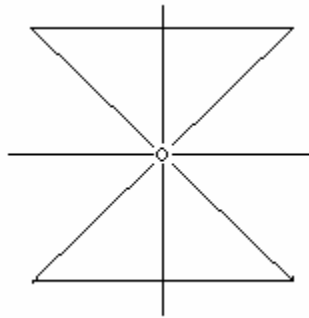


# OBSERVER PHYSICS

## A NEW PARADIGM



by

Douglass A. White, Ph.D.

Edition: 05.05.25

E-Published

by

**DeltaPoint Educational Technologies**

website: [www.dpedtech.com](http://www.dpedtech.com)

[dpedtech@dpedtech.com](mailto:dpedtech@dpedtech.com)

[deltapt @ ms19.hinet.net](mailto:deltapt@ms19.hinet.net)

(c) Douglass A. White, 2002, 2003, 2005.

All Rights Reserved

## Dedication

In this series of essays I introduce some of the principles of a new paradigm that I call Observer Physics. This discourse represents a step toward the fulfillment of a dream that began for me many years ago in high school. At that time I read a number of books about physics and cosmology that stirred my interest in the nature of the world we live in. One book that I particularly remember was George Gamov's **One, Two, Three . . . Infinity**. Another source of inspiration for me was the magazine, **Scientific American**.

I felt the excitement and adventure of the scientific exploration of how our world works and how it has evolved. At the time I did not trust my abilities to move forward more strongly in that field of study. Nevertheless, the curiosity and interest kindled then has continued throughout my life.

In college and graduate school I went on to pursue other less "technical" fields such as literature and linguistics. But I kept an eye on the progress of physics while at the same time I found myself drawn ineluctably toward the quest for a science of consciousness.

It turned out that this quest was actually a foundation from which I could later return to examine the progress of physics in a new light.

In my search for an experiential understanding of the structure and function of consciousness, I encountered a number of remarkable Masters of our Age. Three of these Masters contributed greatly to my appreciation of consciousness and its role as the basis for any scientific exploration.

I take responsibility for all the material in this book, especially for any errors that may have crept in. At the same time I hold deep gratitude toward these men for the contributions they have made to my understanding and to the world through their explorations, teachings, and steady devotion to the creation of a better world. I have drawn on many of their ideas, and have tried to give them credit wherever I have so done.

My first introduction to meditation and the ancient sciences of China was from Ch'an Master Huai-Chin Nan. For me the time I spent with him was the first real opening of awareness. Although his approach was not "scientific", it awakened in me the profoundly experiential nature of awareness.

Then I met His Holiness, Maharishi Mahesh Yogi, the exponent of the Transcendental Meditation technique. Over a number of years I went deeply into his techniques and studied and applied his Science of Creative Intelligence course. His technique gave me a direct experience of a systematic approach to the exploration of consciousness. Maharishi had studied physics and attracted many brilliant physicists to spend time with him. He spent a lot of time discussing the relationship between theories of physics and the phenomenon of consciousness. He also took the trouble to record many of these discussions. Through my activities in the TM community I had the opportunity to hear many talks on contemporary physics by lucid speakers such as Dr. Lawrence Domash

and Dr. John Hagelin. I also soaked up whatever knowledge I could from distinguished guests such as Eugene Wigner, Buckminster Fuller, Brian Josephson, and many others.

Through these exposures I developed a general understanding of special relativity, quantum mechanics, coherent systems, and the attempts to build a Unified Field Theory.

I began to develop a vision of a rigorous science of consciousness with a fully developed mathematical description that integrated the direct experience of awareness fully into modern physics. Of course I also felt strongly that such a field could make major contributions to society and the quality of living.

The third Master that inspired me in this direction was Harry Palmer. In his quiet, understated manner, he introduced what to my current knowledge is the clearest, and most complete description of the principles of awareness and the tools to operate with it. He calls his contribution **The Avatar Materials**.

Of course none of these essays would have been possible without the amazing work of the great physicists and mathematicians who over the centuries have explored the laws of the universe and uncovered so many beautiful and practical ways of describing and appreciating our world.

Rather than try to list them here, I think it is better to get a feel from the discussions in the book and the bibliography notes. Although I may not mention all of them by name, you will get a pretty good idea of the giants as you read through the essays, and you can enjoy more of their ideas and discoveries by exploring the suggested readings.

The material that follows is a work in progress. It may require considerable revisions, and I hope it will stimulate discussions and research that result in many new findings and contributions. Initially I am providing this material in electronic format, because I suspect that it will evolve quickly through a number of editions into a more finished shape.

If you as a reader see errors to be corrected or have material to add or any other helpful suggestions, please let me know by email. Corrections will be made as soon as possible and updates will be forthcoming with credits to those who contributed any new material. Anyone who purchases the electronic version will be eligible for free electronic updates and a special deep discount rate for any printed edition that appears.

Observer Physics is an ambitious team project that can benefit the field of physics and the welfare of mankind. Master Nan envisions the Unification of Eastern and Western Culture, Maharishi heralds the Dawn of the Age of Enlightenment, and Harry Palmer is catalyzing the creation of an Enlightened Planetary Civilization. Creative Scientists and Visionaries are discovering how our reality works and empowering us to shape it into the World that We Prefer. See you there.

## Table of Contents and Outline of Topics Covered

Dedication -- kudos to the pioneers who led the way to today

### Chapter 0. **Introduction: Big Brother is . . . You!**

- \* Introduction to Observer Physics as a new paradigm for modern science.
- \* Definitions of key terms: science, paradigm, observer, physics, objectivity, subjectivity, definition, belief, theory, evidence, attention, consciousness, self . . . .
- \* Assumptions, and hidden assumptions.
- \* Palmer's Fundamental Theorem
- \* The Fundamental Principle of Observer Physics.
- \* Predictability and Generalization Power.

### Chapter 1. **Riddle of the Sphinx: The Mysterious Role of Mathematics in Physics**

- \* Mathematics as precise language
- \* The design features of language
- \* Mathematics as a modeling tool
- \* Projection of beliefs
- \* Continuity and Discontinuity, Certainty and Uncertainty, Precision and Fuzziness
- \* Countability and Uncountability
- \* Some problems with numbers and algebraic operations
- \* The breakthrough viewpoint shift that led to the discovery of calculus
- \* The relation between Mental Space and Physical Space
- \* The Observer's Transparent Lensing Effect

### Chapter 2. **Home on the Range -- Where Desires and Beliefs Like to Play**

- \* The range of creation
- \* Palmer's typology of belief systems
- \* Mapping
- \* Simplicity and Complexity
- \* The range of mental excitation
- \* Levels of precision
- \* Uncertainty and conjugate pairs
- \* Robustness and generalization
- \* The range of truth

### Chapter 3. **Diagonalizing Over Infinity**

- \* Infinity and set theory
- \* Cantor's demonstration of the uncountability of the set of reals
- \* Playing with Cantor's diagonalizing technique

- \* A mathematical model for qwiff popping
- \* A new way of representing wave forms
- \* Reference frames
- \* Attention management
- \* A model of advanced and retarded waves
- \* Playing with conjugate decimals
- \* The observer's viewpoint can be critical to the unfolding of mathematical as well as physical processes

#### Chapter 4. **Conjugal Bliss**

- \* More playing with conjugate decimals
- \* General conjugate pairs
- \* Conjugate phase spaces
- \* Lagrangian decimals
- \* Order and chaos
- \* Binary cascades and the second law of thermodynamics
- \* Poincare Peaks in Observer Physics
- \* Black holes and information loss

#### Chapter 5. **Loopy Logic**

- \* The liberation of mathematics and the liberation of physics
- \* Physics and the problem of the "reality" of the "real" world
- \* Logical black holes -- negative mental feedback loops
- \* Logical white holes -- positive logical feedback loops
- \* Multivalued logic and logical fractals

#### Chapter 6. **The ABC's of Awareness: An Introduction to Wave Guides**

- \* Projective geometry and the principle of duality
- \* Projective geometry as a tool for cultivating non-local awareness
- \* Newton's second law and the problem of reference frames
- \* Newton's bucket and Mach's Principle
- \* The critical role of the Observer in moving/changing systems
- \* What are wave guides?
- \* Microwave klystrons and a model of the Einstein/de Broglie Electromagnetic Velocity Equation
- \* Looking deeper to find a viewpoint to unify relativity and quantum mechanics
- \* A model of a "metaphysical" basis for such a unification
- \* Three fundamental modalities and seven primitive states
- \* Beliefs, identities, and reference frames
- \* The cycle of creation/existence and discreation/nonexistence
- \* Realities and transformations of realities
- \* The true nature of mass
- \* Observer viewpoints and inertial forces

- \* Reference frames and techniques of measurement
- \* Reinterpreting Newton's laws in terms of quantum bubbles
- \* The Bubble Diagram
- \* One of Newton's great hidden assumptions
- \* Exercises to gain freedom from Newton's hidden assumption
- \* The general invalidity of Einstein's equivalence principle (its infinitesimal validity)
- \* The relation between acceleration and spatial dimensions
- \* Density, gravitation, and viewpoint
- \* Other derivations of the Velocity Equation

### Chapter 7. **May I Have Your Attention, Please!?**

- \* A first look at how Observer Physics views entropy
- \* More secrets of wave guides
- \* How does attention work?
- \* What is the "Natural Tendency"
- \* The principle of least action and the effects of resistance
- \* A fifth force?
- \* An introduction to bosons and fermions
- \* An introduction to the concept of automatons
- \* An analogy between stable elementary particles and stable electron orbits
- \* Elementary particles as tiny weather systems
- \* The constants of physics and their relation to mass
- \* White's Dimensional Shift Operator -- an introduction
- \* Physical constants and geometry
- \* Where does geometry come from?
- \* A major relativistic effect that is ignored by physicists
- \* A definition of and motivation for indoctrination
- \* Requirements for a game and a minimal game
- \* The relation between games and languages

### Chapter 8. **The Big Bang is Going On Right Under Your Nose. Breath With Care.**

- \* A radical new way of interpreting the constants of physics
- \* The constants of geometry
- \* Simple derivation of the proton rest mass
- \* A new standard for defining quantum spatial intervals
- \* The vital role of the Observer Gauge in quantum physics
- \* Experimental demonstration of the Observer Gauge
- \* The Compton effect and quantum intervals
- \* A derivation of the Dimensional Shift Operator from physics and geometry
- \* Secrets of the Rydberg constant, and what it says about the electron's mass
- \* The role of 9 as a dimensional operator in base 10 numbers
- \* Formula for a general set of Hyper Rydberg numbers
- \* Theory of the Big Bang particle
- \* Derivation of the Cosmic Boson

- \* Unification of the (e) force and the (G) force
- \* Black holes and Hawking radiation -- a new twist
- \* A concrete model for the super-string theorists to play with
- \* Super dynamic standing waves
- \* Introduction to how particles are formed from energy
- \* The relation of Planck's constant to (e), (c), and (eo)
- \* An introduction to how energy unfolds in space and time
- \* A technique for finessing fusion

### Chapter 9. **Your World, Or Mine?**

- \* Five levels of "doing" physics
- \* More trouble with Einstein's basic assumptions -- isotropy
- \* A theory of leptons -- introduction
- \* Minimal virtual mass of electron neutrinos
- \* The Planck radius and the electron neutrino
- \* A theoretical neutrino memory device
- \* The mass of the electron and the fine structure constant
- \* The significance of the muon / electron mass ratio
- \* The significance of the tauon / muon mass ratio
- \* Planck's constant and the leptons
- \* A drawback of using the convenience of "natural units"
- \* The magical quality of (H c)
- \* Different ways of looking at the Heisenberg relation
- \* Attention particles

### Chapter 10. **Spin Like a Dervish, Drop Like a Stone**

- \* Photonic phase transitions
- \* From the electron neutrino to the Cosmic Boson
- \* The Cosmic Boson as the super-gravity particle that unifies the gravity and EM forces
- \* The Fine Structure Constant, the Rydberg energy, and the relativistic electron
- \* The QED Feynman diagrams as they begin to evolve in Observer Physics
- \* sQuarks
- \* An elegant derivation of the electron's mysterious rest mass
- \* The critical D-Shift Spatial Operator
- \* sQuarks and the Einstein/de Broglie Velocity Equation
- \* A major new paradigm: Phase Conjugation and 4-Wave Mixing
- \* Phase conjugate mirrors and reflections in time
- \* Mass Conjugation and 4-Body Mixing
- \* Stellar-Jovian masses and the crossover region between planets and stars
- \* Black hole distributions and table manners
- \* Binary star systems -- an introduction
- \* Comparison of EM and G forces at various scales
- \* The origin and structure of mass

- \* Photon pairs and split pairs
- \* Advanced and retarded photons
- \* Einstein's relativity clock and klystrons
- \* Perception and photon exchange
- \* Stern-Gerlach, magnetic moment, quantum electron spin, and Cooper pairs
- \* Why are fermionic spins different from bosonic spins?
- \* The nature and function of the observer's will in physics
- \* The spin of a graviton and its speed of propagation
- \* Abstract geometry of perception and the observer's "location"
- \* The mechanics of participation
- \* Why is charge quantized?
- \* The 3 hairs and the observer
- \* Hierarchies of resistance
- \* The origin of electrical charge and magnetic effects
- \* The Poynting vector and its conjugate
- \* The Planck Velocity and its role in physics -- an introduction
- \* Interference patterns between gravity and EM waves
- \* A theoretical derivation of  $(e)$ , the quantum unit of charge
- \* The conservation laws of observer physics and modern physics
- \* Neutrino puzzles -- a preliminary hypothesis
- \* Why are neutrinos "left-handed"?
- \* The Garden of Eon

## Chapter 11. **Invariance: The Physics and Mathematics of Immortality**

- \* The Hamiltonian: a mathematical tool for studying invariance
- \* The additive nature of continuous invariances
- \* The multiplicative nature of discontinuous invariances
- \* Recent findings about neutrino properties
- \* Theory of neutrino oscillation
- \* Proton-neutron oscillation in nucleons
- \* Semileptonic charged weak current interactions
- \* Modified Feynman diagrams of beta decay
- \* How the (W) Boson really works
- \* The (W) Boson's coupling constant
- \* Derivation of the (W) Boson's mass
- \* A most elegant derivation of the electron's rest mass
- \* Derivation of the Cosmic Boson as pure quantized space
- \* Symmetry breaking and localized equilibrium
- \* Tools for phase locking
- \* Secrets of the "Ratchet and Pawl" technology
- \* The up quark and the neutrinos
- \* A new quark notation -- introduction
- \* Details of neutron beta decay
- \* The amazing internal ensemble structure of the proton
- \* A macroscopic model of the proton's inner dynamics (that you can make at home)

- \* Corrections to the Standard Model of the (W) Boson
- \* Pionic proton pumps
- \* Why electrons are truly "point-like" particles that do not decay
- \* The secret of how matter got formed after the Big Bang
- \* Refinement of boson production/annihilation and its Feynman representation
- \* (Z) Bosons and their coupling constant
- \* The Electro-weak Unification Condition
- \* The need for a Higgs field in the Standard Model
- \* Why we haven't found the Higgs yet
- \* A candidate for the Higgs
- \* Stimulated proton decay
- \* Transparent beliefs, automatons, and proton stability
- \* The structure of electrons and anti-electrons

### Chapter 12. **Three Quarks for Muster Mark**

- \* Another elegant derivation of the Cosmic Boson
- \* The Cosmic Boson as Unification of Forces, Quantum Space, Planck Supergraviton
- \* Limits to the brute force approach
- \* Requirements for going to higher energy ranges
- \* Minimal uncertainty "smear" for idealized neutrino
- \* Wave packet spreading
- \* How subatomic particles spill their "guts"
- \* Constant quantum clusters
- \* Planck length linkage of physics and geometry
- \* Penrose questions about state reduction time asymmetry
- \* The Hawking Box thought experiment
- \* "The Hamiltonian Flow of the Contents of Hawking's Box" and Cosmic Boson Dynamics
- \* Information, state vectors, and observer viewpoints
- \* The Penrose proposal for the measuring of a graviton
- \* Hagelin on state reduction in terms of the Heisenberg relation
- \* Solutions in terms of attention management
- \* Details of the new observer physics quark notation
- \* Precise differentiation of the various octets and resonances
- \* Detailed model of lepto-quark unification with examples
- \* Drawings of subatomic and nucleonic particle internal structures

### Chapter 13. **Snow White and the Seven Quantum Dwarves**

- \* The fundamental constituents of the universe
- \* A bridge between physics and geometry
- \* How quantum charge is generated
- \* Experimental evidence for quantum charge
- \* The role of charge in leptons and quarks
- \* The role and location of charge in mesons and baryons

- \* Flux density and the "Eon"
- \* The bipolar nature of gravity
- \* The nonexistence of magnetic monopoles
- \* Can protons decay?
- \* A novel approach to a theory of quantum gravity
- \* A 4-step program to unify physics and geometry
- \* A novel mathematical representation of the vacuum field
- \* Transformation operators on the vacuum field
- \* An observer-imposed gauge
- \* Opening potential mass windows in the vacuum field
- \* Virtual wake-up operators arising from geometry
- \* Wheeler's concept of "quantum foam" comes alive
- \* "Snow White and Seven Dwarves" Field Theory
- \* A DIY for creating your own universe
- \* Summoning particles, forces, and interactions at will from the vacuum
- \* Relations of (Z) Bosons to photons
- \* Relations of (W) and (Z) Bosons to mass
- \* Newton's third law and the vacuum equilibrium state
- \* Where does gravity come from?
- \* A theory of biased systems
- \* Topology and the theory of distortions
- \* Light Cones and Gravity Cones
- \* Elementary gravitational trajectories
- \* Scattering cross sections
- \* Where does "kinetic energy" come from?
- \* Preliminary definitions and descriptions for a theory of quantum gravity
- \* Components of our model
- \* Laws of refraction in EM systems and gravitational systems
- \* Yet another derivation of the Cosmic Boson as a quantum graviton
- \* What is a graviton?

#### **Chapter 14. A Conical Theory of Quantum Gravity**

- \* Phase conjugation auto-tracking systems and gravitational systems
- \* General optical modeling of gravitational systems
- \* Secrets of photon behavior revealed through Snell's Law
- \* Dimensional shifting
- \* Graviton propagation velocity and (c)
- \* Quantum foam operations
- \* The role of the observer in gravitational interactions
- \* The Planck Velocity and the role of time in gravitational systems
- \* Planck Time, clocks, and collapse of the wave function
- \* The mirror never lies
- \* Tradeoffs between freedom and bondage
- \* Velocity "leverage"
- \* Einsteinian relativity, klystron dynamics, and gravitational leverage

- \* Techniques for FTL transference of information
- \* Why ordinary phase waves and EPR quantum effects do not transmit information
- \* Memory as an attention automaton
- \* How to eliminate causality violations in FTL transactions
- \* Gravitational wave functions
- \* Gravitational quantum thermodynamics and the three laws
- \* The arrow of time and time reversal -- what is time reversal?
- \* Pumping and relaxing of systems
- \* Flash freezing
- \* Techniques for removing entropy from systems
- \* Why does a gravitational field generate a density gradient?
- \* Coherent Modulators
- \* A vision for the future and an enlightened planetary civilization

### **Appendix:**

#### **Chapter 15. Wheels Within Wheels -- Some Notes on Rotational Dynamics**

- A. Newton's Bucket Experiment Redux,
- B. Tops, Gyroscopes, and the "Quantum" Nature of Vectors
- C. MOND and Observer Physics

#### **Chapter 16. Annotated List of Sources**

- \* Appended to the text is an annotated List of introductory physics texts, works on mathematical subjects and math for physicists, specialized works in physics, works popularizing modern science for general readers, and works related to the development of a science of consciousness.

#### **Chapter 17. Comments and Other Munchies**

- \* Comments on Wolfram's **A New Kind of Science**.
- \* Comments on Nottalle's **Fractal Space-Time and Microphysics: Towards a Theory of Scale Relativity**.
- \* The Fractal Structure of the Planck Mass.
- \* The Great Phi/Pi Pyramid as a Klystron
- \* The Shofar Cornucopia
- \* The Symphony Principle
- \* Sets From the Bottom Up, Top Down, Inside Out, and Outside In
- \* The Heresy of Countableism
- \* Yes, Virginia, There is a Santa Claus, But He Is Not Who You Think He Is
- \* Looking-Glass Land: A Superluminal Window into the Past, Virtual Space-Time Warps, You Are Everywhere
- \* Relativistic Motion