xU(1) as local symmetry groups of CP2 = SU(3) / SU(2)xU(1)
SU(3) as Batakis symmetry group contained in SU(4)
with SU(4) subgroup of D4

and

Spin(2,4) = SU(2,2) Conformal Gravity + Dark Energy
with SU(2,2) subgroup of D4

and

128-dim T2 Dixon CxHxO x CxHxO First-Generation Fermion Spinors =
= 8 spacetime components of 8 Fermion Particles and 8 Fermion AntiParticles

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The two copies of D4 (Standard Model and Gravity + Dark Energy)
combine with the 64-dim Spacetime Position and Momentum
to form 120-dim D8 with structure

$$\mathbf{D8 / D4 \times D4 = 64\text{-dim Spacetime Position and Momentum}}$$

120-dim D8 combines with 128-dim T2 to form 248-dim E8 with structure

$$\mathbf{E8 / D8 = 128\text{-dim T2}}$$

E8 is contained in the Real Clifford Algebra Cl(16) as

$$\mathbf{248\text{-dim E8} = 120\text{-dim Cl(16) BiVectors} + 128\text{-dim Cl(16) +Half-Spinors}}$$

Due to 8-Periodicity of Real Clifford Algebras

$$\mathbf{Cl(16N) = Cl(16) \times \dots (N \text{ tensor products}) \dots \times Cl(16)}$$

and we can construct the Completion of the Union of All Cl(16) Tensor Products

(It is a Real Clifford version of the Complex Clifford Hyperfinite II1 von Neumann factor = model of Fock space.)

which is a realistic Algebraic Quantum Field Theory (AQFT)

(For Details of how this works, see viXra 1602.0319.)