MANTECH Publications

Journal of Research in Physics and Applied Sciences
Volume 1, Issue 1, January-June 2018

Standard Model, Quantum Fields and Quantum Field Theory

Dr. Nirmala T[1], Maithreya J S[2], Dr. K.N.P Kumar[3]
Associate Professor[1], Researcher[2], Independent Researcher & Post Doctoral Scholar[3]
Department of Physics
Jawaharlal Nehru College of Engineering, Shivamogga[1], ISAE Supaero, Toulouse, France[2],
Kuvempu University, Jnana Sahyadri, Shankaraghatta[3]
***Corresponding Author's email id**: nirmalamaths@jnnce.ac.in*

Abstract

The Standard Model of particle physics is the theory describing three of the four known fundamental forces (the electromagnetic, weak, and strong interactions and not including the gravitational force) in the universe, as well as classifying all known elementary particles. It was developed in stages throughout the latter half of the 20th century, through the work of many scientists around the world, with the current formulation being finalized in the mid-1970s upon experimental confirmation of the existence of quarks. Since then, confirmation of the top quark (1995), the tau neutrino (2000), and the Higgs boson (2012) have added further credence to the Standard Model. In addition, the Standard Model has predicted various properties of weak neutral currents and the W and Z bosons with great accuracy.

Although the Standard Model is believed to be theoretically self-consistent[2] and has demonstrated huge successes in providing experimental predictions, it leaves some phenomena unexplained and falls short of being a complete theory of fundamental interactions. It does not fully explain baryon asymmetry, incorporate the full theory of gravitation as described by general relativity, or account for the accelerating expansion of the Universe as possibly described by dark energy. The model does not contain any viable dark matter particle that possesses all of the required properties deduced from observational cosmology. It also does not incorporate neutrino oscillations and their non-zero masses.

Theoretical and experimental particle physicists alike drove the development of the Standard Model. For theorists, the Standard Model is a paradigm of a quantum field theory, which exhibits a wide range of physics including spontaneous symmetry breaking, anomalies and non-perturbative behavior. It is used as a basis for building more exotic models that incorporate hypothetical particles, extra dimensions, and elaborate symmetries (such as supersymmetry) in an attempt to explain experimental results at variance with the Standard Model, such as the existence of dark matter and neutrino oscillations.

Keywords: *Eigen values, Eigen state, Electomagnetic force, Schrodinger equation, Lagrangian equation, Gauge group, Fermion field, Leptons, Quarks, Electroweak bosons, Haimovici's model.*

INTRODUCTION—VARIABLES USED

Standard Model

1) This plays a role similar (=) to that of the Schrödinger equation in non-relativistic quantum mechanics, but a Lagrangian is not an equation — rather, it is a polynomial function of the fields and their derivatives.

2) It would be possible to derive a system of differential equations governing the fields from (e) the Lagrangian; it is more common to use other techniques to compute with quantum field theories.

3) The standard model is furthermore a gauge theory, which means (eb) there are degrees of freedom in the mathematical formalism, which do not (e) correspond to changes in the physical state.

4) The gauge group of the standard model is (=)$\mathrm{U}(1) \times \mathrm{SU}(2) \times \mathrm{SU}(3)$, where U(1) acts on B and ϕ, SU(2) acts on W and ϕ, and SU(3) acts on G.

5) The fermion field ψ also transforms (e&eb) under these symmetries, although all of them leave some parts of it unchanged.

The role of the quantum fields

6) In classical mechanics, the state of a system can usually be captured by a small set of variables, and the dynamics of the system is thus determined (e) by the time evolution of these variables.

7) In classical field theory, the field is part of the state of the system, so in order to describe it completely one effectively introduces (eb) separate variables for every point in spacetime (even though there are many restrictions on how the values of the field "variables" may vary from point to point, for example in the form of field equations involving partial derivatives of the fields).

8) In quantum mechanics, the classical variables are turned (e&eb) into operators, but these do not capture the state of the system, which is instead encoded into a wavefunction ψ or more abstract ket vector.

9) If ψ is an eigenstate with respect to an operator P, then(eb) $P\psi = \lambda\psi$ for the corresponding eigenvalue λ

10) The Standard Model describes three of the four fundamental forces in nature; only gravity remains unexplained. In the Standard Model, a force is described as an exchange of bosons between the objects affected, such as a photon for the electromagnetic force and a gluon for the strong interaction. Those particles are called force carriers or messenger particles**.**

NOTATION

Module One

This plays a role similar to that of the Schrödinger equation in non-relativistic quantum mechanics, but a Lagrangian is not an equation — rather, it is a polynomial function of the fields and their derivatives

G_{13} : Category one of Lagrangians

G_{14} : Category two of sas(same as above)

G_{15} : Category three of sas

T_{13} : Category one of **polynomial function of the fields and their derivatives**

T_{14} : Category two of sas

T_{15} : Category three of sas

Module Two

The standard model is furthermore a gauge theory, which means (eb) there are degrees of freedom in the mathematical formalism, which do not (e) correspond to changes in the physical state

G_{16} : Category one of correspondences to changes in the physical state

G_{17} : Category two of sas

G_{18} : Category three of sas

T_{16} : Category one of degrees of freedom

T_{17} : Category two of sas

T_{18} : Category three of sas

Module three

The gauge group of the standard model is (=)$\mathrm{U}(1) \times \mathrm{SU}(2) \times \mathrm{SU}(3)$, where U(1) acts on B and ϕ, SU(2) acts on W and ϕ, and SU(3) acts on G

The fermion field ψ also transforms (e&eb) under these symmetries, although all of them leave some parts of it unchanged

G_{20} : Category one of fermion field ψ ; symmetries of gauge group mentioned above

G_{21} : Category two of sas

G_{22} : Category three of sas

T_{20} : Category one of symmetries of gauge group mentioned above ; fermion field ψ

T_{21} : Category two of sas

T_{22} : Category three of sas

Module four

G_{24} : Category one of fermions; bosons

G_{25} : Category two of sas

G_{26} : Category three of sas

T_{24} : Category one of bosons; fermions

T_{25} : Category two of sas

T_{26} : Category three of sas

Module five

G_{28} : Category one of leptons; anti leptons

G_{29} : Category two of sas

G_{30} : Category three of sas

T_{28} : Category one of anti leptons; leptons

T_{29} : Category two of sas

T_{30} : Category three of sas

Module six

G_{32} : Category one of quarks; anti quarks

G_{33} : Category two of sas

G_{34} : Category three of sas

T_{32} : Category one of anti quarks; quarks

T_{33} : Category two of sas

T_{34} : Category three of sas

Module seven

G_{36} : Category one of leptons; quarks

G_{37} : Category two of sas

G_{38} : Category three of sas

T_{36} : Category one of quarks; leptons

T_{37} : Category two of sas

T_{38} : Category three of sas

Module eight

G_{40} : Category one of up quark; down quark

G_{41} : Category two of sas

G_{42} : Category three of sas

T_{40} : Category one of down quark; up quark

T_{41} : Category two of sas

T_{42} : Category three of sas

Module Nine

G_{44} : Category one of electroweak bosons; electroweak bosons

G_{45} : Category two of sas

G_{46} : Category three of sas

T_{44} : Category one of electroweak bosons; electroweak bosons

T_{45} : Category two of sas

T_{46} : Category three of sas

The Coefficients:

$(a_{13})^{(1)}, (a_{14})^{(1)}, (a_{15})^{(1)},$

$(b_{13})^{(1)}, (b_{14})^{(1)}, (b_{15})^{(1)}$

$(a_{16})^{(2)}, (a_{17})^{(2)}, (a_{18})^{(2)}$

$(b_{16})^{(2)}, (b_{17})^{(2)}, (b_{18})^{(2)}:$

$(a_{20})^{(3)}, (a_{21})^{(3)}, (a_{22})^{(3)},$
$(b_{20})^{(3)}, (b_{21})^{(3)}, (b_{22})^{(3)}$

$(a_{24})^{(4)}, (a_{25})^{(4)}, (a_{26})^{(4)}, (b_{24})^{(4)}, (b_{25})^{(4)}, ($
$, (a_{28})^{(5)}, (a_{29})^{(5)}, (a_{30})^{(5)},$

$(a_{32})^{(6)}, (a_{33})^{(6)}, (a_{34})^{(6)}, (b_{32})^{(6)}, (b_{33})^{(6)}, ($

$(a_{36})^{(7)}, (a_{37})^{(7)}, (a_{38})^{(7)},$

$(b_{36})^{(7)}, (b_{37})^{(7)}, (b_{38})^{(7)}$

$(a_{40})^{(8)}, (a_{41})^{(8)}, (a_{42})^{(8)},$

$(b_{40})^{(8)}, (b_{41})^{(8)}, (b_{42})^{(8)}$

$(a_{44})^{(9)}, (a_{45})^{(9)}, (a_{46})^{(9)},$

$(b_{44})^{(9)}, (b_{45})^{(9)}, (b_{46})^{(9)}$

are Accentuation coefficients

$(a'_{13})^{(1)}, (a'_{14})^{(1)}, (a'_{15})^{(1)},$

$(b'_{13})^{(1)}, (b'_{14})^{(1)}, (b'_{15})^{(1)},$

$(a'_{16})^{(2)}, (a'_{17})^{(2)}, (a'_{18})^{(2)},$

$(b'_{16})^{(2)}, (b'_{17})^{(2)}, (b'_{18})^{(2)}$

$, (a'_{20})^{(3)}, (a'_{21})^{(3)}, (a'_{22})^{(3)}, (b'_{20})^{(3)}, (b'_{21})^{(3)}, ($

$(a'_{24})^{(4)}, (a'_{25})^{(4)}, (a'_{26})^{(4)}, (b'_{24})^{(4)}, (b'_{25})^{(4)}, ($
$(a'_{28})^{(5)}, (a'_{29})^{(5)}, (a'_{30})^{(5)},$

$(a'_{32})^{(6)}, (a'_{33})^{(6)}, (a'_{34})^{(6)}, (b'_{32})^{(6)}, (b'_{33})^{(6)}, ($

$(a'_{36})^{(7)}, (a'_{37})^{(7)}, (a'_{38})^{(7)},$

$(b'_{36})^{(7)}, (b'_{37})^{(7)}, (b'_{38})^{(7)},$

$(a'_{40})^{(8)}, (a'_{41})^{(8)}, (a'_{42})^{(8)},$

$(b'_{40})^{(8)}, (b'_{41})^{(8)}, (b'_{42})^{(8)},$

$(a'_{44})^{(9)}, (a'_{45})^{(9)}, (a'_{46})^{(9)},$

$(b'_{44})^{(9)}, (b'_{45})^{(9)}, (b'_{46})^{(9)},$

are Dissipation coefficients

Module Numbered One

The differential system of this model is now (Module Numbered one)

$\frac{dG_{13}}{dt} = (a_{13})^{(1)} G_{14} - \left[(a'_{13})^{(1)} + (a''_{13})^{(1)} (T_{14}, t) \right] G_{13}$ 1

$\frac{dG_{14}}{dt} = (a_{14})^{(1)} G_{13} - \left[(a'_{14})^{(1)} + (a''_{14})^{(1)} (T_{14}, t) \right] G_{14}$ 2

$\frac{dG_{15}}{dt} = (a_{15})^{(1)} G_{14} - \left[(a'_{15})^{(1)} + (a''_{15})^{(1)} (T_{14}, t) \right] G_{15}$ 3

$\frac{dT_{13}}{dt} = (b_{13})^{(1)} T_{14} - \left[(b'_{13})^{(1)} - (b''_{13})^{(1)} (G, t)$ 4

$\frac{dT_{14}}{dt} = (b_{14})^{(1)} T_{13} - \left[(b'_{14})^{(1)} - (b''_{14})^{(1)} (G, t)$ 5

$\frac{dT_{15}}{dt} = (b_{15})^{(1)} T_{14} - \left[(b'_{15})^{(1)} - (b''_{15})^{(1)} (G, t)$ 6

$+(a''_{13})^{(1)} (T_{14}, t) =$ First augmentation factor

$-(b''_{13})^{(1)} (G, t) =$ First detritions factor

Module Numbered Two

The differential system of this model is now (Module numbered two)

$\frac{dG_{16}}{dt} = (a_{16})^{(2)} G_{17} - \left[(a'_{16})^{(2)} + (a''_{16})^{(2)} (T_{17}, t) \right] G_{16}$ 7

$\frac{dG_{17}}{dt} = (a_{17})^{(2)} G_{16} - \left[(a'_{17})^{(2)} + (a''_{17})^{(2)} (T_{17}, t) \right] G_{17}$ 8

$\frac{dG_{18}}{dt} = (a_{18})^{(2)} G_{17} - \left[(a'_{18})^{(2)} + (a''_{18})^{(2)} (T_{17}, t) \right] G_{18}$ 9

$\frac{dT_{16}}{dt} = (b_{16})^{(2)} T_{17} - \left[(b'_{16})^{(2)} - (b''_{16})^{(2)} \left((G_{19}), t \right) \right] T_{16}$ 10

$\frac{dT_{17}}{dt} = (b_{17})^{(2)} T_{16} - \left[(b'_{17})^{(2)} - (b''_{17})^{(2)} \left((G_{19}), t \right) \right] T_1$ 11

$\frac{dT_{18}}{dt} = (b_{18})^{(2)} T_{17} - \left[(b'_{18})^{(2)} - (b''_{18})^{(2)} \left((G_{19}), t \right) \right] T_1$ 12

$+(a''_{16})^{(2)} (T_{17}, t) =$ First augmentation factor

$-(b''_{16})^{(2)} \left((G_{19}), t \right) =$ First detritions factor

Module Numbered Three

The differential system of this model is now (Module numbered three)

$\frac{dG_{20}}{dt} = (a_{20})^{(3)} G_{21} - \left[(a'_{20})^{(3)} + (a''_{20})^{(3)} (T_{21}, t) \right] G_{20}$ 13

$\frac{dG_{21}}{dt} = (a_{21})^{(3)} G_{20} - \left[(a'_{21})^{(3)} + (a''_{21})^{(3)} (T_{21}, t) \right] G_{21}$ 14

$\frac{dG_{22}}{dt} = (a_{22})^{(3)} G_{21} - \left[(a'_{22})^{(3)} + (a''_{22})^{(3)} (T_{21}, t) \right] G_{22}$ 1

5

$\frac{dT_{20}}{dt} = (b_{20})^{(3)} T_{21} - \left[(b'_{20})^{(3)} - (b''_{20})^{(3)}(G_{23}, t)\right] T_{20}$ 16

$\frac{dT_{21}}{dt} = (b_{21})^{(3)} T_{20} - \left[(b'_{21})^{(3)} - (b''_{21})^{(3)}(G_{23}, t)\right] T_{21}$ 17

$\frac{dT_{22}}{dt} = (b_{22})^{(3)} T_{21} - \left[(b'_{22})^{(3)} - (b''_{22})^{(3)}(G_{23}, t)\right] T_{22}$ 18

$+(a''_{20})^{(3)}(T_{21}, t) =$ First augmentation factor

$-(b''_{20})^{(3)}(G_{23}, t) =$ First detritions factor

Module Numbered Four

The differential system of this model is now (Module numbered Four)

$\frac{dG_{24}}{dt} = (a_{24})^{(4)} G_{25} - \left[(a'_{24})^{(4)} + (a''_{24})^{(4)}(T_{25}, t)\right] G_{24}$ 19

$\frac{dG_{25}}{dt} = (a_{25})^{(4)} G_{24} - \left[(a'_{25})^{(4)} + (a''_{25})^{(4)}(T_{25}, t)\right] G_{25}$ 20

$\frac{dG_{26}}{dt} = (a_{26})^{(4)} G_{25} - \left[(a'_{26})^{(4)} + (a''_{26})^{(4)}(T_{25}, t)\right] G_{26}$ 21

$\frac{dT_{24}}{dt} = (b_{24})^{(4)} T_{25} - \left[(b'_{24})^{(4)} - (b''_{24})^{(4)}((G_{27}), t)\right] T$ 22

$\frac{dT_{25}}{dt} = (b_{25})^{(4)} T_{24} - \left[(b'_{25})^{(4)} - (b''_{25})^{(4)}((G_{27}), t)\right] T$ 23

$\frac{dT_{26}}{dt} = (b_{26})^{(4)} T_{25} - \left[(b'_{26})^{(4)} - (b''_{26})^{(4)}((G_{27}), t)\right] T$ 24

$+(a''_{24})^{(4)}(T_{25}, t) =$ **First augmentation factor**

$-(b''_{24})^{(4)}((G_{27}), t) =$ **First detritions factor**

Module Numbered Five:

The differential system of this model is now (Module number five)

$\frac{dG_{28}}{dt} = (a_{28})^{(5)} G_{29} - \left[(a'_{28})^{(5)} + (a''_{28})^{(5)}(T_{29}, t)\right] G_{28}$ 25

$\frac{dG_{29}}{dt} = (a_{29})^{(5)} G_{28} - \left[(a'_{29})^{(5)} + (a''_{29})^{(5)}(T_{29}, t)\right] G_{29}$ 26

$\frac{dG_{30}}{dt} = (a_{30})^{(5)} G_{29} - \left[(a'_{30})^{(5)} + (a''_{30})^{(5)}(T_{29}, t)\right] G_{30}$ 27

$\frac{dT_{28}}{dt} = (b_{28})^{(5)} T_{29} - \left[(b'_{28})^{(5)} - (b''_{28})^{(5)}((G_{31}), t)\right] T$ 28

$\frac{dT_{29}}{dt} = (b_{29})^{(5)} T_{28} - \left[(b'_{29})^{(5)} - (b''_{29})^{(5)}((G_{31}), t)\right] T$ 29

$\frac{dT_{30}}{dt} = (b_{30})^{(5)} T_{29} - \left[(b'_{30})^{(5)} - (b''_{30})^{(5)}((G_{31}), t)\right] T$ 30

$+(a''_{28})^{(5)}(T_{29}, t) =$ **First augmentation factor**

$-(b''_{28})^{(5)}((G_{31}), t) =$ **First detritions factor**

Module Numbered Six

The differential system of this model is now (Module numbered Six)

$$\frac{dG_{32}}{dt} = (a_{32})^{(6)} G_{33} - \left[(a'_{32})^{(6)} + (a''_{32})^{(6)} (T_{33}, t)\right] G_{32} \quad 31$$

$$\frac{dG_{33}}{dt} = (a_{33})^{(6)} G_{32} - \left[(a'_{33})^{(6)} + (a''_{33})^{(6)} (T_{33}, t)\right] G_{33} \quad 32$$

$$\frac{dG_{34}}{dt} = (a_{34})^{(6)} G_{33} - \left[(a'_{34})^{(6)} + (a''_{34})^{(6)} (T_{33}, t)\right] G_{34} \quad 33$$

$$\frac{dT_{32}}{dt} = (b_{32})^{(6)} T_{33} - \left[(b'_{32})^{(6)} - (b''_{32})^{(6)} ((G_{35}), t)\right] T_{32} \quad 34$$

$$\frac{dT_{33}}{dt} = (b_{33})^{(6)} T_{32} - \left[(b'_{33})^{(6)} - (b''_{33})^{(6)} ((G_{35}), t)\right] T_{33} \quad 35$$

$$\frac{dT_{34}}{dt} = (b_{34})^{(6)} T_{33} - \left[(b'_{34})^{(6)} - (b''_{34})^{(6)} ((G_{35}), t)\right] T_{34} \quad 36$$

$+(a''_{32})^{(6)} (T_{33}, t) =$ **First augmentation factor**

Module Numbered Seven:

The differential system of this model is now (Seventh Module)

$$\frac{dG_{36}}{dt} = (a_{36})^{(7)} G_{37} - \left[(a'_{36})^{(7)} + (a''_{36})^{(7)} (T_{37}, t)\right] G_{36} \quad 37$$

$$\frac{dG_{37}}{dt} = (a_{37})^{(7)} G_{36} - \left[(a'_{37})^{(7)} + (a''_{37})^{(7)} (T_{37}, t)\right] G_{37} \quad 38$$

$$\frac{dG_{38}}{dt} = (a_{38})^{(7)} G_{37} - \left[(a'_{38})^{(7)} + (a''_{38})^{(7)} (T_{37}, t)\right] G_{38} \quad 39$$

$$\frac{dT_{36}}{dt} = (b_{36})^{(7)} T_{37} - \left[(b'_{36})^{(7)} - (b''_{36})^{(7)} ((G_{39}), t)\right] T_{36} \quad 40$$

$$\frac{dT_{37}}{dt} = (b_{37})^{(7)} T_{36} - \left[(b'_{37})^{(7)} - (b''_{37})^{(7)} ((G_{39}), t)\right] T_{37} \quad 41$$

$$\frac{dT_{38}}{dt} = (b_{38})^{(7)} T_{37} - \left[(b'_{38})^{(7)} - (b''_{38})^{(7)} ((G_{39}), t)\right] T_{38} \quad 42$$

$+(a''_{36})^{(7)} (T_{37}, t) =$

First augmentation factor

Module Numbered Eight

The differential system of this model is now

$$\frac{dG_{40}}{dt} = (a_{40})^{(8)} G_{41} - \left[(a'_{40})^{(8)} + (a''_{40})^{(8)} (T_{41}, t)\right] G_{40} \quad 43$$

$$\frac{dG_{41}}{dt} = (a_{41})^{(8)} G_{40} - \left[(a'_{41})^{(8)} + (a''_{41})^{(8)} (T_{41}, t)\right] G_{41} \quad 44$$

$$\frac{dG_{42}}{dt} = (a_{42})^{(8)} G_{41} - \left[(a'_{42})^{(8)} + (a''_{42})^{(8)} (T_{41}, t)\right] G_{42} \quad 45$$

$$\frac{dT_{40}}{dt} = (b_{40})^{(8)} T_{41} - \left[(b'_{40})^{(8)} - (b''_{40})^{(8)} ((G_{43}), t)\right] T_{40} \quad 46$$

$$\frac{dT_{41}}{dt} = (b_{41})^{(8)} T_{40} - \left[(b'_{41})^{(8)} - (b''_{41})^{(8)} ((G_{43}), t)\right] T_{41} \quad 47$$

$\frac{dT_{42}}{dt} = (b_{42})^{(8)} T_{41} - [(b'_{42})^{(8)} - (b''_{42})^{(8)}((G_{43}), t)]T_{4}$ 48

Module Numbered Nine

The differential system of this model is now

$\frac{dG_{44}}{dt} = (a_{44})^{(9)} G_{45} - [(a'_{44})^{(9)} + (a''_{44})^{(9)}(T_{45}, t)]G_{4}$ 49

$\frac{dG_{45}}{dt} = (a_{45})^{(9)} G_{44} - [(a'_{45})^{(9)} + (a''_{45})^{(9)}(T_{45}, t)]G_{4}$ 50

$\frac{dG_{46}}{dt} = (a_{46})^{(9)} G_{45} - [(a'_{46})^{(9)} + (a''_{46})^{(9)}(T_{45}, t)]G_{4}$ 51

$\frac{dT_{44}}{dt} = (b_{44})^{(9)} T_{45} - [(b'_{44})^{(9)} - (b''_{44})^{(9)}((G_{47}), t)]$ 52

$\frac{dT_{45}}{dt} = (b_{45})^{(9)} T_{44} - [(b'_{45})^{(9)} - (b''_{45})^{(9)}((G_{47}), t)]$ 53

$\frac{dT_{46}}{dt} = (b_{46})^{(9)} T_{45} - [(b'_{46})^{(9)} - (b''_{46})^{(9)}((G_{47}), t)]$ 54

$+(a''_{44})^{(9)}(T_{45}, t) =$ **First augmentation factor**

First Detrition factor

DISCUSSIONS AND CONCLUSIONS

Above equational formalism predicts the interactions that occur in the standard model.. These equations thus form the bastion, pillar and post to the prediction, projection and prognostication of the parameters involved. In fact, there are mathematical issues regarding quantum field theories still under debate (see e.g. Landau pole), but the predictions extracted from the Standard Model by current methods applicable to current experiments are all self-consistent. For a further discussion see e.g. Chapter 25 of R. Mann (2010). An Introduction to Particle Physics and the Standard Model. CRC Press. ISBN 978-1-4200-8298-2. From these equations, stability analysis , solutional behaviour and asymptotic analysis can be derived. Accentuation of the matter in the addendum or appendix applies to earlier papers and so the further corroborations thereof. .it is not time for physicists to call it a day just yet. Even though the Standard Model is currently, the best description there is of the subatomic world, it does not explain the complete picture. The theory incorporates only three out of the four fundamental forces, omitting gravity. Spatial, temporal and financial restrictions have made us shorten the length and reproduction of earlier papers with the new additions in the augmented dovetail of explanation. This true for all models irrespective of the fact they belong to Cosmology, Physics, Mathematics, Economics, Finance, Psychology, Quantum Mechanics and Quantum computation, Political Science, Sociology or Philosophy. In reality these are extensions of some of the properties that have been studied at the first instance. Further augmentations also should be read with earlier papers. As said, earlier, due to stringent restrictions on finance and space, time, we have not been able to reprocess the earlier papers with newer acrostications. Furthermore Accentuation Attritions models which are an extension of Haimovici's model can be applied to those models which have been extended to economics finance or cosmology. In the following papers we further show that models like that of Nunney, Lotka Volterra ,could be applied to various cosmological and quantum computational problems. In ONE SENSE upon application to quantum physics, accentuation and attrition coefficients could be interpreted as consciousness, which is responsible for the collapse of wave function. It is to be stated in unequivocal and unmistakable terms that the accentuation attritions can be applied to each sentences from which the abstracts are taken, unless there is no time anomaly. We have not been able to do such an application process attributable to the restraints of space, time and situational and financial stringencies, exigencies and expediencies. What is to immensely stressed and emphasized is that accentuation attrition models can be applied to the various predator prey models leading on a entire superstructure, what has been taken out of the predator models forms a situation when there might be possibility when a single source could be the source for which various other preys are fighting for. In other words, a single source could be both a predator or prey./ For instance a cash credit account could be used to debit the inland bills received in respect of corporate finance, and other hand credit is issued to this account upon purchase of demand bills or discount of usance bills. Webb's model counters such a situation. In the eventuality that a transaction such as predator or prey does not exist, such a transaction is zero, and the calculation done. This it is to be reiterated in addition to the application of accentuation attrition models to predator prey model which has to be taken in to consideration on par with other studies in cosmology as is in this paper or quantum computation or quantum mechanics in the other. It is in taking in to consideration an 18-tier model is given for the evaluation of such processes. At the generalisation level, the predator eats the plants and fruits and the products generated by the earth towards the end of procreation. Notwithstanding these points which have been exemplified and illustrated exhaustively in various papers, has to be borne in mind whenever such questions of cosmological problems which can be easily analysed using Feynman's diagrams are dealt with. Best example is that Hawking thermal radiation and Green House effects studied extensively in various letters. In places where the predator formalism calls for improvement rather than transformation, we have taken the velocity of the quantity in question. Optimization problems where discussed refers to the optimisation of the transactions and interactions mentioned in the modules. Sine qua non models consummate some of the outstanding issues mentioned in the Accentuation Attrion model format spread out, raising points that are of consistent in nature to the thematic and discursive form and solves the issues within the ambit of the framework, by the application of the various models in literature. Various optimization problems are concatenated by the same thematic and discursive thread as the accentuation attrition models are and the consummated equations of the corresponding concatenation are not written attributed to the fact such elaboration and enucleation would take too much of space and time and might make the sole intention, primary objection elusive. Optimization problems are not applicable to all the statements. A statement, which involves maximization or minimization of the variable, is to be discerned and circumspectively applied with towards discreet corporation of an the optimization problem, which again gets related by virtue of accentuation attrition models applied earlier. Such concatenations, corresponding similarities, and congruent singularities help for application of games Theory and control engineering, which are necessary to incorporate such variables as threats, deterrence and pre commitment. It is to be noted in explicit terms that analysis and calculation holds good for cases wherein partial differential is used ,and equations like Schrodinger's equation, wherein velocity of the wave is multiplied by wave function. Gauge theories like Yang–Mills theories met with general acceptance in the physics community after Gerard 't Hooft, in 1972, worked out their renormalization, relying on a formulation of the problem worked out by his advisor Martinus Veltman. (Their work[26] was recognized by the 1999 Nobel prize in physics.) Renormalizability is obtained even if the gauge bosons described by this theory are massive, as in the electroweak theory, provided the mass is only an "acquired" one, generated by the Higgs mechanism.

Concerning the mathematics, it should be noted that the Yang–Mills theory is a very active field of research, yielding e.g. invariants of differentiable structures on four-dimensional manifolds via work of Simon Donaldson. Furthermore, the field of Yang–Mills theories was included in the Clay Mathematics Institute's list of "Millennium Prize Problems". Here the prize-problem consists, especially, in a proof of the conjecture that the lowest excitations of a pure Yang–Mills theory (i.e. without matter fields) have a finite mass-gap with regard to the vacuum state. Another open problem, connected with this conjecture, is a proof of the confinement property in the presence of additional Fermion particles. In physics the survey of Yang–Mills theories does not usually start from perturbation analysis or analytical methods, but more recently from systematic application of numerical methods to lattice gauge theories.

CHALLENGES AHEAD

Self-consistency of the Standard Model (currently formulated as a non-abelian gauge theory quantized through path-integrals) has not been mathematically proven. While regularized versions useful for approximate computations (for example lattice gauge theory) exist, it is not known whether they converge (in the sense of S-matrix elements) in the limit that the regulator is removed. A key question related to the consistency is the Yang–Mills existence and mass gap problem. Experiments indicate that neutrinos have mass, which the classic Standard Model did not allow.[35] To accommodate this finding, the classic Standard Model can be modified to include neutrino mass. If one insists on using only Standard Model particles, this can be achieved by adding a non-renormalizable interaction of leptons with the Higgs boson.[36] On a fundamental level, such an interaction emerges in the seesaw mechanism where heavy right-handed neutrinos are added to the theory. This is natural in the left-right symmetric extension of the Standard Model[37][38] and in certain grand unified theories.[39] As long as new physics appears below or around 1014 GeV, the neutrino masses can be of the right order of magnitude. Theoretical and experimental research has attempted to extend the Standard Model into a Unified field theory or a Theory of everything, a complete theory explaining all physical phenomena including constants. Inadequacies of the Standard Model that motivate such research include: The model does not explain gravitation, although physical confirmation of a theoretical particle known as a graviton would account for it to a degree. Though it addresses strong and electroweak interactions, the Standard Model does not consistently explain the canonical theory of gravitation, general relativity, in terms of quantum field theory. The reason for this is, among other things, that quantum field theories of gravity generally break down before reaching the Planck scale. As a consequence, we have no reliable theory for the very early universe. Some physicists consider it to be ad hoc and inelegant, requiring 19 numerical constants whose values are unrelated and arbitrary.[40] Although the Standard Model, as it now stands, can explain why neutrinos have masses, the specifics of neutrino mass are still unclear. It is believed that explaining neutrino mass will require an additional 7 or 8 constants, which are also arbitrary parameters. The Higgs mechanism gives rise to the hierarchy problem if some new physics (coupled to the Higgs) is present at high energy scales. In these cases, in order for the weak scale to be much smaller than the Planck scale, severe fine tuning of the parameters is required; there are, however, other scenarios that include quantum gravity in which such fine tuning can be avoided.[41] There are also issues of Quantum triviality, which suggests that it may not be possible to create a consistent quantum field theory involving elementary scalar particles. The model is inconsistent with the emerging "Standard Model of cosmology". More common contentions include the absence of an explanation in the Standard Model of particle physics for the observed amount of cold dark matter (CDM) and its contributions to dark energy, which are many orders of magnitude too large. It is also difficult to accommodate the observed predominance of matter over antimatter (matter/antimatter asymmetry). The isotropy and homogeneity of the visible universe over large distances seems to require a mechanism like cosmic inflation, which would also constitute an extension of the Standard Model.

A theory of everything is yet to be formulated. .

REFERENCES

I. R. Oerter (2006). The Theory of Almost Everything: The Standard Model, the Unsung Triumph of Modern Physics (Kindle ed.). Penguin Group. p. 2. ISBN 0-13-236678-9.

II. G.S. Guralnik; C.R. Hagen; T.W.B. Kibble (1964). "Global Conservation Laws and Massless Particles". Physical Review Letters. 13 (20): 585–587.

Bibcode:1964PhRvL..13..585G. doi:10.1103/PhysRevLett.13.585.

III. F.J. Hasert; et al. (1973). "Search for elastic muon-neutrino electron scattering". Physics Letters B. 46 (1): 121. Bibcode:1973PhLB...46..121H. doi:10.1016/0370-2693(73)90494-2.

IV. F.J. Hasert; et al. (1973). "Observation of neutrino-like interactions without muon or electron in the Gargamelle neutrino experiment". Physics Letters B. 46 (1): 138. Bibcode:1973PhLB...46..138H. doi:10.1016/0370-2693(73)90499-1.

V. Sean Carroll, Ph.D., Caltech, 2007, The Teaching Company, Dark Matter, Dark Energy: The Dark Side of the Universe, Guidebook Part 2 page 59, Accessed Oct. 7, 2013, " Standard Model of Particle Physics: The modern theory of elementary particles and their interactions ... It does not, strictly speaking, include gravity, although it's often convenient to include gravitons among the known particles of nature "

VI. S.L. Glashow (1961). "Partial-symmetries of weak interactions". Nuclear Physics. 22 (4): 579–588. Bibcode:1961NucPh..22..579G. doi:10.1016/0029-5582(61)90469-2.

VII. C. Alt; NA49 Collaboration (2008). "Pion and kaon production in central Pb+Pb collisions at 20A and 30A GeV: Evidence for the onset of deconfinement". Physical Review C. 77 (2): 024903. arXiv:0710.0118 Freely accessible. Bibcode:2008PhRvC..77b4903A. doi:10.1103/PhysRevC.77.024903.

VIII. I. Kuznetsova; J. Rafelski (2006). "Heavy Flavor Hadrons in Statistical Hadronization of Strangeness-rich QGP". European Physical Journal C. 51: 113. arXiv:hep-ph/0607203 Freely accessible. Bibcode:2007EPJC...51..113K. doi:10.1140/epjc/s10052-007-0268-9.

IX. N. Armesto; et al. (2008). "Heavy-ion collisions at the LHC—Last call for predictions". Journal of Physics G. 35 (5): 054001. arXiv:0711.0974 Freely accessible. doi:10.1088/0954-3899/35/5/054001.