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Education

BS in physics from Wright State University, June 1983. Graduated Magna Cum Laude with Honors in Physics. Inducted into Sigma Pi Sigma. Honors thesis title: *Interaction of Dislocation Lines with Point Defects in Pure Copper*.

MS & PhD in physics from the University of Cincinnati, December 1984 & December 1987. PhD thesis title: *The Dynamics of Mixmaster Type Vacuum Universes with Spacetime Geometries* $R \times S^3 \times S^3$ *and* $R \times S^3 \times S^3 \times S^3$.

Experience

September 1981 - August 1983: Taught introductory physics labs for all majors at Wright State University. Rank: Undergraduate teaching assistant.

September 1983 - June 1987: Taught introductory physics labs and recitations for all majors at the University of Cincinnati. Rank: Graduate teaching assistant.

June 1987 - July 1987: Taught an introductory physics lecture for life-science majors (trigonometry-based) at Wright State University. Rank: Instructor.

September 1987 - July 1988: Taught introductory physics lecture for scientists and engineers (calculus-based) at the University of Dayton. Rank: Assistant professor.

August 1988 - present: Teach physics and philosophy at all levels for science and non-science majors at Elizabethtown College. Rank: Professor.

Courses Taught

Introductory Physics Lab for engineers, scientists, liberal arts majors, and life-science majors. One year, trigonometry-based and calculus-based courses. These courses teach students how to take data, do error analysis, maintain a laboratory notebook, and report experimental findings. The texts were written by instructors at the colleges where the labs were taught. I wrote my own handouts describing the laboratory procedures at Elizabethtown College.

Introductory Physics for life-science majors, scientists, and engineers. Three semester, trigonometry-based and calculus-based courses. Each sequence of courses introduces (at the appropriate mathematical level) kinematics, dynamics, thermodynamics, statics, fluids, electricity and magnetism, optics, relativity, quantum mechanics, nuclear and atomic physics, and particle physics. Texts: *College Physics* by R.A. Serway and J.S. Faughn; *General Physics* by D.C. Giancoli.

Freshman Seminars titled, "Mysteries of the Cosmos," "The Universe: Cosmos or Chaos," "God and the New Physics," "The Mind of God," "Romancing the Universe," "How Do You Know? Spiritual & Rational Realms of Knowledge," and "Mind & Brain." One semester, non-mathematical courses. The Freshman Seminar is designed to introduce first-semester students to college-level academics, familiarize them with the library, polish their communications skills, and inspire them to greater academic achievement. Texts: *Cycles of Fire* by W.K. Hartmann and R. Miller; *The Capricious Cosmos* by Joe Rosen; *God and the New Physics* by P. Davies; *The Mind of God*, by P. Davies; *Romancing the Universe* by J.G. Sobosan; *Mapping the Mind* by Rita Carter; *Consciousness: An Introduction* by Susan Blackmore.

Cosmology. One semester, non-mathematical course. A study of the origin, evolution, and large scale structure of the universe according to various scientific theories; the history of cosmology and its interactions with society; world views associated with nihilism, existentialism, holism, reductionism, the anthropic principles, and the theistic principle. Text: *Cosmology: Historical, Literary, Philosophical, Religious, and Scientific Perspectives* edited by N.S. Hetherington.

Astronomy with lab. One semester, algebra-based course. A study of the structure and evolution of stars, planetary systems, galaxies, and the universe. Less familiar astronomical objects such as black holes, quasars, cosmic strings, texture, and wormholes are also studied. Laboratories provide an opportunity to observe planets, stars, clusters, nebulae, and galaxies; they also provide practical experience in determining astronomical quantities. Text: T*he Cosmic Perspective* by Jeffrey Bennett *et al*.

Earth in Space. One semester, non-mathematical introduction to Big Bang cosmology, galaxies, stellar evolution, planetary formation, the solar system, physical geology, Earth's interior & physical properties, the sea floor, plate tectonics, mountain belts, the continental crust, structural geology, earthquakes & seismology, igneous rocks & the rock cycle. Text: *Earth in Space: The Evolution of a Planet*, Custom Text.

How Things Work. One semester, non-mathematical introduction to concepts in physics related to commonly used technology and processes experienced in daily life. Topics covered: Motion (skating, projectiles, wheels, bumper cars), Mechanics (scales, baseball, amusement parks, bicycle), Resonance (musical instruments), Optics (camera, telescope), Modern Physics (relativity of simultaneity, quantum non-locality), and Astronomy (celestial motions). Text: *How Things Work: The Physics of Everyday Life* by Louis A. Bloomfield.

Introductory Acoustics. One semester, algebra-based creative expression course. A study of the fundamentals of musical sound produced by wind and string instruments. The course covers vibrational and oscillatory motion, waves, types of sound, science and aesthetics, scales, pitch, beats, power and loudness, consonance, dissonance, chords, and harmony. Text: *Musical Acoustics* by D.A. Hall.

History & Philosophy of Science. One semester, non-mathematical course offered through the Department of Philosophy. An examination of the scientific method and scientific models, as well as an analysis of the impact of science upon the modern world. The limitations of science are also addressed. Texts: *Philosophy of Science, The Central Issues* edited by Martin Curd & J.A. Cover; *Worldviews: An Introduction to the History and Philosophy of Science* by Richard Dewitt; *An Introduction to the Philosophy of Physics* by Marc Lange.

Modern Physics. One semester, sophomore-level course. An introduction to special relativity and quantum mechanics. Topics include Lorentz transforms, boost matrix mechanics, Faraday tensor, Schrödinger's equation, reflection and transmission coefficients, the EPR paradox, and the measurement problem. Texts: *Classical Electrodynamics* by J.D. Jackson; *Modern Physics* by Paul Tipler.

General Physics III with *Numerical Analysis Lab*. One semester, sophomore-level course. An introduction to electrostatics, magnetostatics, and partial differential equations. The laboratory covers topics such as repeated bisection and Newton's method for finding the roots of polynomials, Taylor series and the Runge-Kutta method for solving differential equations, cubic splines and least-squares fitting, and finite difference methods for solving the heat equation. Text: *Boundary Value Problems* by D.L. Powers.

Advanced Physics Laboratory for physicists and engineers. One semester, junior-level course. Advanced laboratory course with experiments in modern physics, electricity and magnetism, optics, and thermodynamics. References: *Experimental Methods for Engineers* by J.P. Holman; *Electronics and Instrumentation for Scientists* by H.V. Malmstadt, C.G. Enke, and S.R. Crouch.

Mechanics for physicists and engineers. One semester, junior-level course. An intermediate course in mechanics covering Newtonian mechanics of systems of particles, central forces, oscillations, collisions, rigid-body dynamics, and the Lagrangian formalism for generalized coordinates. Text: *Dynamics* by R.C. Hibbeler.

Electromagnetism for physicists and engineers. One semester, junior-level course. An intermediate course in electromagnetism, including electro- and magnetostatics and dynamics. Maxwell's equations, macroscopic fields, and electromagnetic waves are covered. Text: *Electromagnetics for Engineers* by S.E. Schwarz.

General Relativity (listed by Math Department as *Applied Differential Geometry*) for physicists and mathematicians. One semester, junior-level course. An introduction to manifolds, differential topology, exterior calculus, affine geometry, Riemannian geometry, special relativity, and general relativity with applications to relativistic cosmology and black holes. References: *Gravitation* by C.W. Misner, K.S. Thorne, and J.A. Wheeler; *General Relativity* by R.M. Wald.

Junior-Senior Colloquium titled, "Exploring Worldviews: Cosmology in Philosophical, Scientific, and Theological Perspective." One semester, junior-level course. An introduction to the central and essential cosmological questions that face all human beings, providing students with the resources and the opportunity to explore their own worldviews. Text: *God, Humanity and the Cosmos* by Christopher Southgate *et al*.

Quantum Physics I and II for physicists. One year, senior-level course. The course introduces and uses the Dirac notation to explain introductory quantum mechanics from simple one-dimensional problems through the hydrogen atom. Also studied are spin, the path integral formalism, and the addition of angular momenta. Texts: *Principles of Quantum Mechanics* by R. Shankar; *Quantum Mechanics and Experience* by David Z. Albert.

Courses Audited at Elizabethtown College

Fundamentals of Language and Culture (GER 111*)
Introduction to Music Literature (MU 105*)
The Religious Literature of Early Christianity (REL 102*)
Eastern Religions (REL 222)
Abstract Algebra (MA 301)
Philosophy of Natural Science (PH 370)
Christology (REL 374)
The Religious Literature of Ancient Israel (REL 101*)
Philosophy of Science (PH 213*)
Real Analysis I (MA 421)
Dynamic Earth (ES 111*)
Topology (MA 371)
Philosophy of Mind (PH 378)
History and Philosophy of Science (PH 200)

Papers

"Dynamics of the Mixmaster Type Universe with Topology $\mathbb{R}$ x S^3 x S^3," W.M. Stuckey, L. Witten & Bob Stewart, *General Relativity and Relativistic Astrophysics, Proceedings of the 2^{cd} Canadian Conference*, 64 – 67 (World Scientific, Singapore, 1988).

"Dynamics of the Mixmaster-type, Vacuum Universe with Geometry $\mathbb{R}$ x S^3 x S^3 x S^3," W.M. Stuckey, L. Witten & Bob Stewart, *General Relativity and Gravitation* **22**, 1321 – 1339 (1990).

"Some Recent Developments in Mixmaster Cosmology," W.M. Stuckey, *Comments on Astrophysics* **15**, No. 2, 63 – 70 (1990).

"Can Galaxies Exist within Our Particle Horizon with Hubble Recessional Velocities Greater Than c?" W.M. Stuckey, *American Journal of Physics* **60**, No. 2, 142 – 146 (1992).

"Derivation of the Spectral Energy Density in $\mathbb{R}$ x S^3," W.M. Stuckey & G. Bambakidis, *General Relativity and Relativistic Astrophysics, Proceedings of the 4th Canadian Conference*, 347 – 349 (World Scientific Press, Singapore, 1992).

"Hamiltonian for the Vacuum Mixmaster Universe with Geometry $\mathbb{R}$ x S^7," R.M. Cassidy & W.M. Stuckey, *General Relativity and Relativistic Astrophysics, Proceedings of the 4th Canadian Conference*, 35 – 39 (World Scientific Press, Singapore, 1992).

"Kinematics between Comoving, Photon Exchangers in the Closed Matter-dominated Universe," W.M. Stuckey, *American Journal of Physics* **60**, No. 6, 554 - 560 (1992).

"The Schwarzschild Black Hole as a Gravitational Mirror," W.M. Stuckey, *American Journal of Physics* **61**, No. 5, 448 – 456 (1993).

"Recession Velocities Greater Than c within the Particle Horizon," W.M. Stuckey, *General Relativity and Relativistic Astrophysics, Proceedings of the 5th Canadian Conference*, 454 – 458 (World Scientific Press, Singapore, 1994).

"The Observable Universe Inside a Black Hole," W.M. Stuckey, *American Journal of Physics* **62**, No. 9, 788 – 795 (1994).

"Defining Spacetime," W.M. Stuckey, *Modern Mathematical Models of Time and their Applications to Physics and Cosmology, Astrophysics and Space Science* **244**, 371 – 374 (Kluwer, Boston, 1996).

"Uniform Spaces via Topological Groups and Non-locality," W.M. Stuckey, *Causality and Locality in Modern Physics and Astronomy*, 235 – 242 (Kluwer, Boston, 1998).

"Leibniz's Principle, Dynamism and Non-locality," W.M. Stuckey, *Physics Essays* **12**, No. 3, 414 – 419 (1999).

"Pregeometry and the Trans-Temporal Object," W.M. Stuckey, *Studies on the Structure of Time: from Physics to Psycho(patho)logy*, 121 – 128 (Kluwer Academic, New York, 2000).

"Uniform Spaces in the Pregeometric Modeling of Quantum Non-Separability." W.M. Stuckey & Michael Silberstein, gr-qc/0003104 (revised Apr, 2001).

"Science, Religion, & Templeton Prize," W. Mark Stuckey, *Letters*: *Physics Today* **54**, No. 8, 72 – 74 (2001).

"Metric Structure and Dimensionality over a Borel Set via Uniform Spaces," W.M. Stuckey, gr-qc/0109030 (revised 25 Sep 2001).

"Pregeometry via Uniform Spaces," W.M. Stuckey & Wyeth Raws, *Gravitation & Cosmology: From the Hubble Radius to the Planck Scale*, 477 – 482 (Kluwer Academic, Dordrecht, 2002).

"On a Pregeometric Origin for Spacetime Dimensionality and Metric Structure," W.M. Stuckey, gr-qc/0208057.

"Causality as a Casualty of Pregeometry," W.M. Stuckey, *The Nature of Time: Geometry, Physics and Perception*, 353 – 362 (Kluwer Academic, Dordrecht, 2003).

"Of Quantum Non-Locality & Anti-Bullets," Mark Stuckey, *Metanexus: Views 2003.03.19*.

"Deflating Quantum Mysteries via the Relational Blockworld," W.M. Stuckey, Michael Silberstein & Michael Cifone, *Physics Essays* **19**, No. 2, 269 – 283 (2006), quant-ph/0503065.

"Reversing the Arrow of Explanation in the Relational Blockworld: Why Temporal Becoming, the Dynamical Brain and the External World are in the Mind," W.M. Stuckey, Michael Silberstein & Michael Cifone, in *Endophysics, Time, Quantum and the Subjective*, 293 – 316 (World Scientific, Singapore, 2005).

"Geometrical quantum mechanics with spacetime relations: *A defense of heterodoxy*," Michael Silberstein, Michael Cifone & W.M. Stuckey submitted to *Philosophy of Science*, Mar 2006.

"Quantum to Classical Transition per the Relational Blockworld," W.M. Stuckey, Michael Silberstein and Michael Cifone, quant-ph/0605105.

"An Argument for 4D Blockworld from a Geometric Interpretation of Non-relativistic Quantum Mechanics," Michael Silberstein, W.M. Stuckey & Michael Cifone, *Relativity and the Dimensionality of the World*, 197 – 216 (Springer-Verlag, Germany, 2007), quant-ph/0605039.

"The Relational Blockworld Interpretation of Non-relativistic Quantum Mechanics," W.M. Stuckey, Michael Silberstein & Michael Cifone, *Foundations of Probability and Physics 4*, edited by Guillaume Adenier, Christopher A. Fuchs and Andrei Yu. Khrennikov, 412 – 421 (American Institute of Physics, Melville, NY, 2007).

"Implications for a spatially discrete transition amplitude in the twin-slit experiment," W.M. Stuckey, quant-ph/0703039 (revised Dec 2007).

"Reconciling Spacetime and the Quantum: Relational Blockworld and the Quantum Liar Paradox," W.M. Stuckey, Michael Silberstein & Michael Cifone, *Foundations of Physics* **38**, No. 4, 348 – 383 (2008), quant-ph/0510090 (revised Dec 2007).

"Unification per the Relational Blockworld," W.M. Stuckey & Michael Silberstein, quant-ph/0712.2778 (revised Mar 2008).

"Why Quantum Mechanics Favors Adynamical and Acausal Interpretations such as Relational Blockworld over Backwardly Causal and Time-Symmetric Rivals," Michael Silberstein, Michael Cifone & W.M. Stuckey, *Studies in History & Philosophy of Modern Physics* **39**, No. 4, 736 – 751 (2008). http://dx.doi.org/10.1016/j.shpsb.2008.07.005.

"Relational Blockworld: Towards a Discrete Graph Theoretic Foundation of Quantum Mechanics," W.M. Stuckey, Timothy McDevitt & Michael Silberstein, quant-ph/0903.2642.

"Relational Blockworld Interpretation of Quantum Field Theory," W.M. Stuckey, Timothy McDevitt & Michael Silberstein, quant-ph/0908.4348.

Conferences and Workshops Attended

1985 Joint Spring Meeting of the Ohio Section of the American Physical Society and the Southern Ohio Section of the American Association of Physics Teachers. (April 1985)

2cd Canadian Conference on General Relativity and Relativistic Astrophysics. (May 1987)

1987 Fall Meeting of the Ohio Section of the American Physical Society. (October 1987)

Chautauqua Short Course: Mathematics for Dynamic Modeling. (April 1989)

37th Annual Meeting of the Central Pennsylvania Section of the American Association of Physics Teachers. (April 1989) One of my students delivered a paper.

38th Annual Meeting of the Central Pennsylvania Section of the American Association of Physics Teachers. (April 1990)

1990 Spring Meeting of the American Physical Society, Division of Astrophysics. (April 1990)

1990 Central Pennsylvania Consortium Astronomers' Meeting. (April 1990)

39th Annual Meeting of the Central Pennsylvania Section of the American Association of Physics Teachers. (April 1991) One of my students delivered a paper.

1991 Central Pennsylvania Consortium Astronomers' Meeting. (April 1991)

4th Canadian Conference on General Relativity and Relativistic Astrophysics. (May 1991)

Frontiers of Theoretical Physics and Mathematics: Topics on Quantum Gravity. (April 1992)

1992 Central Pennsylvania Consortium Astronomers' Meeting. (April 1992)

Chautauqua Short Course: A Radio View of the Universe. (May 1992)

1993 Central Pennsylvania Consortium Astronomers' Meeting. (April 1993)

5th Canadian Conference on General Relativity and Relativistic Astrophysics. (May 1993)

1994 Central Pennsylvania Consortium Astronomers' Meeting. (April 1994)

Chautauqua Short Course: Unification, Grand and Not So Grand. (May 1994)

43rd Annual Meeting of the Central Pennsylvania Section of the American Association of Physics Teachers. (April 1995) One of my students delivered a paper.

1995 Central Pennsylvania Consortium Astronomers' Meeting. (April 1995)

Fundamental Forces and Quantum Technology. (May 1995)

Mathematical Modeling of Time in Physics and Cosmology. (April 1996)

Causality and Locality in Modern Physics and Astronomy. (August 1997)

The Study of Time X. (July 1998)

Fundamental Problems in Quantum Theory. (Aug 1999)

Studies on the Structure of Time: from Physics to Psycho(patho)logy. (Nov 1999)

Gravitation and Cosmology: From the Hubble Radius to the Planck Scale. (Aug 2000)

Wheeler Symposium: Science & Ultimate Reality. (Mar 2002)

NATO ARW: The Nature of Time: Geometry, Physics and Perception. (May 2002)

New Directions in the Foundations of Physics. (May 2002)

The Ontology of Spacetime. (May 2004)

Endophysics, Time, Quantum and the Subjective. (Jan 2005)

New Directions in the Foundations of Physics. (Apr 2005)

Time-Symmetry in Quantum Mechanics. (Jul 2005)

New Directions in the Foundations of Physics. (Apr 2006)

Foundations of Probability and Physics 4. (Jun 2006)

Cosmology, Physics & the Possibility of Life. (Jan 2007)

Projective Geometries in Quantum Theory. (Aug 2007)

The Clock and the Quantum: Time and Quantum Foundations. (Sep 2008)

Colloquia and Seminar Presentations

Title: Interaction of Dislocation Lines with Point Defects in Pure Copper
Delivered: May 1983 at Wright State University

Title: Kasner Solution in N-Dimensions
Delivered: April 1985 at the University of Cincinnati

Title: N-Dimensional, Mixmaster-type Vacuum Hamiltonian
Delivered: December 1985 at the University of Cincinnati

Title: Dynamics of the Mixmaster-type Universe with Topology $R \times S^3 \times S^3$
Delivered: May 1987 at the University of Toronto

Title: Relativity, Generally Speaking
Delivered: February 1986 at Wright State University
April 1987 at the University of Dayton
March 1988 at Elizabethtown College
October 1989 at Millersville University

Title: Teaching Thermodynamics in Algebra-based Introductory Physics
Delivered: March 1988 at Ferris State College

Title: Science, Pseudoscience, and Heresy
Delivered: February 1990 at Elizabethtown College

Title: Faster-than-Light Galaxies
Delivered: March 1991 for the Astronomical Society of Harrisburg
April 1991 at Franklin and Marshall College
October 1991 for the Lehigh Valley Amateur Astronomical Society
March 1992 for the Delaware Valley Amateur Astronomers
September 1992 at Lycoming College

Title: Hamiltonian for the Vacuum Mixmaster Universe with Geometry $R \times S^7$
Delivered: May 1991 at the University of Winnipeg

Title: Cosmology and Christianity (several, one-hour lectures)
Delivered: February and March 1992 at Elizabethtown United Methodist
October 1994 at Lititz Church of the Brethren

Title: Black Holes as Gravitational Mirrors
Delivered: April 1992 at Gettysburg College
October 1992 for the Astronomical Society of Harrisburg
April 1993 for the Lebanon-Lancaster Science Teachers Association
April 1993 at Wright State University

Title: The View on and about a Q-star
Delivered: April 1993 at Dickinson College

Title: The Black Hole Universe
Delivered: March 1994 at Miami University, Ohio
April 1994 at Gettysburg College
May 1994 at Wright State University

Title: Big Bang Cosmology
Delivered: April 1994 for the Lebanon-Lancaster Science Teachers Association

Title: Defining Spacetime
Delivered: April 1996 at University of Arizona

Title: Does God Play Dice?
Delivered: April 1997 for the Lebanon-Lancaster Science Teachers Association
October 1997 at Wright State University

Title: Uniform Spaces via Topological Groups and Non-locality
Delivered: August 1997 at York University, Toronto

Title: Static for Dynamism
Delivered: July 1998 at Evangelische Akademie, Germany

Title: Quantum Non-Locality and Reductive Pregeometry
Delivered: August 1999 at University of Maryland Baltimore County

Title: Pregeometry and the Trans-Temporal Object
Delivered: November 1999 at Centro Interdipartimentale di Tecnologie, Italy

Title: Pregeometry via Uniform Spaces
Delivered: August 2000 at University of California, Berkeley.

Title: Causality as a Casualty of Pregeometry
Delivered: May 2002 at Slovak Academy of Sciences, Tatranska Lomnica

Title: Quantum Non-Locality and the Structure of Spacetime
Delivered: May 2004 at Concordia University, Montreal
Sep 2004 at Millersville University

Title: The Relational Blockworld
Delivered: Jan 2005 at Bielefeld University, Germany
Feb 2005 at Millersville University
Apr 2005 at University of Maryland
Apr 2005 at American Institute of Physics
May 2005 at Wright State University
Jul 2005 at University of Sydney
Aug 2007 at Slovak Academy of Sciences
Sep 2008 at Perimeter Institute, Canada

Title: Consciousness in the Relational Blockworld
Delivered: Apr 2006 for Elizabethtown College Center for Science & Religion

Title: Quantum to Classical Transition per the Relational Blockworld
Delivered: Jun 2006 at Växjö University, Sweden

Title: Non-technical Introduction to Quantum Conundrums
Delivered: March 2007 at Sul Ross University.

Journals Refereed

American Journal of Physics
Journal of General Relativity and Gravitation
Physics Essays
Foundations of Science
Discrete and Continuous Dynamical Systems

Review & Editorial Work

West Publishing Co. (Reviewed chapter on cosmology for Karl Kuhn, 1992)

John Wiley & Sons (Reviewed problems on cosmological redshifts for Kenneth Krane, 1993)

Wm. C. Brown Publishers (Reviewed chapter on cosmology for Thomas Arny, 1994)

Saunders College Publishing (Reviewed chapter on cosmology for Jay Pasachoff, 1994)

Mosby-Year Book (Reviewed chapter on cosmology for Sune Engelbrektson, 1994)

Reviewed "Between Inner Space and Outer Space," by John D. Barrow for the International Society for the Study of Time (1999)

Reviewed "Romancing the Universe," by Jeffrey G. Sobosan for META (Jan 2000).

Reviewed "Cosmology and Creation, The Spiritual Significance of Contemporary Cosmology," by Paul Brockelman for META (Feb 2000).

Springer-Verlag (Reviewed a manuscript on relativity, 2003)

Co-edited "The Nature of Time: Geometry, Physics and Perception" NATO Science Series II. Mathematics, Physics and Chemistry, v95 (2003)

McGraw Hill (Reviewed chapter on relativity for Alan Giambattista, 2004)

Wadsworth Publishing (Reviewed chapter on cosmology for Michael Seeds, 2004)

W.H. Freeman (Revisions to material on large redshift kinematics for Neil Comins, 2007)

Wiley (Corrections for "An Introduction to Modern Cosmology" by Andrew Liddle, 2007)

Awards

(1996) My *Junior-Senior Colloquium* titled, "Exploring Worldviews: Cosmology in Philosophical, Scientific, and Theological Perspective" was awarded a $10,000 prize in the Templeton Foundation's Courses in Science and Religion Program. The course was co-taught with Professors Silberstein and Bucher. The institutional portion of the grant was used to host a conference, *Reasons to Believe*, which Dr. Silberstein and I co-directed in 1997.

(2000) I was awarded a NATO research grant as part of an international research consortium of colleagues from Italy, England, and Slovakia. The grant funded collaborative visits between members of the consortium. I visited the Solvay Institutes of Physics & Chemistry in January 2002 and the University of Nottingham in January 2003 under the auspices of this grant.

(2001) NATO funded an advanced research workshop entitled, "The Nature of Time: Geometry, Physics & Perception" for which I was an invited speaker, session coordinator and an editor of the proceedings. The workshop was held in May 2002 at the Slovak Academy of Sciences.

(2004) Professors Silberstein, Teske and I received a $15,000 Local Societies Initiative grant from the Metanexus Institute as co-chairs of the Elizabethtown College Center for Science and Religion. The grant will be matched by Elizabethtown College to promote multidisciplinary, public and cross-institutional dialogue on key issues in the field of science and religion.

(2005) Elizabethtown College Strategic Grant ($10,000) to conduct research associated with Relational Blockworld.

(2005) Travel award ($1,500) from Huw Price to present a paper on Relational Blockworld at his conference, "Time-Symmetry in Quantum Mechanics," hosted by The Centre for Time, University of Sydney.

(2007) Travel award ($2,000) from the Center for Theology and the Natural Sciences to pay expenses for attending their conference, "Cosmology, Physics & the Possibility of Life."

(2007) Travel award ($1,200) from Metod Saniga of the Slovak Academy of Sciences to pay expenses for presenting at his workshop, "Projective Geometries in Quantum Theory."