

## THE UNIFIED THEORY: A complete paradigm shift in Physics & Cosmology Book Abstract

This book on Unified Theory is an update on the 1990 book-‘Unified Physical Theory’ and 2002 book-*Realistic Foundations of Physics & Cosmology*. In a paradigm shift Unified Theory (UT) presents the grandest ever ‘unified’ replacement for the Relativity, Quantum, Quark-lepton, Higgs, Electroweak, Supersymmetry, String & Big Bang theories. Light-wave propagates in the new sharmon medium (SM) as a kinetic gas, composed by sharmon, as the basic substance composing all forms of energy  $E$  & mass  $m$  for their inter-conversions via  $E= mc^2$ . The existence of Sharmon Medium is supported by the experiments of Young, Fresnel, Sagnac & Dayton Miller. Sharmon comprises elementary +ve positrino and -ve negatrino called cosminos. UT has two elements (positrino, negatrino), two charges (mass, electric) and two forces (gravitational, electromagnetic). The quark-lepton theory with Supersymmetry has over 200 elementary particles none of which satisfies the definition of ‘element’ that composes other particles but is itself non-composite. Cosmino mass is innate. Massless and mass generating particles (Higgs) do not exist. It is predicted that the Geneva based Large Hadron Collider will not find the Higgs boson. UT rejects weak & color charges; weak & strong forces and also strings.

Space & time are abstract concepts evolving from our life-long perceptions of successive motions & changes in surroundings. These two abstracts cannot fuse into any concrete spacetime continuum. UT discards 4-D and higher dimensional spacetime continua as mere mathematical constructs bereft of any physical existence. Theories based on them are unrealistic.

UT explains General Relativity's bending of light due to gravity and constancy & invariance to source-observer motion of light velocity  $c$ , the two postulates of Special Relativity, as also observed variability of  $c$  and superluminality, which invalidate relativity theories. UT explains wave-quantum unity for light which splits into QT's wave-or-quantum dualities due to experimental limitations to observe only one of the wave & quantum characters at a time not both simultaneously. UT opposes relativity's contraction of objective length or dilation of objective time due to observer motion, massless photon & neutrino and sizeless basic particles. It rejects QT's Uncertainty Principle and proposes the new Principle of Null Action with universal applications. No fermion, neutron or neutrino, is electrically neutral.

In a universe expanding as per Big Bang or Steady State theory redshifts should increase exponentially with time which is not actually observed. In UT's Non-expanding Universe redshift is caused by non-Doppler depletion of photonic energy due to viscous, gravitational & EM losses; cosmological observations, even on Ia type Supernovae that amazed astronomers, are explained.

This present book will serve as a source to revise the textbooks at the University, College & School levels and will interest the teachers, research scholars and students of Physics, Astrophysics, Cosmology &c. The book is worth translation into all major languages of the world.

**About the Author**

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He can assume alpha & theta brain wave states at will as tested by Dr. Almer Green, past Director, Menninger Foundation, USA. Supervisor of his Ph.D. (London) thesis Prof. J.F. Fowler certified him as “definitely one of the brightest physicists working in Medical Physics anywhere in the world”. He did B.Sc. (1952) and M.Sc. (Phys., 1954) of Agra Univ. from Meerut College. Got allround training in Nuclear Medicine at Hammersmith Hospital, London and started it for teaching, diagnosis, therapy & research at PGI in April 1969. Past President, Indian Acad. of Med. Phys., Soc. of Nuclear Med.(India), Assoc. for Scient. Research in Homoeopathy and Chief Editor, J. of Homoeopathy of North India. He contested the 1990 Physics Nobel Laureates’ claim of revealing non-composite quarks; compositeness of quarks predicted by him was experimentally confirmed in 1991. With his new Theory of Non-expanding Universe contested the basis of 2006 Physics Nobel Prize, supporting the not provable Big Bag theory. Observed Neutron’s negative Electric Dipole Moment agrees with that calculated from his theory, supporting his prediction that no Fermion is neutral. His controlled drug trials on human patients, rats and mice established the efficacy of the high potency homoeomedicines with no molecule of the original drug, removing the perennial impasse created by Avogadro’s law. To elucidate the science of Homoeopathy he proposed new sciences of *Inductive Chemistry*, *Xenobiology* & *Inductoxenopathy*, also *Navayurveda*: a judicious mix of Homoeopathy, Allopathy & Yoga. For 1984-book *Molecular Homoeopathy* & these researches the Open Internl. Univ. for Complementary Med. awarded him D.Sc., M.D. (M.A.) and 1989-Albert Schweitzer prize. New Hope Seekers Society, Dehradun gave Nation Builders Award 2007 for his contributions to Med. Phys. & Nucl. Medicine. He has co-guided several PhD, MD & MS theses and authored over 200 original communications and 8 books. Theories proposed include Unified Theory, Principle of Null Action, Molecular Intelligence, Molecular Homoeopathy, Non-Darwinian Intraspecies Evolution, Gene inclusion & gene exclusion principles, Hook’s law mediated nuclear force, unified Gravitoelectromagnetic basic force/field.

## Prologue

## Essentials of an Acceptable Theory of Science

## Chapter-1

## THE STANDARD MODELS

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Abstract: Modern Standard Model (MSM) discards the physical space medium for light wave and uses multi-dimensional spacetime continua, which Unified Theory rejects as mere mathematical constructs bereft of physical existence. Its real Sharmon Medium in space is composed by the new particle 'sharmon' made of a +ve positrino and a -ve negatrino. It propagates light and is the all-composing & all-pervading 'basic substance'. Its inter-sharmon distance of  $\sim 10^{-5}$  cm compares with Mean Free Path for the real gasses. It contains  $10^{15}$  sharmons/cm<sup>3</sup> and its mass density is  $5.19 \times 10^{-33}$  gm/cm<sup>3</sup>. The MSM with Supersymmetry has over 200 basic particles but none is 'element', which composes other particles and itself is non-composite. Unified Theory (UT) has two elements named 'cosmino', (+ve positrino, -ve negatrino), two basic charges (mass, electric) and two basic forces (gravitational, electromagnetic). Cosminos have diameter  $1.6156 \times 10^{-33}$  cm, mass  $2.596 \times 10^{-48}$  gm and electric charge  $\pm 1.3729 \times 10^{-30}$  esu. In Unified Theory cosmino mass & charge are innate. So massless and mass or charge generating particles like Higgs and space vortices & toroids are nonexistent. In a universe expanding as Big Bang or Steady State theory the cosmic redshifts should increase exponentially with time, which is not observed. So the Universe is NOT expanding. UT's non-expanding universe explains all cosmic observations, even on Ia type supernovae, which had amazed the astronomers.

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## Chapter-2

## A REAPPRAISAL OF THE EINSTEIN MODEL

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ABSTRACT: A wave exists only in its propagating medium but Einstein erred to discard the medium for 'light-wave' and introduce 4-D spacetime continuum. It denied him the chance to address wave-quantum Unity of light and to predict the existence of 'basic substance' to compose all forms of E & m so compellingly demanded by  $E=mc^2$ , otherwise E & m could not interconvert. Unified Theory gives convincing arguments and experimental support for the existence of a real physical medium in space viz. 'sharmon medium' as the all-

## Author's Preview

composing and all-pervading 'basic substance', which propagates light as a Wave-Quantum UNITY. The non-substantive abstract concepts of space & time arise from the perceptions of successive motions & changes in the surrounding objects and cannot fuse into any concrete spacetime continuum. All spacetime continua of 4 to 32 dimensions are non-existent mathematical constructs and theories based on them are unrealistic. Unified Theory explains Michelson-Morley & Sagnac experiments and constancy and invariance to source-observer motion of  $c$ , the two axiomatic postulates of Special Relativity, as also the observed variability of light velocity  $c$  and superluminality which *invalidate* Relativity. Lorentz formulae do not describe any natural velocity which varies (like  $v$ ) with and is invariant (like  $c$ ) to source-observer motion at the same time. And a real event, viewed by say, 100 differently moving observers cannot undergo 100 different objective alterations at the same time. This makes 'contraction of length' and 'dilation of time' unrealistic. Unified Theory explains Photoelectric Effect and Bending of Light in a Gravitational field. As against Relativity, no particle or energy quantum is massless or sizeless point.

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### Chapter-3

#### THE NATURE OF VACUUM & SPACE MEDIUM

ABSTRACT: In 4<sup>th</sup> century BC Aristotle taught "Nature abhors vacuum". According to 17<sup>th</sup> century views vacuum could be created by removing all solids, liquids & gases and in 19<sup>th</sup> century by removing the radiation by cooling the space empty of all solids, liquids & gases. Einstein in 20<sup>th</sup> century dismissed any physical medium in space. In 21<sup>st</sup> century the real sharmon medium in space of the Unified Theory is irremovable by any means because the sharmons of  $1.6 \times 10^{-33}$  cm diameter can pass through the inter-atomic space and between the orbital electrons of any solid. So the absolute vacuum with empty space cannot be created.

### Chapter-4

#### THE BASIC SUBSTANCE & ELEMENTS

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ABSTRACT: An element composes other particles but it itself is non-composite. The basic substance composes all and it itself is composed by the basic element(s). The Modern Standard Model with Supersymmetry has over 200 basic particles but none of them meets the

definition of 'element'. Equation  $E=mc^2$  compellingly needs a 'basic substance' composing all forms of energy  $E$  & mass  $m$ , otherwise  $E$  &  $m$  could not interconvert. Existence of the physical *Sharmon Medium* propagating light is supported by cogent scientific logic and the work of Young, Fresnel & Sagnac on interference or diffraction of light and Dayton Miller's 'light-medium drift'. It is the all-composing and all-pervading 'basic substance' composed by the new particle 'sharmon', which comprises a positive *positrino* & a negative *negatrino*, the two basic elements named *cosmino* for composing all in the Cosmos. Cosminos' electric charge is  $\pm 1.37 \times 10^{-30}$  esu; mass  $2.596 \times 10^{-48}$  gm & spin  $\pm \frac{1}{2}$ . Sharmon's mass is  $5.192 \times 10^{-48}$  gm, spin 0 & 1. Cosminos compose all forms of energy & mass, particles of matter and energy-quanta. Mass & charge of a cosmino are innate; so massless and mass or charge generating particle, like Higgs and space vortex & space toroid are non-existent. An element is singly charged since multiple charges imply that many constituents. Cosmino's *gravitoelectric* single unified charge manifests as mass & electric charge via mutual feeling of gravitational and electromagnetic fields, which also unify into a single *gravitoelectromagnetic* field. No particle or energy quantum is massless or sizeless point or 'virtual' (unreal); neutrinos have mass, size & electric charge. Cosmino compositions of quarks, leptons, neutrinos and photon have been worked out.

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## Chapter-5

### NATURE OF THE SHARMON MEDIUM

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ABSTRACT: Existence of the Unified Theory's real sharmon medium in space is supported by cogent logic, experiments of Young, Fresnel & Sagnac on the interference and/or diffraction of light and Dayton Miller's observations of positive 'light-medium drift'. It is composed by the new particle 'sharmon' comprising a +ve positrino and a -ve negatrino, the two elementary cosminos. The sharmon and cosminos compose all forms of mass, energy, particles of matter & antimatter and energy quanta. The sharmon with  $1.6 \times 10^{-33}$  cm diameter can pass through inter-atomic spaces and between orbital electrons. As a kinetic gas, the sharmon medium is all-pervading and irremovable by any means, ruling out creation of absolute vacuum. Its number density is  $10^{15}$  sharmons per  $\text{cm}^3$ , mass density  $5.19 \times 10^{-33}$   $\text{gm.cm}^{-3}$ , shear elasticity  $4.68 \times 10^{-12}$   $\text{dyne/cm}^2$  and viscosity  $0.57 \times 10^{-22}$   $\text{dyne.sec/cm}^2$ . Its inter-sharmon distance of  $\sim 10^{-5}$  cm compares with Mean Free Path for

the real gasses e.g.  $1.12 \times 10^{-5}$  cm for Hydrogen. It explains creation & annihilation of  $e^-e^+$  and particle-antiparticle pairs. It is the *absolute reference frame* and light propagation is an *absolute motion*.

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### Chapter-6

#### NATURE OF THE ELECTROMAGNETIC FORCE, FIELD, WAVE & RADIATION

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**ABSTRACT:** A single experiment shows *wave-quantum* unity for the low intensity light and for moving electrons. Special Relativity & Quantum Theory, the two major current theories of light stand apart because the authors of both were admittingly unclear about the intrinsic wave-quantum unity of light and the medium for light wave. In Unified Theory the electromagnetic radiation, including light, is propagated in the sharmon medium as a wave-quantum UNITY as opposed to Quantum Theory's wave-or-quantum DUALITY. The 0-spin sharmon-packet energy *quantum* per unit frequency cycle is propagated along a transverse electromagnetic *wave in sharmon medium* contiguously via 1-spin sharmons, which do not move about their mean positions. The propagating 1-spin sharmon returns to its 0-spin state on transferring the wave energy quantum to the contiguous neighbour in the medium and finally to the target. Since the spin of an emitter does not fall by 1 and/or that of an absorber does not rise by 1, what is emitted or absorbed or propagated is NOT the 1-spin photon but only its energy comprising 0-spin sharmons. Energized 1-spin sharmon replaces the 1-spin photon. The time-containing and time-free wave equations propagating wave-quantum unity of radiation and matter (unexplained in Quantum Theory) are derived. Photoelectric effect and interference of light are re-explained and Maxwell equations re-deduced.

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### Chapter-7

#### NATURE OF THE GRAVITATIONAL FORCE, FIELD, WAVE & RADIATION

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**ABSTRACT:** Newton discovered the law of universal gravitation in 1665 after observing the fall of the legendary apple. Einstein's General Relativity in 1916 linked the gravitational field with the curvature of, and gravity waves with the ripples in, the 4-dimensional spacetime continuum. In Unified Theory gravitation is an interactive attraction of the test mass-body with the ambient sharmon medium and through it

with all other mass-bodies, the gravitational mass of the elementary cosminos (positrino & negatrino) composing the mass bodies as well as the sharmons of the sharmon medium thus serve as both the cause and mediator of the gravitostatic force and field operating within and through the sharmon medium. Every mass body is composed by electrons, protons & neutrons each having  $10^{20-23}$  cosmino-sharmon constituents thereby allowing for inherent compositional fluctuations via emission and absorption of small cosmino-sharmon units. The  $1.6 \times 10^{-33}$  cm diameter sharmons of the sharmon medium pass through inter-atomic spaces and between orbital electrons to enter a mass-body for intimate gravitational interaction between the cosminos composing the mass-body and the surrounding sharmon medium and through it with all other mass-bodies. The gravitational wave energy comprising 0-spin sharmons is propagated as a Wave-Quantum UNIT of one cycle and one wavelength length in the sharmon medium via contiguous mechanism through 2-spin gravitons, which do not move from their mean positions. Since 0-spin sharmons compose all forms of neutral mass and energy the gravitational and inertial masses identical. General-relativity equation for bending of light in a gravitational field is re-deduced from sharmon medium.

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## Chapter-8

### UNIFICATION OF THE FUNDAMENTAL FORCES & FIELDS

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**ABSTRACT:** An element, being non-composite, should have a single charge to give it isotropic and homogeneous properties throughout its whole. Multiple charges imply that many constituents and attraction among them is anti-intuitive. Cosmino's mass & electric charge inseparably unify into a single *gravitoelectric* charge or the cosmino itself. The primal unified *gravitoelectromagnetic* force/field manifests as gravitational & electromagnetic force & field by feeling and being felt by the manifested mass & electric charge in the cosminos composing the sharmons in the sharmon medium. The electromagnetic and gravitational waves have same velocity since the mediating cosmino mass & electric charge are inseparable. Effect of super-imposed magnetic field on neutron's negatron decay is explained without Electroweak Theory's weak charge and  $W^\pm$  &  $Z^0$  particles. The propagation of  $\frac{1}{2}$ -spin neutrino, Dirac equation & Klein-Gorden equation are re-deduced.

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## Chapter-9

**A REAPPRAISAL OF RELATIVITY THEORIES**

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Abstract: The non-substantive space & time are abstract concepts evolving from our perceptions of the successive motions & changes in the surroundings. These two abstracts cannot fuse into Relativity's concrete 'spacetime' continuum, which is non-existent. The Lorentz formulae do not describe any natural motion since no real velocity can at the same time vary (like  $v$ ) with, and be invariant (like  $c$ ) to, the source-observer motion. Moreover, no natural event observed by 100 differently moving observers can undergo 100 objective changes in length & time intervals simultaneously. So 'contraction of length' & 'dilation of time' derived from them are unreal. The Unified Theory's real sharmion medium in space is supported by cogent logic backed by the work of Young, Fresnel & Sagnac on the interference & diffraction of light and Dayton Miller's observed more than zero 'medium drift'. Unified Theory explains constancy and invariance to source observer motion of  $c$ , the two postulates of Special Relativity. The observed variability of  $c$ , which invalidates Relativity, is consistent with Unified Theory.

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## Chapter-10

**REAPPRAISAL OF THE QUANTUM THEORY**

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Abstract: Relativity and Quantum Theories are erroneously based on "what can be known or observed", instead of on "what actually there is", in the objective reality. For Heisenberg wave and particle were too exclusively different in properties, making the intrinsic wave-quantum unity of light impossible to visualize and describe. He invented mathematical Quantum Theory to circumvent visualization & inadequacy of language. But mathematics too is a language to supplement description. He used it to superimpose hidden concepts leading to the Uncertainty Principle. In Unified Theory the wave & particle aspects of electromagnetic radiation and moving material

particle coexist blended together as wave-quantum UNITY. This is also supported by experiments. The wave-or-quantum DUALITIES of Quantum Theory appear due to experimental limitations to observe only one and not both of the two aspects simultaneously. Conservation of mass & momentum are inviolable. Matter's creation from, or dissolution into, 'nothing' is unrealistic. So the Heisenberg's Uncertainty Principle is rejected as unrealistic and new Principle of Null Action with universal applications is introduced, which is based on causality and conservations of mass-energy, momentum and action. The Copenhagen interpretation of Quantum Theory is reappraised critically and falsified.

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### Chapter-12

#### COMPOSITION-STRUCTURE OF BASIC PARTICLES

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**Abstract:** An element is non-composite but composes other particles. The elementary quarks & leptons of the Modern Standard Model are found to be compressible and assemblable, hence having composition. These in Unified Theory are composed by two elementary cosminos: positrino & negatrino. The cosmino-sharmon composition-structures of electron, proton and neutron presented for the first time are defined by concentric regions and Form Factors for spatial distribution of constituents. It is shown that no Fermion can be neutral. Electric Dipole Moment of neutron  $-5.83 \times 10^{-45}$  esu.cm calculated from Unified Theory agrees with observations. An almost neutral neutron emits electron, never positron, because its outer region is negative. Hofstadter's positive outer region in neutron is inconsistent with negatron decay. A new Hook's law mediated short-range nuclear force is suggested.

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### Chapter-13

#### THE THEORY OF THE NON-EXPANDING & NON-CONTRACTING UNIVERSE

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**Abstract:** In a universe expanding as per the Big Bang or Steady State theory the cosmic redshifts should increase exponentially with time, which is not actually observed. So the universe is NOT expanding. In

the non-expanding universe the total energy-mass content is eternally conserved with NO 'initial creation of matter from nothing' in a single big explosive event of the Big Bang theory or continuously as in the Steady State theory. The cosmic redshift is caused, not by Doppler effects of receding velocities of stellar light sources in an expanding universe but, by depletion of photon energy during long passage through the sharmon medium due to non-Doppler effects of gravitational, electromagnetic & viscous losses. Predicted Hubble constant agrees with observations. The Cosmic radiation background follows naturally. A plausible explanation is given to the observation on Ia type supernovae, which has amazed & horrified the astronomers. There is no antigravity force permeating space and no likelihood for the universe to become empty ever in future. Halton Arp's observations on the 'ejection of galaxy companion' are explained. Dark energy and dark matter are related to the 0-spin Sharmon medium. Initial creation of material particles & radiation is outlined.

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## CHAPTER-14

## A REAPPRAISAL OF THE STRING THEORIES

## CHAPTER-15

## PRINCIPLE OF NULL ACTION

## Appendix-3

Text of the interview given by Prof. Dr. Rati Ram Sharma to the Press Trust of India on November 4, 1990 contesting the findings of 1990- Nobel Physics Prize winners.

## Appendix-4

Press Statement dated 10<sup>th</sup> October 2006 contesting the basis of the 2006 Physics Nobel Prize

## Appendix-5

Press Statement dated 15th September 2008 doubting the success of the Large Hadron Collider experiment

WILL LHC SUCCEED?

THE DISTURBING TRUTHS ABOUT LARGE HADRON COLLIDER

**Prof. Rati Ram Sharma**