

## Quantum Physics And Theology An Unexpected Kinship

Quantum physics, in contrast to classical physics, allows non-locality and indeterminism in nature. Moreover, the role of the observer seems indispensable in quantum physics. In fact, quantum physics, unlike classical physics, suggests a metaphysics that is not physicalism (which is today's official metaphysical doctrine). As is well known, physicalism implies a reductive position in the philosophy of mind, specifically in its two core areas, the philosophy of consciousness and the philosophy of action. Quantum physics, in contrast, is compatible with psychological non-reductionism, and actually seems to support it. The essays in this book explore, from various points of view, the possibilities of basing a non-reductive philosophy of mind on quantum physics. In doing so, they not only engage with the ontological and epistemological aspects of the question but also with the neurophysiological ones.

The doctrine of the Trinity is an exercise in wonder. It is drawn from the wonder of our own existence and the diverse experiences of the divine encountered by the early Christian community. From the earliest days of Christianity, theologians of the church have drawn upon the most sophisticated language and understandings of their time in an attempt to clarify and express that faith. In this volume, Ernest Simmons ssks what the current scientific understanding of the natural world might contribute to our reflection upon the relationship of God and the world in a Trinitie fashion.

Three decades ago, federal policymakers - Republicans and Democrats - embarked on a general strategy of deregulation. In the electricity, gas delivery, and telecommunications industries, the strategy called for restructuring to separate production from transmission and distribution, followed by elimination of price controls. The expected results were lower prices and increased quality, reliability, and scope of services. Paul MacAvoy, an economist with forty years of experience in the regulatory field, here assesses the results and concludes that deregulation has failed to achieve any of these goals in any of these industries. MacAvoy shows that we now have only partial deregulation, a mixture of oligopoly structure with direct price control. He explores why this system leads to volatile and high prices, reduced investment, and low profitability, and what policy actions can be implemented to address these problems.

A considerable amount of public debate and media print has been devoted to the [lwar between science and religion]. In his accessible and eminently readable new book, Stephen M. Barr demonstrates that what is really at war with religion is not science itself, but a philosophy called scientific materialism. Modern Physics and Ancient Faith argues that the great discoveries of modern physics are more compatible with the central teachings of Christianity and Judaism about God, the cosmos, and the human soul than with the atheistic viewpoint of scientific materialism. Scientific materialism grew out of scientific discoveries made from the time of Copernicus up to the beginning of the twentieth century. These discoveries led many thoughtful people to the conclusion that the universe has no cause or purpose, that the human race is an accidental by-product of blind material forces, and that the ultimate reality is matter itself. Barr contends that the revolutionary discoveries of the twentieth century run counter to this line of thought. He uses five of these discoveries[the Big Bang theory, unified field theories, anthropic coincidences, Gödel's Theorem in mathematics, and quantum theory]to cast serious doubt on the materialist's view of the world and to give greater credence to Judeo-Christian claims about God and the universe. Written in clear language, Barr's rigorous and fair text explains modern physics to general readers without oversimplification. Using the insights of modern physics, he reveals that modern scientific discoveries and religious faith are deeply consonant. Anyone with an interest in science and religion will find Modern Physics and Ancient Faith invaluable.

Modern Physics and Ancient Faith

Theology and Modern Physics

How John Polkinghorne found God in science and religion

Serious Talk

The Work of Love

The Physics and Philosophy of the Bible

**Quantum physics studies the boundary zone between the physical part of the universe and the nonphysical realm. The Bible frequently refers to the non-physical realm as the unseen or spiritual realm. So, quantum physics has a lot to say about how the spiritual realm works, but there are many confusing and inaccurate interpretations out there in popular media these days. This book will provide simple and easy ways to demystify quantum physics and to understand the Bible. We will lift the veil of the confusion surrounding the unseen realm as we explore many intriguing scientific discoveries that show us about Heaven's reality. We will also see how well the latest discoveries about the unseen realm point back to realities revealed in Scripture. In paperback for the first time, this compact volume presents quantum mechanics for the general reader. It offers a lucid description of the intellectual challenges and disagreements in the study of the behavior of atomic and sub-atomic particles—a field that has completely changed our view of the physical world, but that is still the subject of unresolved debate about its own fundamental interpretation. The work is accessible to those with no background in higher mathematics, but will also interest readers who have a more specialized knowledge of scientific topics. The author has spent most of his working life as a theoretical elementary particle physicist and from 1968 to 1979 was Professor of Mathematical Physics at the University of Cambridge. In 1979 he resigned to train for the ministry of the Church of England, and he is now an ordained priest. Here he describes a theory that has been spectacularly successful in predicting the behavior of objects the size of atoms and smaller but that has aroused conflicting views about the nature of reality and the degree of independence between the world around us and ourselves as observers.**

**Despite the differences of their subject matter, science and theology have a cousinly relationship, John Polkinghorne contends in his latest thought-provoking book. From his unique perspective as both theoretical physicist and Anglican priest, Polkinghorne considers aspects of quantum physics and theology and demonstrates that the two truth-seeking enterprises are engaged in analogous rational techniques of inquiry. His exploration of the deep connections between science and theology shows with new clarity a common kinship in the search for truth. The author identifies and explores key similarities in quantum physics and Christology. Among the many parallels he identifies are patterns of historical development in quantum physics and in Christology; wrestling with perplexities such as quantum interpretation and the problem of evil; and the drive for an overarching view in the Grand Unified Theories of physics and in Trinitarian theology. Both theology and science are propelled by a desire to understand the world through experienced reality, and Polkinghorne explains that their viewpoints are by no means mutually exclusive. I hope that this volume of spiritual reflections from scientists around the globe will help its readers find a calm and valuable refuge from a tempest of conflict about science and spirit.**

**Interviews with Twelve Leading Scientists**

**The Christian Encounter with Reality**

**Beyond These Horizons**

**Creation as Kenosis**

**Beyond the Big Bang**

**Lifting the Quantum Veil**

Quantum theory has shaken our understanding of the universe to its deepest foundations. Quantum theory raises deep and profound scientific, philosophical and theological issues. Consider several scientific issues: Is quantum indeterminism ontological (a reflection of reality) or epistemological (a reflection of human ignorance)? Does the universe have a place for chance? What is the famous Bohr-Einstein debate? Who won? What is Schrödinger's famous cat and what does it teach us? Some philosophical issues: How do our metaphysical commitments affect the interpretation of quantum theory? How, given quantum theory, should we understand the laws of nature? What are the implications of quantum theory for the traditional metaphysics and epistemologies of, for example, Kant, Leibniz and Spinoza? Finally, what are the implications of this revolutionary theory for theology? Is it possible to construct a natural theology - a case for God based on nature- given quantum theory? Is "Divine action" possible given quantum uncertainties? Are there implications for the ongoing debates about miracles, free will and the problem of evil? This book, which seeks to answer these and many other questions, is highly recommended for those who value understanding quantum theory from and for philosophical and theological perspectives.

Polkinghorne argues that the habits of thought that are natural to the scientist are the same habits of thought that can be followed also in the search for a wider and deeper kind of truth about the world.

Quantum Physics and TheologyAn Unexpected KinshipYale University Press

In The Entangled God, Kirk Wegter-McNelly addresses the age-old theological question of how God is present to the world by constructing a novel, scientifically informed account of the God-world relation. Drawing on recent scientific and philosophical work in "quantum entanglement," Wegter-McNelly develops the metaphor of "divine entanglement" to ground the relationality and freedom of physical process in the power of God's relational being. The Entangled God makes a three-fold contribution to contemporary theological and religious discourse. First, it calls attention to the convergence of recent theology around the idea of "relationality." Second, it introduces theological and religious readers to the fascinating story of quantum entanglement. Third, it offers a robust "plerotic" alternative to kenotic accounts of God's suffering presence in the world. Above all, this book takes us beyond the view of theology and science as adversaries and demonstrates the value of constructively relating these two important areas of intellectual investigation.

Quantum Cosmologies and God

Science and Religion in Dialogue

The Quantum World

From Controversy to Encounter

Creation, Chaos and the Search for Cosmic Consciousness

God and the New Physics

**I don't know what energy is a fundamental concept in physics. Much less well known is that it is also a key concept in Eastern Christian or Orthodox theology. This book from Dr. Stoyan Tanev—a physicist, innovation management scholar, and theologian—provides a comparative analysis of the conceptualizations of energy in Orthodox theology and in physics, and demonstrates the potential of such comparison for a better understanding of these two quite different domains of human enquiry. The book explores the rediscovery of the Byzantine Church's teaching on the Divine energies in twentieth-century Orthodox theology, and offers new insights about the key contributions of key theologians such as Sergius Bulgakov, George Florovsky, John Meyendorff, Christos Yannaras, and Thomas Torrance. Where do the understandings of energy in theology and physics meet? The author argues that the encounter between theology and physics happens at the level of quantum physics, where the subtle use of words and language acquires a distinctive apophatic dimension. His comparative approach focuses on the epistemological struggles of theologians and physicists. According to Tanev, this focus on the epistemology of knowing offers a new way to look at the dialogue between science and theology. It89- Includes bibliographical references and index.**

Classical Christianity is rooted in a historical event: the Resurrection of Jesus of Nazareth. This is the central tenet of the Christian Faith. However there are a good number of tenets of Christianity that aren't historical at all. Rather, they are ontological. In other words, they are grounded in the nature of reality itself. In this work Rocco Boni shows how the dozen or so ontologically-based tenets of Christianity derive from the very foundations of reality; being grounded in the theistically-friendly ontology of quantum phenomena. These tenets seem to have been built into the cosmos at the ground floor, their realization deriving from the indeterministic, immaterial, abstract nature of quantum process. This is not simply a book, it's a discovery. One that shows that the true ontic status of reality is not simply theistic, but Christian. The structure of this theistic ontology is the content and hallmarks of scientific truth. If there were such a thing as a Theistic Unification Theory, this would be it.

Science and faith have had a long intertwined history. The relationship has run the gamut from a total disconnect to an adversarial battleground where proponents of each claim total victory. However, if God created the physical world and remains active in the physical world, we cannot ignore the interaction nor can we assume or expect a world of conflict. While nineteenth-century physics brought classical physics—which quite reasonably divorced God and nature—to a culmination, twentieth-century physics, especially quantum physics, has opened a new realm of possible interactions. Even though one can reasonably say that no one understands quantum physics, the fruits of the discipline overflow the cornucopia. People of faith can share the feast; and people of science are welcome at the table of faith. ""This is a unique, enlightening, chronological account of the development of modern physics through quantum mechanics. 75% of the content will not be found in textbooks because it concentrates on the personal history, philosophy, and theology of the scientists involved. Faries is also masterful at bringing his own theology into the discussion of quantum mechanics, letting them inform each other about a series of unresolved paradoxes. To benefit from this book the reader should have had at least a full year of college physics."" -William Wharton, Emeritus Professor of Physics, Wheaton College, Wheaton, Illinois ""This is a knowledgeable, credible, and challenging account that brings scientific causality and human life decisions and involvement into the ultimate definition of reality. Faries sets forth a beautiful example of how a meticulous, informed science and a committed, orthodox Christian faith can reason together in a harmonious manner."" --Alan F. Johnson, Professor of New Testament and Christian Doctrine, Wheaton College and Graduate School, Wheaton, Illinois ""I've never had a conversation with Dillard Faries in which I didn't come away with a deeper insight into Scripture or physics or whatever we happened to be talking about. This book has the same effect, with a subject that boggles the mind with the mysterium tremendum of the known universe."" -Mark Galli, Editor in Chief of Christianity Today Dillard Faries is Professor Emeritus of Physics at Wheaton College. His special interests have been nonlinear optics, physics of music, and quantum physics.

Why There Is Something Rather than Nothing

Amazing Grace of Quantum Physics

Determinism and Free Will

Physics, Philosophy, and Theology

Practicing Science, Living Faith

How Quantum Mechanics Underwrites and Realizes Classical Christian Theism

Since ancient times man has sought to understand the origins of the universe around him, and his place within it. Such speculations were once the sole purview of religion, but since the Enlightenment, science and rationality have also attempted to explain these mysteries, but from an opposing perspective. Conflict resulted and both sides dug in, clinging to dogmas that precluded any consideration of the other side. "Genesis, Zen and Quantum Physics" enters the fray with a very unique approach. Believing that harmony, rather than conflict, defines the relationship between the Genesis account and modern science; the authors have retranslated the creation story according to the ancient Hebrew pictographic language and in the context of the nomadic culture from which the language and narratives arose. The resulting translation and its accompanying commentary challenge the common understanding of God, science, and the very reason for man's existence. By harmonizing an accurate biblical account with cutting edge scientific understanding, the authors present a mature religious ideal and an appreciation for the understanding of the ancients for modern scientific concepts. This is a book that will redefine your understanding of God, the world around you and your role within it.

Despite the differences of their subject matter, science and theology have a cousinly relationship. John Polkinghorne contends in his latest thought-provoking book. From his unique perspective as both theoretical physicist and Anglican priest, Polkinghorne considers aspects of quantum physics and theology and demonstrates that the two truth-seeking enterprises are engaged in analogous rational techniques of inquiry. His exploration of the deep connections between science and Christology shows with new clarity a common kinship in the search for truth. Among the many parallels he identifies are patterns of historical development in quantum physics and in Christology; wrestling with perplexities such as quantum interpretation and the problem of evil; and the drive for an overarching view in the Grand Unified Theories of physics and in Trinitarian theology. Both theology and science are propelled by a desire to understand the world through experienced reality, and Polkinghorne explains that their viewpoints are by no means mutually exclusive. "Anyone who is not shocked by quantum theory has not understood it." Since Niels Bohr said this many years ago, quantum mechanics has only been getting more shocking. We now realize that it's not really telling us that "weird" things happen out of sight, on the tiniest level, in the atomic world: rather, everything is quantum. But if quantum mechanics is correct, what seems obvious and right in our everyday world is built on foundations that don't seem obvious or right at all—or even possible. An exhilarating tour of the contemporary quantum landscape, Beyond Weird is a book about what quantum physics really means—and what it doesn't. Science writer Philip Ball offers an up-to-date, accessible account of the quest to come to grips with the most fundamental theory of physical reality, and to explain how its counterintuitive principles underpin the world we experience. Over the past decade it has become clear that quantum physics is less a theory about particles and waves, uncertainty and fuzziness, than a theory about information and knowledge—about what can be known, and how we can know it. Discoveries and experiments over the past few decades have called into question the meanings and limits of space and time, cause and effect, and, ultimately, of knowledge itself. The quantum world Ball shows us isn't a different world. It is our world, and if anything deserves to be called "weird," it's us.

In this small book, theoretical physicist Gerard 't Hooft (Nobel prize 1999), philosopher Emanuele Severino (Licenci Academician), and theologian Piero Codea (Pontifical Lateran University) confront one another on a topic that lies at the roots of quantum mechanics and at the origin of Western thought: Determinism and Free Will. "God does not play dice" said Einstein, a tenacious determinist. Quantum Mechanics and its clash with General Relativity have reanimated ancient dilemmas about chance and necessity: Is Nature deterministic? Is Man free? The "free-will theorem" by Conway and Kochen, and the deterministic interpretation of quantum mechanics proposed by 't Hooft, revive such philosophical questions in modern Physics. Is Becoming real? Is the Elementary Event a product of the Case? The cyclopean clash between Heraclitus and Parmenides has entered a new episode, as evidenced by the essays in this volume.

Why Everything You Thought You Knew about Quantum Physics Is Different

Beyond Weird

Quantum Leap

New Essays on the Mind-Body Relation in Quantum-Theoretical Perspective

Quantum Theory and Christian Faith

Heaven's Reality

John Polkinghorne is a major figure in today's debates over the compatibility of science and religion. Internationally known as both a theoretical physicist and a theologian—the only ordained member of the Royal Society—Polkinghorne brings unique qualifications to his inquiry into the possibilities of believing in God in an age of science. In this thought-provoking book, the author focuses on the collegiality between science and theology, contending that these "intellectual cousins" are both concerned with interpreted experience and with the search for truth about reality. He argues eloquently that scientific and theological inquiries are parallel. The book begins with a discussion of what belief in God can mean in our times. Polkinghorne explores a new natural theology and emphasizes the importance of moral and aesthetic experience and the human intuition of value and hope. In other chapters, he compares science's struggle to understand the nature of light with Christian theology's struggle to understand the nature of Christ. He addresses the question, Does God act in the physical world? And he extends his ideas about the role of chaos theory, surveys the prospects for future dialogue between scientific and theological thinkers, and defends a critical realist understanding of the activities of both disciplines. Polkinghorne concludes with a consideration of the nature of mathematical truths and the links between the complementary realities of physical and mental experience.

Argues that the discoveries of twentieth-century physics—relativity and the quantum theory—demand a radical reformulation of the fundamentals of reality and a way of thinking, that is closer to mysticism than materialism

From black holes to holograms, from relativity theory to the discovery of quarks, an original exposition of quantum theory tht unravels profound theological questions

"From the electron microscope to the Hubble space telescope, modern technological advances have broadened our horizons - macroscopic and microscopic - beyond anything imaginable prior to the 1930s. One of the most important discoveries of the past few decades is the fact that everything, beginning with subatomic particles and including star systems and conscious human life, emerges from an underlying, transcendent Reality that brings all things from nonexistence into being through a continuous act of creation. All things are essentially interconnected in an entangled unity, which obliges us to view the world as a great hologram in which every aspect contains information of the Whole. This book raises the question of the relationship between that Reality and the Christian understanding of God. Written in the form of a simple novel, it begins by offering an overview, in lay terms, of quantum theory as it has developed since the early twentieth century. Gradually it lays the groundwork for an exploration of the relationship between quantum mechanics and Science and the Trinity.

Genesis, Zen and Quantum Physics - A Fresh Look at the Theology and Science of Evolution

How Science and the Thought of Great Thinkers of History Join with Theology to Show That God Exists and That We Can Live Forever

Energy in Orthodox Theology and Physics

Divine Relationality and Quantum Physics

The Quantum Theory, Philosophy and God

Originally presented as the author's thesis (doctoral—University of Groningen). Includes bibliographical references: (p. [291]-316) and index.

**Quantum Leap** uses key events in the life of Polkinghorne to introduce the central ideas that make science and religion such a fascinating field of investigation. Sir John Polkinghorne is a British particle physicist who, after 25 years of research and discovery in academia, resigned his post to become an Anglican priest and theologian. He was a professor of mathematical physics at Cambridge University, and was elected to the Royal Society in 1974. As a physicist he participated in the research that led to the discovery of the quark, the smallest known particle. This cheerful biography-cum-appraisal of his life and work uses Polkinghorne's story to approach some of the most important questions: a scientist's view of God; why we pray, and what we expect; does the universe have a point?; moral and scientific laws; what happens next?

**In this short masterpiece, eminent scientist and theologian John Polkinghorne offers an accessible, yet authoritative, introduction to the stimulating field of science and theology. After surveying their volatile historical relationship, he leads the reader through the whole array of questions at the nexus of the scientific and religious quests. A lucid and lively writer, Polkinghorne provides a marvelously clear overview of the major elements of current science (including quantum theory, chaos theory, time, and cosmology). He then offers a concise outline of the character of religion and shows the joint potential of science of religion to illumine some of the thorniest issues in theology today: creation, the nature of knowledge, human and divine identity and agency. Polkinghorne aptly demonstrates that a sturdy faith has nothing to fear and much to gain from an intellectually honest appraisal of the new horizons of contemporary science.**

**The development of kenotic ideas was one of the most important advances in theological thinking in the late twentieth century. In The Work of Love eleven foremost theologians and scientists discuss the kenotic view of creation, exploring the implications of this controversial perspective for Christian doctrine and the scientific enterprise generally. The authors' backgrounds are diverse-ranging from systematic theology to neuropsychology-yet each agrees in seeing creation as God's loving act of divine self-restriction. The key concept, kenosis ("self-emptying"), refers to God's voluntary limitation of his divine infinity in order to allow room for finite creatures who are truly free to be themselves. This engaging formulation of God's creative work challenges the common conception of God as a divine dictator and provides a more satisfying response to the perplexing problem of evil and suffering in the world. The fruit of discussions sponsored by the John Templeton Foundation, these stimulating chapters bring a needed interdisciplinary approach to this weighty new trajectory in Christian thought. Contributors: Ian G. Barbour Sarah Coakley George F. R. Ellis Paul S. Fiddes Malcolm Jeeves Jürgen Moltmann Arthur Peacocke John Polkinghorne Holmes Rolston III Keith Ward Michael Welker**

Spiritual Implications of the New Physics

A Theology-physics Interface

The Entangled God

Quantum Theory

Quantum Gods

A Universe from Nothing

*Here, best-selling author Dairmuird O'Murchu presents a vision of the intersection of quantum physics and spirituality. It is now revised to reflect the most recent advances in physics. From black holes to holograms, from relativity theory to the discovery of quarks, this book is an original and rich exposition of quantum theory and the way it unravels profound theological questions.*

Albert Einstein taught that imagination is more important than knowledge, probably having come to this conclusion through a realization that almost all science represents belieffaithas opposed to knowledge. It should come as no surprise, then, that sciencespecially modern physics with its theories of relativity and quantum mechanicshas revolutionized thinking about the likelihood of the existence of God. In *The Physics and Philosophy of the Bible*, author and physician James Frederick Ivey explains how science, particularly quantum mechanics and relativity, aided by Platos philosophy and the history of Jewish people, can be utilized in order to virtually prove that God exists, that he is unique, and that he is the biblical deity. Ultimately an exploration of Christian philosophy and apologeticsincluding discussions of Christian history, secular retorts, the intersection of science and faith, and the relationship between physics and ultimate truth*The Physics and Philosophy of the Bible* demonstrates that apologists are very close to the non-necessity of having to deal with whether God exists or not. From Platos earliest philosophical insights to the most groundbreaking discoveries in contemporary physics, we can find the fingerprints of God that prove he is with us. And, God seeks us just as we seek him, for he desires cognitive individuals with whom he can enjoy mutual love and intimacy.

The untold story of the heretical thinkers who dared to question the nature of our quantum universe Every physicist agrees quantum mechanics is among humanity's finest scientific achievements. But ask what it means, and the result will be a brawl. For a century, most physicists have followed Niels Bohr's Copenhagen interpretation and dismissed questions about the reality underlying quantum physics as meaningless. A mishmash of solipsism and poor reasoning, Copenhagen endured, as Bohr's students vigorously protected his legacy, and the physics community favored practical experiments over philosophical arguments. As a result, questioning the status quo long meant professional ruin. And yet, from the 1920s to today, physicists like John Bell, David Bohm, and Hugh Everett persisted in seeking the true meaning of quantum mechanics. What Is Real? is the gripping story of this battle of ideas and the courageous scientists who dared to stand up for truth.

Science and faith have had a long intertwined history. The relationship has run the gamut from a total disconnect to an adversarial battleground where proponents of each claim total victory. However, if God created the physical world and remains active in the physical world, we cannot ignore the interaction nor can we assume or expect a world of conflict. While nineteenth-century physics brought classical physics—which quite reasonably divorced God and nature—to a culmination, twentieth-century physics, especially quantum physics, has opened a new realm of possible interactions. Even though one can reasonably say that no one understands quantum physics, the fruits of the discipline overflow the cornucopia. People of faith can share the feast; and people of science are welcome at the table of faith.

Quantum Christian Realism

New Insights from Physics, Philosophy, and Theology

An Introduction

Scientific Perspectives on Divine Action

Science and Theology

**Bestselling author and acclaimed physicist Lawrence Krauss offers a paradigm-shifting view of how everything that exists came to be in the first place. "Where did the universe come from? What was there before it? What will the future bring? And finally, why is there something rather than nothing?" One of the few prominent scientists today to have crossed the chasm between science and popular culture, Krauss describes the staggeringly beautiful experimental observations and mind-bending new theories that demonstrate not only can something arise from nothing, something will always arise from nothing. With a new preface about the significance of the discovery of the Higgs particle, A Universe from Nothing uses Krauss's characteristic wry humor and wonderfully clear explanations to take us back to the beginning of the beginning, presenting the most recent evidence for how our universe evolved—and the implications for how it's going to end. Provocative, challenging, and delightfully readable, this is a game-changing look at the most basic underpinning of existence and a powerful antidote to outmoded philosophical, religious, and scientific thinking. The new discoveries in physics during the twentieth century have stimulated intense debate about their relevance to age-old theological questions. Views range from those holding that modern physics provides a surer road to God than traditional religions, to those who say that physics and theology are incommensurable and so do not relate. At the very least, physics has stimulated renewed theological discussions. In this critical introduction to the science-theology debate, Peter E. Hodgson draws on his experience as a physicist to present the results of modern physics and the theological implications. Written for those with little or no scientific background, Hodgson describes connections between physics, philosophy and theology and then explains Newtonian physics and Victorian physics, the theories of relativity, astronomy and quantum mechanics, and distinguishes the actual results of modern physics from speculations. The connections with theology are explored throughout. The concluding section draws discussions together and makes an important new contribution to the debate.**

**Quantum Physics and Theology** explores the creative interaction among quantum physics, philosophy, and theology. This fine collection presents the results of the fifth international research conference co-sponsored by the Vatican Observatory, Rome, and the Center for Theology and the Natural Sciences, Berkeley. The overarching goal of these conferences is to support the engagement of constructive theology with the natural sciences and to investigate the philosophical and theological elements in ongoing theoretical research in the natural sciences. In the first section of this collection, contributors examine scientific and historical context. Section two features essays covering a wide range of philosophical interpretations of quantum mechanics. The final set of essays explores the theological implications of quantum theory. Aber Shimony, Raymond Y. Chiao, Michael Berry, Ernan McMullin, William R. Stoeger, S.J., James T. Cushing, Jeremy Butterfield, Michael Redhead, Chris Clarke, John Polkinghorne, Michael Heller, Philip Clayton, Thomas F. Tracy, George F.R. Ellis, and Robert John Russell all contributed essays to this volume.

Most often, the dialogue between religion and science is initiated by the discoveries of modern science—a big bang cosmology, evolution, or quantum theory, for example. In this book, scientist-theologian John Polkinghorne changes the discussion. He approaches the dialogue from a little-explored perspective in which theology shapes the argument and sets the agenda of questions to be considered. The author begins with a review of approaches to science and religion in which the classification focuses on the theological content rather than on methodological technique. He then proceeds with chapters discussing the role of Scripture, a theology of nature, the doctrine of God, sacramental theology, and eschatology. Throughout, Polkinghorne takes the perspective of Trinitarian thinking while arguing in a style that reflects the influence of his career as a theoretical physicist. In the final chapter, the author defends the appropriateness of addressing issues of science and religion from the specific standpoint of his Christian belief. His book provides an important model for theologians and scientists alike, showing how their two fields can inform one another in significant ways.

What Is Real?

Quantum Physics for Poets

Quantum Physics Meets the Philosophy of Mind

Quantum Mechanics

Quantum Theory: A Very Short Introduction

The Unfinished Quest for the Meaning of Quantum Physics

Quantum Theory is the most revolutionary discovery in physics since Newton. This book gives a lucid, exciting, and accessible account of the surprising and counterintuitive ideas that shape our understanding of the sub-atomic world. It does not disguise the problems of interpretation that still remain unsettled 75 years after the initial discoveries. The main text makes no use of equations, but there is a Mathematical Appendix for those desiring stronger fare. Uncertainty, probabilistic physics, complementarity, the problematic character of measurement, and decoherence are among the many topics discussed. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

The Times Literary Supplement called their previous book, Symmetry and the Beautiful Universe: [A] tour de force of physics made simple. Quantum theory is the bedrock of contemporary physics and the basis of understanding matter in its tiniest dimensions and the vast universe as a whole. But for many, the theory remains an impenetrable enigma.Nobel Prize laureate Leon M. Lederman and Fermi lab theoretical physicist Christopher T. Hill seek to remedy this situation by both drawing on their scientific expertise and their talent for communicating science to the general reader. In this lucid, informative book, designed for the curious, they make the seemingly daunting subject of quantum physics accessible, appealing, and exciting. Their story is partly historical, covering the many Eureka moments when great scientists-Max Planck, Albert Einstein, Niels Bohr, Werner Heisenberg, Erwin Schrödinger, and others-struggled to come to grips with the bizarre realities that quantum research revealed. Although their findings were indisputably proven in experiments, they were so strange and counterintuitive that Einstein refused to accept quantum theory, despite its great success.The authors explain the many strange and even eerie aspects of quantum reality at the subatomic level, from particles that can be many places simultaneously and sometimes act more like waves, to the effect that a human can have on their movements by just observing them.Finally, Drs. Lederman and Hill delve into quantum physics' latest and perhaps most breathtaking offshoots-field theory and string theory. The intricacies and ramifications of these two theories will give the reader much to ponder.

In addition, the authors describe the diverse applications of quantum theory in its almost countless forms of modern technology throughout the world. Using eloquent analogies and illustrative examples, Quantum Physics for Poets render even the most profound reaches of quantum theory understandable and something for us all to savor. Leon M. Lederman, Nobel Laureate (Batavia, IL), is Resident Scholar at the Illinois Mathematics and Science Academy, Director Emeritus of Fermi National Accelerator Laboratory, Pritzker Professor of Science at the Illinois Institute of Technology, the author of the highly acclaimed The God Particle, the editor of Portraits of Great American Scientists, and a contributor to Science Literacy for the Twenty-First Century. Dr. Lederman and coauthor Christopher T. Hill are also the coauthors of Symmetry and the Beautiful Universe. Christopher T. Hill, PhD (Batavia, IL), is chairman of the Department of Theoretical Physics and a theoretical physicist (Scientist III) at Fermi National Accelerator Laboratory. Based on the fundamental, profound, and comprehensive principle of "things are not as they seem," The Physics and Philosophy of the Bible establishes a paradigm that reattaches philosophy to physics, bringing it back whence it came while adding theology to the mix. Author James Frederick Ivey, MD, shows that this mind-set together with timeless thinking can lead one to new horizons of novel thinking about ultimate truth and truths. Ivey describes how modern physics, relativity, and quantum mechanics have revolutionized thinking about the likelihood of the existence of God and how the philosophies of Socrates and Plato meld nearly seamlessly with belief in a single deity and even with Judeo-Christianity. Through a variety of examples, thoughts from a diversity of authors and thinkers, and scriptural support, this study discusses Christian philosophy and apologetics, turning on a few fascinating concepts such as that of quantum observation in conjunction with God's method of creation and the derivation of God from all-goodness. It demonstrates that apologists are close to eliminating the necessity of having to deal with whether God exists or not.

Christian Metaphysics and Quantum Physics  
The Entangled Trinity  
A Common Quest for Understanding  
Belief in God in an Age of Science  
Quantum Physics and Theology  
An Unexpected Kinship