

DISCOVERING POSTMODERN COSMOLOGY

**Discoveries in Dark Matter, Cosmic Web,
Big Bang, Inflation, Cosmic Rays,
Dark Energy, Accelerating Cosmos**

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*DISCOVERING POSTMODERN COSMOLOGY:
Discoveries in Dark Matter, Cosmic Web, Big Bang,
Inflation, Cosmic Rays, Dark Energy, Accelerating Cosmos*

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*This book is dedicated to Sylvia, my wife,
best friend, and lifelong partner.*

*“Leave the beaten track occasionally and dive into the woods.
Every time you do so you will find something you have never seen
before. Follow it up, explore all around it, and before you know
it, you will have something to think about to occupy your mind.
All really big discoveries are the result of thought.”*

~ Alexander Graham Bell ~

*“We are to admit no more causes of natural things than such are
both true and sufficient to explain their appearances.”*

~ Issac Newton’s version of Occam’s razor ~

“Make everything as simple as possible, but not simpler.”

~ Albert Einstein ~

*“It is dangerous to be right in matters on which the established
authorities are wrong.”*

~ Voltaire ~

PREFACE

Learn how a world-class inventor-scientist is currently tackling the greatest scientific mysteries of the universe — and succeeding. This book could revolutionize how research in cosmology will be conducted. Follow the progress as new astronomical findings are accumulated from NASA and others to help substantiate and verify this *postmodern cosmology* model.

“Seven Quick Cosmic Discoveries Create New Cosmology and Can Be Examined Here” could have been the 19th century title for this book. This is the first book to address all seven thought-to-be-unsolved cosmic phenomena mysteries shown in this book’s subtitle. It is also the first to offer plausible explanations for all seven of the *unsolved* mysteries. When accepted by the cosmologists, this research could provide a viable baseline to jump-start debate on a standard model for *postmodern cosmology*.

This book weaves together seven cosmic phenomena thereby forming a fabric for *postmodern cosmology*. It was written for open-minded cosmologists, astronomers, astrophysicists, physicists, engineers, students, enthusiasts and those at NASA, NSF, DOE and ESO who want to understand

postmodern cosmology. This new cosmology is based upon the nature of these seven cosmic phenomena and upon their relationships and linkages.

Is the dark matter of the universe comprised of ultra-high-energy relativistic protons? If it is, seven major cosmic mysteries have been solved. Is this book science fiction or does it measure up to the scientific contributions of the book of Nicolaus Copernicus, *On The Revolutions Of Heavenly Spheres*. Which is it?

This book starts out with the premise that the dark matter of the universe is comprised of ultra-high-energy relativistic protons. It then uses this simple premise, existing astronomical data, and the laws of physics to explain five major cosmic mysteries in a plausible manner. By accomplishing this five times, the premise itself becomes plausible. This procedure is explained as follows:

The only plausible explanation for the *accelerating expansion of the universe*, announced to date, requires that the dark matter of the universe be comprised of ultra-high-energy relativistic protons (see Chapter 18).

The only plausible explanation for the *Big Bang satisfying the Second Law of Thermodynamics*, announced to date, requires that dark matter be comprised of ultra-high-energy relativistic protons (see Chapter 12).

The only announced plausible explanation for *ultra-high-energy cosmic ray protons* with energies above 60 EeV bombarding Earth's atmosphere requires that dark matter be comprised of ultra-high-energy relativistic protons (see Chapters 29 and 31).

The only announced plausible explanation for *cosmic inflation* requires that dark matter be comprised of ultra-high-energy relativistic protons (see Chapters 31 and 34).

The only announced plausible explanation for the *cosmic web* requires that dark matter be comprised of ultra-high-energy relativistic protons (see Chapter 33).

If these five explanations are indeed plausible, it is highly probable that the dark matter of the universe is comprised of ultra-high-energy relativistic protons.

My first book, *How Dark Matter Created Dark Energy and the Sun*, and I appeared on the astro-cosmology scene together on Dec.15, 2003. Although I had been CEO and chief scientist of a Silicon Valley NASDAQ company for decades, no one in cosmology had ever heard of me.

I had built a home library of 20 books in cosmology, astronomy, and astrophysics beginning 1999 and spent my spare time studying them, not just reading them. After awhile I began to realize that my authors did not have convincing arguments regarding the nature of *dark matter*. Since Cold

Dark Matter had been proposed in 1984, that candidate did not look very promising with no progress after 16 years.

Then it occurred to me that if no one seems to know what *dark matter* is, maybe that's the new scientific challenge for which I have been looking. Although I have been granted 76 US patents and have created two high-tech companies with my inventions, discovering the nature of dark matter seemed like the challenge of a lifetime.

By 2002, I decided I was sure that *dark matter* was comprised of galaxy-orbiting relativistic protons and I proceeded to enter the field via several approaches that looked promising. Einstein's 1905 Special Theory of Relativity was invaluable. Johannes Kepler encouraged me in that, as a mathematician, he was able to interpret Tycho Brahe's astronomical data and develop Kepler's laws, which were beyond the astronomers of the day. Occam's razor logic, which I had admired and used all my life, was there to help me. Finally, there was my early interest in cryptography and my Bell Labs course in Information Theory that might give me an edge in data analysis.

I assembled the material for my astro-cosmology book beginning in the spring of 2003. Then to test the theory, I gave a 32-slide Powerpoint presentation to two astronomy/astrophysics professors at the University of California, Santa Cruz. It gave me added confidence. I gave up my job as CEO

and chief scientist of Drexler Technology Corporation, a NASDAQ company in Silicon Valley, on Sept. 1, 2003. My 156-page paperback book, *How Dark Matter Created Dark Energy and the Sun*, was published Dec.15, 2003.

On April 22, 2005, I published online a 19-page scientific paper on the Cornell University Library's arXiv.gov website as e-Print No. astro-ph/0504512 entitled "Identifying Dark Matter through the Constraints Imposed by Fourteen Astronomically Based 'Cosmic Constituents'".

Upon discovering that my dark matter theory was able to solve over 15 unsolved cosmic mysteries, I wrote a 295-page paperback sequel. The book, entitled *Comprehending and Decoding the Cosmos*^[8], was published May 22, 2006.

This 2006 book also discloses the roles and functions of Relativistic-Proton Dark Matter in creating the cosmic web, spiral galaxies, stars, starburst galaxies and ultra-high-energy cosmic rays.

About a month later several astro-cosmology news items were published that provided support for my theories. I issued my first *cosmic newswire* about them on the Internet on June 27, 2006. Positive news from Russia led to a second *cosmic newswire* on July 17. A report of extreme ultraviolet emission from galaxy clusters led to a third one on Aug.21. The Sept. 5 *cosmic newswire* was entitled "Dark Matter's

Identity Revealed by Deciphering 14 Cosmic Clues”. During 2006, eight of these *cosmic newswires* were issued.

The opportunities to issue encouraging *cosmic newswires* supporting my theories continued unabated for 20 months following the publishing of the May 2006 book, resulting in the issuance of thirty-one relevant *cosmic newswires* through January 2008.

My scientific paper, “A Relativistic-Proton Dark Matter Would Be Evidence the Big Bang Probably Satisfied the Second Law of Thermodynamics”^[13], was published online on February 15, 2007. It solidified my research base, played a key role in developing *postmodern cosmology*, and encouraged me to write this 2008 book.

The 2007 scientific paper and the collection of thirty-one *cosmic newswires* (some updated and/or edited) provide overwhelming evidence that the key astronomical and analytical discoveries have been made to support my theories of the following seven cosmic phenomena: *dark matter*, *cosmic web*, the *Big Bang*, *cosmic inflation*, energetic *cosmic rays*, *dark energy*, and the *accelerating universe*. They provide the scientific material and substance from which the fabric of *postmodern cosmology* is woven.

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INTRODUCTION

Since the thirty-one cosmic newswires you are about to read rely on and apply to the Relativistic-Proton Dark Matter theory as well as to the postmodern Big Bang cosmology theory, let us begin by introducing these theories.

The author believes that the galaxy-orbiting relativistic proton appears to have the necessary characteristics of the long-sought dark matter particles, which are estimated by most scientists to comprise about 83 percent of the total mass of the universe. Relativistic protons do have the required mass and the required difficulty of detection and can transform themselves into hydrogen, the principal matter of galaxies, by combining with electrons created through pion producing collisions and pion decay. (See Appendix A regarding the scientific community's long-held objections to any proton dark matter and the author's response.)

Therefore, relativistic protons are capable of forming (1) galaxies and their dark matter halos, (2) galaxy clusters and

their distributed dark matter, (3) the cosmic web, the long, large, filamentary dark matter that crisscrosses the cosmos, and (4) newborn stars and igniting their hydrogen fusion reactions.

However, for this Relativistic-Proton Dark Matter theory to become widely accepted, there also should be astronomical evidence of multitudinous relativistic protons within the spheroidal dark matter halo surrounding the Milky Way and other spiral galaxies. The author believes that the energetic cosmic ray relativistic protons bombarding Earth every day go a long way toward providing such astronomical evidence.

Cosmologists, who are known to be scientifically conservative, have not yet accepted the author's explanation of the nature of dark matter, the cosmic web, dark energy, the Big Bang, the accelerating expansion of the universe, the energy source(s) for ultra-high-energy cosmic ray protons, or cosmic inflation. Hopefully, this book will provide sufficient scientific evidence to convince some of the cosmologists of the validity or plausibility of some of these explanations.

In order to strengthen his case for Relativistic-Proton Dark Matter with the cosmologists, the author devised in 2005 a second independent approach, beyond his 2003 published approach, to confirm the identity of dark matter. Since dark matter represents about 83 percent of the mass of the universe, it is omnipresent and should have an influence on

or a relationship with a number of celestial bodies. Such relationships might be used to identify dark matter, he felt.

Meanwhile, the vast majority of research conducted on dark matter by physicists has had to do with trying to identify the particles that comprise dark matter or to determine their gravitational effect on star rotation curves in spiral galaxies. This primarily inward-looking approach to identify the particle composition of a medium is known as *reductionism*, which is a procedure or theory that reduces or attempts to reduce complex data or phenomena into simple elements.

Reductionism does not always work well in physics. Many times simple entities or particles can form complex forms or combinations that have characteristics seemingly unrelated to the characteristics of the original simple entities. A hurricane is one well-known example of complex behavior whose characteristics cannot be predicted by an analysis of all the known simple entities involved in its makeup. Thus, the reductionism approach does not explain or predict the nature of a hurricane.

An alternative to the inward-looking reductionism is an outward-looking, cosmological-like approach that the author has developed and designated *relationism*, where a phenomenon such as the dark matter can be analyzed and categorized in terms of its various relationships. *Dark matter relationism*, described in the author's 2006 book, is used to

provide additional evidence that Relativistic-Proton Dark Matter is the dark matter of the universe.

This 2008 book provides a third independent approach to build the case for Relativistic-Proton Dark Matter. It argues that the Big Bang, which occurred at the beginning of time, must have satisfied the Second Law of Thermodynamics. Thus, immediately after the extremely high energy Big Bang, the entropy (disorder) of the universe would be at the lowest level it would reach throughout all time. This could be achieved by the Big Bang firing out, in all directions, high-velocity ultra-high-energy (UHE) relativistic protons and helium nuclei in the well-known nuclei ratio near 12:1.

Such a Big Bang, characterized by a *violent radial dispersion* of ultra-high-energy relativistic nuclei, would be highly efficient and could create very high usable energy and have very low entropy, and might be designated a *Relativistic Big Bang*. This Big Bang concept is fundamental to the author's Relativistic-Proton Dark Matter theory and to his postmodern Big Bang cosmology.

Postmodern cosmology and postmodern Big Bang cosmology mean the same thing. Their explanation begins with requiring that the Big Bang satisfy the Second Law of Thermodynamics, which essentially requires that the vast majority of mass/energy produced by the Big Bang be in the form of relativistic protons and helium nuclei. Dark matter

represents 83 percent of the mass of the universe, and was produced by the Big Bang. Therefore dark matter would have to be comprised of relativistic protons and helium nuclei.

Over 99 percent of the mass of the universe is hydrogen and helium in the atomic ratio of about 12:1. The Big Bang created all the mass of the universe, with almost all consisting of relativistic protons and helium nuclei in the atomic ratio not far from 12:1. Since 83 percent of the mass of the universe is dark matter, it follows that dark matter should be comprised of relativistic protons and helium nuclei in a ratio not far from 12:1. The name Relativistic-Proton Dark Matter is defined by this specific mix of protons and helium nuclei, which are both baryons. In 2008, the more accurate name, Relativistic-Baryon Dark Matter began to be used.

In this book we will develop the only publicly announced plausible explanations for *dark matter*, the *cosmic web*, the *Big Bang*, the *accelerating expansion of the universe*, for the existence of the *ultra-high-energy cosmic-ray protons*, for *cosmic inflation*, and insights into the nature of *dark energy*.

Relativistic-Proton Dark Matter is also used to explain, in the author's 2006 book^[8], how the first stars were created, why a spiral galaxy creates blue stars in its spiral arms, why starburst galaxies create blue stars in their cores and have

star formation rates fifty times higher than that of a spiral galaxy, and why there is a different form of dark matter around small galaxies as compared to dark matter around groups of galaxies within normal galaxy clusters.

Postmodern cosmology requires a change of focus, for physicists and cosmologists, onto relationism rather than only on reductionism. It requires that the universe be looked upon as a complex, orderly, self-inclusive system in space and time comprised of interrelated cosmic entities, rather than simply a collection of unrelated cosmic entities.

A number of the chapters provide published research results from other scientists casting doubt on the existence of Cold Dark Matter^[4], which remains intangible 23 years after it was proposed. In contrast, the author is not aware of published scientific research data casting doubt on the existence of the 4-year-old Relativistic-Baryon Dark Matter.

Therefore, it seems as if a dark-matter *fork in the road* has appeared on the horizon. In order for cosmologists to make significant progress on *postmodern cosmology* they will have to decide which dark-matter fork to take. Study of this book could be helpful in analyzing the alternatives.

Some of the early history of dark matter research can be found in the first four pages of Chapter 12.

Appendix A: Scientists' long-held objections to proton-based dark matter are presented along with this author's responses. It should be read by professional astronomers, astrophysicists, and cosmologists.

Appendix B: Presented here are 18 selected pages involving six important references from J. Drexler's December 2003 book *How Dark Matter Created Dark Energy and the Sun*. It is the first book of Drexler's astro-cosmology trilogy.

Appendix C: Presented here are Chapters 44-48, 50 and 56, the Epilogue, from J. Drexler's May 2006 book *Comprehending and Decoding the Cosmos*. It is the second book of Drexler's astro-cosmology trilogy. These chapters are designated Chapters 2006-44, 2006-45, etc.

A 20-page glossary and 47 references are provided.

CHAPTER 1

COSMIC NEWSWIRE #1

More Evidence That Dark Matter of Universe Is Not Cold Dark Matter

LOS ALTOS HILLS, Calif., June 27, 2006 (AScribe Newswire) -- The current mainstream theory of the dark matter of the universe, in the United States, is that dark matter is cold and collisionless. Research funds from NASA, the National Science Foundation and the U.S. Department of Energy have been and are being used to build and operate equipment designed to detect the theoretical particles predicted by the Cold Dark Matter theory.

These theoretical particles are called weakly interacting massive particles (WIMPs), some of which are designated neutralinos. Cold dark matter WIMPs were predicted more than 20 years ago, but have never been detected.

In December 2003, Jerome Drexler, the Silicon Valley inventor/scientist, authored a book^[5] presenting a contrarian dark matter theory about dark matter protons that orbit small and large galaxies traveling near the speed of light. The book was followed by his 19-page dark matter scientific paper

e-Print No. astro-ph/0504512^[12] on April 22, 2005. After seeing his dark matter theory/cosmology being supported by a number of astronomical discoveries made by others during 2005, he proceeded to author a 295-page book, *Comprehending and Decoding the Cosmos*^[8], that was published on May 22, 2006.

On June 20, 2006, Russia announced^[14] that it will launch an ultraviolet astronomical observatory having a 1.7 meter main mirror. The project manager is Boris Shustov, Professor of Physics and Mathematics and head of the Institute of Astronomy at the Russian Academy of Sciences. In the Russian news release he is quoted as saying, “One should particularly emphasize the observatory’s role in detecting the so-called dark matter of the universe and unlocking its secrets because such dark matter can only be seen by large ultraviolet telescopes.”

“Shustov appears to believe that dark matter particles are charged and extremely fast and therefore not cold,” said Drexler, who added that Shustov and he are not alone in concluding that dark matter is not cold.

On Feb. 3, 2006, Professor Gerry Gilmore of Cambridge University and associates announced astronomical data indicating that dark matter is not cold and not collisionless. The 10-page epilogue chapter of Drexler’s 2006 book

(which now is in Appendix C of this book) reports on Gilmore's dark matter discoveries as follows:

1. Dark matter particles are not slow and cold, but instead appear to be moving at 9 kilometers per second and have an apparent temperature of about $10,000^{\circ}\text{C}$, which is higher than the $6,000^{\circ}\text{C}$ at the surface of the sun.
2. "The strange thing about dark matter is that it doesn't give off radiation."
3. "There must be some form of repulsion [between the dark matter particles]..." "We have to start looking into the physics of the interactions between dark matter particles — not just at the way they respond to gravity."
4. "This indicates that dark matter clumps together in building blocks which have a minimum size," and "This is 1,000 light years across, with 30 million times the mass of the sun." said team member Dr. Mark Wilkinson.

On June 4, 2006 Professor Carl H. Gibson of UC San Diego published a scientific paper, e-Print No. astro-ph/0606073^[15] entitled "Cold dark matter cosmology conflicts with fluid mechanics and observations". "According to Gibson's paper, dark matter cannot be cold and collisionless," said Drexler.

Although Sir Martin Rees, The Astronomer Royal of the United Kingdom, has not taken a public stand against Cold Dark Matter, on a web site in 2004^[16] he appears to