DONALD SALISBURY
CURRICULUM VITAE

PERSONAL

Emeritus Work Address: Department of Physics, Austin College, Sherman, Texas 75090
Work Electronic Mail: dsalisbury@austincollege.edu
World Wide Web: http://artemis.austincollege.edu/acad/physics/dsalis
Home Address: 1002 Hyde Park Drive, McKinney, Texas 75069
Mobile phone: 214 405 6188
Birthdate: May 6, 1946
Marital Status: Married to Maria Cecilia Salisbury

EDUCATION

Ph.D. in Physics, Syracuse University, May, 1977

Dissertation:"The Quantization of the Relativistic Closed String"
Dissertation Advisor: Peter G. Bergmann (Relativity Theory)
Secondary Advisor: A.P. Balachandran (Particle Theory)

B.A., Oberlin College, June, 1968

Major Field: Physics

Elementary and High School: Pulaski Academy and Central School, Pulaski, New York

Language Study

Institut für Europäische Studien, Vienna, Austria, Summer, 1967
L'Accueil Fraternel, Le Chambon sur Lignon, France, Fall, 1970

LANGUAGE PROFICIENCY

Fluency: German, French, Spanish
Intermediate: Italian

AWARDS AND GRANTS

Grant-in-Aid from the Center for the History of Physics of the American Physical Society of $1500 in 2019, $2,500 in 2013, $1,175 in 2011
Austin College Science Division Service Award 2008
Austin College Science Division Research Award 2012, 2006, 2002
Austin College Priddy Research Grant for $8200, Summer, 2006
Austin College Priddy Research Grant for $8200, Summer, 2004
NSF Grant PHY99-50415: "CCLI-ADAPTATION AND IMPLEMENTATION: A Computer-Based Laboratory-Classroom for Active Learning In Introductory Physics and Astronomy " matching grant for $27,956 (Co-PI)
NSF Grant PHY94-13063: "RUI: Connection Approaches to Numerical Relativity" for $42,690 (PI)
NSF Grant PHY92-11953: "RUI: Numerical Solutions of Planar Vacuum Einstein Equations Using Ashtekar Variables" for $34,372 (PI)
Who's Who Among America's Teachers
Who's Who in American Education
Who's Who in the South and Southwest
American Men and Women of Science

APPOINTIVE AND ELECTIVE POSTIONS

Associate Editor, American Journal of Physics, 2021 -
Editor, History of Physics Newsletter, Forum on History of Physics of the American Physical Society, 2020 - 2023
Assistant Editor, History of Physics Newsletter, Forum on History of Physics of the American Physical Society, 2019 - 2020
Elected Member-at-Large, Executive Committee of the History of Physics Forum of the American Physical Society, 2016-2019
Co-Director of the Austin College Program in Global Science, Technology, and Society, 2010-2016
Chair, Austin College Department of Physics, 1994-2005
Standing Committee, International Association for Relativistic Dynamics, 1998-2002
Elected Physics/Astronomy Councilor of the Council on Undergraduate Research, 1995-98
Physics/Astronomy divisional associate editor of the Council on Undergraduate Research Quarterly, 1995-96

PROFESSIONAL EXPERIENCE

EMPLOYER	*DATES*	*RANK*
Austin College, Sherman, Texas	9/16	Emeritus Professor
Austin College, Sherman, Texas	9/09 – 9/16	Professor
Austin College, Sherman, Texas	9/87 – 9/90	Assistant Professor
Hobart and William Smith Colleges, Geneva, New York	9/85 – 9/87	Visiting Assistant Professor
Reed College, Portland, Oregon	9/83 – 9/85	Visiting Assistant Professor
Rutgers University-Newark,Newark, New Jersey	6/83 - 7/83	Adjunct Professor
Cooper Union School of Engineering, New York, New York	9/82 - 5/83	Adjunct Professor
Rutgers University-Newark	9/82 -12/82	Adjunct Professor
Cooper Union	6/82 - 7/82	Adjunct Professor
Free University of Berlin, West Berlin, Germany	6/80 - 6/82	Research Assistant (Wissenschaftlicher Mitarbeiter)
New York City Community, College, Brooklyn, New York	2/80 - 5/80	Adjunct Professor
Rutgers University-Newark	9/79 - 5/80	Adjunct Professor
New York University, New York, New York	7/79 - 8/79	Adjunct Professor
Cooper Union School of Engineering	6/79 - 7/79	Adjunct Professor
Rutgers University-Newark	9/78 - 5/79	Adjunct Professor
Free University of Berlin	12/77 - 8/78	Research Assistant
Rutgers University-Newark	9/77 - 12/77	Adjunct Professor
Syracuse University, Syracuse, New York	6/77 - 8/77	Research Assistant
Syracuse University	9/71 - 5/77	Teaching Assistant
Institut Brinton, Sandoa, Zaire, Africa	5/70 - 8/71	High School Teacher
Syracuse University	9/68 - 5/69	Teaching Assistant

SABBATICAL RESEARCH

Visiting Scholar, Max Planck Institute for the History of Science, September 2015 – December 2015, January 2008 - August 2008

Visiting Scholar, Department of Physics, Syracuse University, September 2001 - December 2001

Visiting Scholar, Center for Relativity, Department of Physics, University of Texas at Austin, June 1993 - January 1994

SUMMER AND JANUARY RESEARCH

Einstein Papers Project, California Institute of Technology, July, 2010
Visiting Scholar, Max Planck Institute for the History of Science, Berlin, June 2005, June - August 2009, January 2010, June - August 2011, July 2012, June - July 2014, June - July 2016, June - July 2017
University of Barcelona, June, 2007
Department of Physics, University of Maryland, June, 2003
Department of Physics, University of Florence, Italy, July, 2000, 2001
Visiting Scholar, Center for Relativity, Department of Physics, University of Texas at Austin, Summers 1991-1995, 1997-98
Department of Physics, University of Barcelona, Barcelona, Spain, June, 1990 and July, 1988

SHORT COURSE INSTRUCTOR

Delivered a cycle of lectures on "El camino de Einstein hacia la teoria de relatividad" at the Universidad Tecnológica de Pereira, Colombia, from May 23 through May 27, 2011.

Instructor, with Thomas Settle of the Florence Science History Museum, of two National Science Foundation Chautauqua Short Courses for College Teachers, *Galileo's Science and its Artisanal, Commercial and Engineering Origins*, May 30-June 4, 2007 and *Galileo's Genius Viewed in Craft, Engineering, Scientific, Artistic and Political Context*, May 26-31, 2006

Instructor with Jeff Fontana and Max Grober of National Science Foundation Chautauqua Short Course for College Teachers, *Galileo's Genius Viewed in Scientific, Artistic, Political and Religious Context*, Florence, Italy, May 27 - 31, 2004 and May 26 - 30, 2005

MEETINGS ORGANIZER

Member of Organizing Committee of the Mathematical Physics and General Relativity Symposium in Honor of Professor Ivor Robinson, University of Texas at Dallas, May 7-9, 2017

Member of Local Organizing Committee of XXVII Texas Symposium on Relativistic Astrophysics, Dallas, December 8-13, 2013 - Organized the plenary session Roundtable Discussion "Recollections of the Relativistic Astrophysics Revolution" with members Anderson, Brill, DeWitt, Goldberg, Kerr, Misner, Newman, Penrose, Rindler, and Witten - obtaining support from the Center for History of Physics, the Max Planck Institute for the History of Science, and Austin College.

Co-organizer of the Austin College Nature of Time Minisymposium, February 26-27, 2007

JOURNAL REFEREE

Archive for History of Exact Sciences
Physical Review Letters
Physical Review E
Annals of Physics
Journal of Mathematical Physics
General Relativity and Gravitation
Journal of Physics A
Modern Physics Letters A
Classical and Quantum Gravity
European Journal of Physics
Studies in History and Philosophy of Modern Physics
European Physical Journal

PUBLICATIONS

Books

Associate Editor, Directory of Research in Physics/Astronomy at Primarily Undergraduate Institutions, Council on Undergraduate Research, 1997 (G. Ruppeiner, ed.) ISBN 0-941933-17-2

Research Articles and Reports

"Joshua N. Goldberg", to appear in *The Golden Age of Space-Time* edited by Susan Scott and Daniele Malafarina (with Abhay Ashtekar and David Robinson)

"A contextual analysis of the early work of Andrzej Trautman and Ivor Robinson on equations of motion and gravitational radiation", https://arxiv.org/abs/1910.03753

"Memories of my early career in relativity physics", *European Physical Journal H* **44**, 391-413 (2019), https://arxiv.org/abs/1909.12165, (with Andrzej Trautman)

"Remembering Julian Schwinger", *History of Physics Newsletter, April Session Reports* **XIV-3**, *6,9 (2019)*

"Centennial of the Eddington Eclipse Expedition"", *History of Physics Newsletter, April Session Reports* **XIV-3**, *7 (2019)*

"Toward a quantum theory of gravity: Syracuse 1949-1962", https://arxiv.org/abs/1909.05412, to appear in an Einstein Studies volume entitled *The Renaissance of General Relativity* edited by Alexander Blum, Roberto Lalli, and Jürgen Renn

"Léon Rosenfeld's general theory of constrained Hamiltonian dynamics", https://arxiv.org/abs/1606.06076v2, *European Physical Journal H* **42**, 23-61 (2017) (with Kurt Sundermeyer), DOI: 10.1140/epjh/e2016-70042-7

"On the quantization of wave fields", (translation, with comments, of Léon Rosenfeld's "Zur Quantelung der Wellenfelder" in *Annalen der Physik* **397**, 113-152 (1930)), *European Physical Journal H* **42**, 63-94 (2017) (with Kurt Sundermeyer), DOI: 10.1140/epjh/e2016-70041-3

"Restoration of four-dimensional diffeomorphism covariance in canonical general relativity: An intrinsic Hamilton-Jacobi approach *International Journal of Modern Physics A* **31**,1650014— 1-25 (2016), "Erratum" **33**, 1892001 (2018), https://arxiv.org/abs/1508.01277v5, (with Jürgen Renn and Kurt Sundermeyer), DOI: 10.1142/S0217751X16500147 10.1142/S0217751X1892001X

"Tsung-Sui Chang's Contribution to the Quantization of Constrained Hamiltonian Systems", in Traditions and Transformations in the History of Quantum Physics, Berlin: Edition open access (Max Planck Research Library for the History and Development of Knowledge studies series), Shaul Katzir, Christoph Lehner and Jürgen Renn (eds.), 2012 (with Xiaodong Yin, Zhongyuan Zhu)

"Peter Bergmann and the invention of constrained Hamiltonian dynamics", in Einstein and the Changing Worldviews of Physics, C. Lehner, J. Renn, and M. Schemmel (eds.) (Birkhauser, 2012), 247-258 https://arxiv.org/abs/physics/0608067

"1912: A turning point on Einstein's way to general relativity," Annalen der Physik **524**, A11–A13 (2012) (with A.S. Blum, Jürgen Renn, Matthias Schemmel and Kurt Sundermeyer)

"Léon Rosenfeld's Pioneering Steps Toward a Quantum Theory of Gravity," Journal of Physics: Conference Series 222.1 (2010)

"Observables in Classical Canonical Gravity: Folklore Demystified," Journal of Physics: Conference Series 222.1 https://arxiv.org/abs/1001.2726, (2010) (with J. M. Pons and K. Sundermeyer)

"Translation and commentary of Léon Rosenfeld's 'Zur Quantelung der Wellenfelder', Annalen der Physik **397**, 113 (1930)," Max-Planck-Institut für Wissenschaftsgeschichte preprint 381

"Revisiting observables in generally covariant theories in the light of gauge fixing methods", https://arxiv.org/abs/0905.4564, Physical Review **D80**, 084015,1-23 (2009) (with J. Pons and K. Sundermeyer)

"Leon Rosenfeld and the challenge of the vanishing momentum in quantum electrodynamics", https://arxiv.org/abs/0904.3993, Studies in History and Philosophy of Modern Physics **40**, 363-373 (2009)

"Gravitational observables, intrinsic coordinates, and canonical maps", Modern Physics Letters A24, 725-732 (2009), https://arxiv.org/abs/0902.0401(with J. Pons and K. Sundermeyer)

"A generalized Schrodinger equation for loop quantum gravity", in The Eleventh Marcel Grossmann Meeting On Recent Developments in Theoretical and Experimental General Relativity, Gravitation and Relativistic Field Theories, edited by H. Kleinert, R. Jantzen, and R. Ruffini (World Scientific, New Jersey, 2008) ISBN 978-981-283-426-3, 2797-2799, https://arxiv.org/abs/gr-qc/0702132 (with A. Schmitz)

"Rosenfeld, Bergmann, Dirac and the invention of constrained Hamiltonian dynamics", in The Eleventh Marcel Grossmann Meeting On Recent Developments in Theoretical and Experimental General Relativity, Gravitation and Relativistic Field Theories, edited by H. Kleinert, R. Jantzen, and R. Ruffini (World Scientific, New Jersey, 2008) ISBN 978-981-283-426-3, 2467-2469 https://arxiv.org/abs/physics/0701299

"Reparameterization invariants for anisotropic Bianchi I cosmology with a massless scalar source", (with AC students Josh Helpert and Allison Schmitz), General Relativity and Gravitation **40**, 1475-1498 (2008), https://arxiv.org/abs/gr-qc/0503014

"Albert Einstein and Peter Bergmann", (in English and German translation) in Albert Einstein: Engineer of the Universe: One Hundred Authors for Einstein, Jürgen Renn ed. (Wiley-VCH, Weinheim, 2005) ISBN 10:3-527-40574-7

"The issue of time in generally covariant theories and the Komar-Bergmann approach to observables in general relativity", (with Josep Pons), Physical Review D71, 12402 (2005), https://arxiv.org/abs/gr-qc/0503013

"Gauge Fixing and Observables in General Relativity", Modern Physics Letters A18, 2475 - 2482 (2003), https://arxiv.org/abs/gr-qc/0310095

"Quantum general invariance", in Proceedings of the Ninth Marcel Grossmann Meeting, edited by V.G. Gurzadyan, R. T. Jantzen and R. Ruffini, (World Scientific, New Jersey, 2002), 1300-1301

"The gauge group in the Ashtekar-Barbero formulation of canonical gravity", in Proceedings of the Ninth Marcel Grossmann Meeting, edited by V.G. Gurzadyan, R. T. Jantzen and R. Ruffini, (World Scientific, New Jersey, 2002), 1298-1299 (with J. Pons)

"Quantum general invariance and loop gravity", Foundations of Physics **31**, 1105 - 1118 (2001) https://arxiv.org/abs/gr-qc/0105097

"The gauge group and the reality conditions in Ashtekar's formulation of general relativity". Physical Review **D62** , 064026 - 064040 (2000) (with J.M. Pons and L.C. Shepley) https://arxiv.org/abs/gr-qc/9912085

"The gauge group in the real triad formulation of general relativity", General Relativity and Gravitation **32**, 1727 - 1744 (2000) (with J.M. Pons and L.C. Shepley, https://arxiv.org/abs/gr-qc/9912087

"Gauge transformations in Einstein-Yang-Mills theories", Journal of Mathematical Physics **41**, 5557 - 5571 (2000) (with J.M. Pons and L.C. Shepley) https://arxiv.org/abs/gr-qc/9912086

"Gauge symmetries in Ashtekar's formulation of general relativity", Nuclear Physics B Proceedings Supplement **88**, 314-317 (2000) (with J.M. Pons and L.C. Shepley), https://arxiv.org/abs/gr-qc/0004013

"Gauge transformations in general relativity - A report", Turkish Journal of Physics **1**, 1 - 8 (2000) (with J.M. Pons and L.C. Shepley)

"Reduced Phase Space: Quotienting Procedure for Gauge Theories", Journal of Physics **A 32**, 419 (1999) (with J.M. Pons and L.C. Shepley) https://arxiv.org/abs/math-ph/9811029

"Classical Canonical General Coordinate and Gauge Symmetries", Foundations of Physics **28**, 1425 (1998)

"A Classical and Quantum Relativistic Interacting Variable-Mass Model", Foundations of Physics **28**, 1433 (1998)

"Gauge Transformations in the Lagrangian and Hamiltonian Formalisms of Generally Covariant Theories", Physical Review **D 55**, 658-668 (1997) (with J.M. Pons and L.C. Shepley), https://arxiv.org/abs/gr-qc/9612037

"A Connection Approach to Numerical Relativity", Classical and Quantum Gravity **11**, 2789-2806 (1994) (with A. Adams, D. Mann, B. Turner, L. Turvan, and L. Shepley), https://arxiv.org/abs/gr-qc/9403040

"Black Hole Explorer", *Proceedings of the Workshop on Computational Physics*, edited by M. Shapiro and J. Feagin (California State University Fullerton, 1991), (with J. Burciaga)

"Quantum Relativistic Action at a Distance", Foundations of Physics **19**, 1441 (December 1989) (with M. Pollot)

"How to Make Relativistic Strings", unpublished, 1985 (with P. Das)

"The Quantization of the Relativistic Strings", General Relativity and Gravitation **16**, 955-978 (1984)

"Semiclassical Quantization of the Klein-Gordon Field: On Defining Particles", in *Unified Field Theories of More Than Four Dimensions*, edited by E. Schmutzer, (World Scientific, Singapore, 1983) (with T. Dray and J. Renn)

"Particle Creation with Finite Energy Density", Letters in Mathematical Physics **7**, 145-153(1983) (with T. Dray and J. Renn)

"Local Symmetries of Einstein-Yang-Mills Theory as Phase Space Transformations", Physical Review **D27**, 757-763(1983) (with K. Sundermeyer)

"The Realization in Phase Space of General Coordinate Transformations", Physical Review D27, 740-756(1983) (with K. Sundermeyer)

"Stationary Properties of Nambu Strings", Nuclear Physics **B191**, 260-268 (1981) (with K. Sundermeyer)

"The Quantization of the Relativistic Closed String", Syracuse University Preprint, 1978 (with P.G. Bergmann)

Book Reviews

Review of The Genesis of General Relativity by Jürgen Renn (ed.), General Relativity and Gravitation **41**, 661-668 (2009) https://arxiv.org/abs/0807.3706

Review of Introduction to Relativity, by John B. Kogut, and Relativity: Special, General, and Cosmological, by Wolfgang Rindler, American Journal of Physics **71**, 1085-1086 (2003)

Review of A Unified Grand Tour of Theoretical Physics, by Ian D. Lawrie, General Relativity and Gravitation 36, 225-227 (2004)

American Institute of Physics Session Reports

Remembering Julian Schwinger, Forum on History of Physics Newsletter, Fall 2019, 6,9

Centennial of the Eddington Eclipse Expedition, Forum on History of Physics Newsletter, Fall 2019, 7

RECENT TALKS, CONTRIBUTED PAPERS AND WORKSHOP CONTRIBUTIONS

"An intrinsic Hamilton-Jacobi approach to general relativity and its Syracuse school origin", Departamento de Física, Universidad de Los Andes, Bogotá, Colombia, November 27, 2019

"Could Matthew McConaughey Be Younger Than His Biological Daughter II?", McKinney ISD 7th grade Boys conference at AC, October 24, 2019

"Syracuse 1960-61 - A burgeoning international relativity community", April meeting of the American Physical Society, Denver, Colorado, April 13, 2019

"Could Matthew McConaughey Be Younger Than His Biological Daughter?", McKinney ISD 7th grade Boys conference at AC, October 11, 2018

"Observables and Hamilton-Jacobi approaches to general relativity", April meeting of the American Physical Society, Columbus, Ohio, April 15, 2018

"Full four-dimensional diffeomorphism invariants and their role in quantum theories of gravity", Balfest80 - Quantum Physics: Fields, Particles and Information Geometry, Dublin, Ireland, January 25, 2018

Reader comments on paper by Ward Struyve, "Must space-time be singular?", Space and Time after Quantum Gravity, Céligny, Switzerland, June 29, 2017

"Ivor Robinson and the Trautmans: Gravitational Wave Pioneers", Ivor Robinson Memorial Symposium, University of Texas at Dallas, May 9, 2017

"The *Heart Sutra*, Relaxation, and Emergent Spacetime", Twenty-Third Annual Conference of the Association for Core Texts and Courses, Dallas, TX, April 21, 2017 (with Ivette Vargas-O'Bryan)

"Analysis of Iwasaki Tsuneo's *Mandala of Evolution*", Panel Discussion "What do You See?: Conversations with Science and Humanities Faculty on Iwasaki Tsuneo's Works", Austin College, Sherman, TX, March 23, 2017

"Léon Rosenfeld's general theory of constrained Hamiltonian dynamics", American Physical Society Spring Meeting, New Orleans, LA, March 13, 2017

"Time after time (and before)?", 2016-2017 Austin College Sabbatical Series, Austin College, Sherman, TX, September 28, 2016

"Geometrodynamics, Hamiltonian constraints, and canonical quantization", Dashed Hopes: What hasn't worked in quantum gravity (and why), Max Planck Institute for the History of Science, Berlin, July 26, 2016

"Léon Rosenfeld and Noether symmetry generators", University of Warsaw, Poland, June 24, 2016

"Fully relative general relativity", Carlofest Celebrating Carlo Rovelli's 60th Birthday - A Journey from Quantum Gravity to Philosophy, Aix-Marseille Université, Marseille, France, May 26, 2016

"Existe el espacio-tiempo en la teoría de Einstein?", Facultad de Filosofía, Universidad Autónoma de Querétaro, Mexico, January 22, 2016

"Astronomica Azteca, mitología, y calendarios festivos", Facultad de Antropología, Universidad Autónoma de Querétaro, Mexico, January 19, 2016

"An investigation and analysis of constrained Hamiltonian approaches to general relativity: Emmy Noether revisited – again", A Century of Relativity, Max Planck Institute for the History of Science, Berlin, December 5, 2015

"The Intrinsic Hamilton-Jacobi Dynamics of General Relativity and its Implications for the Semi-Classical Emergence of Time", The Problem of Time in Perspective, Munich Center for Mathematical Philosophy, Munich, Germany, July 3, 2015

"Peter G. Bergmann (1915 – 2002): A World Point Who Will Never Fade", Space-Time Theories: Historical and Philosophical Contexts, Van Leer Institute, Jerusalem, Israel, January 5, 2015

"Aspects of an historical epistemology of space: Coordinates without coordinates", An intellectual life across disciplines: Colloquium in honour of John Stachel's 85th birthday, Max Planck Institute for the History of Science, Berlin, September 12, 2013 (with Jürgen Renn and Matthias Schemmel)

"A semiclassical intrinsic canonical approach to quantum gravity", Reflections on the Quantum Nature of Space and Time, Albert Einstein Institute, Golm, Germany, November 28, 2012 (with Jürgen Renn)

"Semi-classical Quantum Gravity: A New Perspective", Institute for the History of Natural Sciences of the Chinese Academy of Science, Beijing, China, September 7, 2012

"Proper time before relativity: From Pauli's phase to Fermat's principle", New Directions in the Foundations of Physics Conference, Washington, DC, May 11-13, 2012 (with Alexander Blum)

"The origins and impact of the principle of least action by Maupertuis", Eighteenth Annual Conference of the Association for Core Texts and Courses, Milwaukee, WI, Mar. 29 - April 1, 2012

"Some preliminary thoughts on the invention of constrained Hamiltonian dynamics", Joint Fall Meeting of the APS, AAPT, and Zone 13 of the SPS, Commerce, TX, Oct. 6-8, 2011

"P. Weiss – Hamilton Jacobi Theory and Quantization of Generalized Electrodynamics and T.S. Chang – A Note on the Hamiltonian Theory of Quantization II", "Current Research on the History of Quantum Gravity at the MPIWG" (with Jürgen Renn), "Report on Oral History Tour" (with Dean Rickles), Workshop on the Historical Roots of Quantum Gravity Research, Berlin, June 27 - 30, 2011

"Una breve historia del "Problema del Tiempo" en la gravitación cuántica", Universidad Tecnológica de Pereira, Colombia, May 27, 2011

"Time after Time: An Historical Perspective on the Problem of Time in Quantum Gravity'," New Directions in the Foundations of Physics Conference, Washington, DC, April 29 - May 1, 2011

"The Overlapping Worlds of General Relativity and Quantum Theory: The Challenge of the Principle of Equivalence", Third International Conference on the History of Quantum Mechanics, Berlin, June 28 - July 3, 2010 (with Jürgen Renn)

Report on the work of Léon Rosenfeld and of Bryce DeWitt at the Workshop on "Historical Roots of Quantum Gravity Research", California Institute of Technology, August 9-13, 2010

"Léon Rosenfeld's pioneering steps toward a quantum theory of gravity," First Mediterranean Conference on Classical and Quantum Gravity, Kolymbari, Crete, September, 2009

"The Bohr-Rosenfeld measurability analysis of the quantum electric field', Max Planck Institute for the History of Science, Berlin, August, 2009

"General covariance, observables, and emergent time," Loop Quantum Cosmology Workshop, Pennsylvania State University, October, 2008

"Leon Rosenfeld and the challenge of the vanishing momentum in quantum electrodynamics," Max Planck Institute of the History of Science, Berlin, Germany, August, 2008

"Leon Rosenfeld and the challenge of the vanishing momentum in quantum electrodynamics," Second International Conference on the History of Quantum Mechanics, Utrecht, Netherlands, July, 2008

"Léon Rosenfeld invented indeterminate gauge dynamics in 1930," Danish Society for the History of Science colloquium, Copenhagen, Denmark, May, 2008

"Galileo in Context: Highlights of Four Chautauqua Short Courses for College Teachers, Austin College Tuesday Afternoon Colloquium, December, 2007 (with Dan Dominick, Jeff Fontana, and Max Grober)

"Integrated Methods of Teaching Science," at joint conference sponsored by the American Association of Academic Deans and Phi Beta Kappa on "Promoting the Liberal Sciences: Science as Liberal Education", Washington D.C., October, 2007 (with Hank Gorman and Peggy Redshaw)

"Le problem du temps en relativité generale", Ecole Normale Superieure, Paris, France, June, 2007

"Time and observables in general relativity", Mini-symposium on the Nature of Time, Austin College, February, 2007

"An eternal history of frozen time?", Mini-symposium on the Nature of Time, Austin College, February, 2007

"Astronomía mesoamericana", Ciencia de Frontera, Universidad de Juarez, Mexico, November 2006

"The passage of time in Einstein's universe", Joint Physics/Philosphy Seminar, University of Texas at El Paso, November 2006

"Rosenfeld, Bergmann, Dirac, and the Invention of Constrained Hamiltonian Dynamics", North Texas Relativity and Cosmology Seminar, University of Texas at Dallas, October, 2006

"A generalized Schrödinger equation for loop quantum cosmology", XI'th Marcel Grossmann Meeting, Berlin, July 2006

"Rosenfeld, Bergmann, Dirac, and the Invention of Constrained Hamiltonian Dynamics", invited talk at the XI'th Marcel Grossmann Meeting, Berlin, July 2006

"Rosenfeld, Bergmann, and the Invention of Constrained Hamiltonian Dynamics", April Meeting of the American Physical Society, Dallas, April, 2006

"Einstein, Gravity, and the Search for a Unified Field Theory", University of North Texas Physics Colloquium, November, 2005

"Observables in general relativity", North Texas Relativity Seminar, University of Texas at Dallas, September, 2005

"Albert Einstein, Peter Bergmann, ...and the Problem of Time, Austin College Physics Colloquium, April, 2005

"Peter Bergmann and the invention of constrained Hamiltonian dynamics", invited talk at the Seventh International Conference on the History of General Relativity, Tenerife, Spain, March 2005

"La Verdadera Historia de Galileo Galilei", Barranquilla Planetarium, Colombia, December 2004

"Reparameterization invariants for anisotropic Bianchi I cosmology with a massless scalar source", Fall Meeting of the Texas Section of the American Physical Society, Waco, October, 2004 (presentation by Josh Helpert and Allison Schmitz)

"Intrinsic coordinates, diffeomorphism invariants, and quantum gravity", Albert Einstein Institute seminar, Berlin, Germany, June, 2004

"The accelerating universe and other adventures in modern cosmology", miniprogram on Theorists at Undergraduate Institutions, Kavli Institute for Theoretical Physics, Santa Barbara, July, 2003

"Gauge Fixing, Observables, and the Problem of Time in General Relativity", Relativity Theory Seminar, University of Maryland, June, 2003

"Gauge Fixing and Observables in General Relativity", symposium celebrating the 65'th birthday of A.P. Balachandran: *Spacetime and Fundamental Interactions: Quantum Aspects*, Vietri sul Mare, Salerno, Italy, May 2003

"Komar-Bergmann gauge fixing and observables in general relativity", Joint Relativity/High Energy Theory Seminar, Department of Physics, Syracuse University, November, 2001

"Finite diffeomorphisms and general invariants", International Workshop: General covariance and the "quantum", where do we stand?, University of Parma, June, 2001

"Diffeomorphism invariance in tangent space and in phase space", International Workshop: General covariance and the "quantum", where do we stand?, University of Parma, June 2001 (presentation given by J. Pons), June, 2001

"Toward a quantum theory of time", presentation to the Austin College faculty, May, 2001

"Quantum general invariance and loop gravity", IX Marcel Grossmann Meeting, Rome, Italy, July, 2000

"Quantum general invariance and loop gravity", 2'nd International Conference on Relativistic Dynamics, Tel Aviv, Israel, June, 2000

"Gauge symmetries in Ashtekar's formulaton of general relativity", Fall Meeting of the Texas Section of the American Physical Socitey, Austin, Texas, October, 1999

"Gauge symmetries in Ashtekar's formulaton of general relativity", Third Meeting on Constrained Dynamics and Quantum Gravity, Sardinia, Italy, September, 1999

"Gauge symmetries in Ashtekar's formulaton of general relativity", Mathematical/Theoretical Physics Seminar, University of Adelaide, Australia, June, 1999

"A Quantum Interacting Variable Mass Model and Associated Probability Interpretations", International Conference on Parameterized Relativistic Quantum Theory, Houston, February, 1998

"Classical Canonical General Coordinate Symmetries and Possible Quantum Implications", International Conference on Parameterized Relativistic Quantum Theory, Houston, February, 1998

"Gauge Transformations in Einstein-Yang-Mills and Ashtekar Theories", Fall Meeting of the Texas Section of the American Physical Society, Denton, October, 1997

"Numerical Relativity", Physics Colloquium, Southern Methodist University, March, 1997

"Gauge Transformations in the Lagrangian and Hamiltonian Formalisms of Generally Covariant Theories", Relativity Seminar, University of Texas at Austin, March, 1997

"Establishing PUI Physics and Astronomy Research Links with Universities and Industry", Workshop Leader, 6th National Conference of the Council on Undergraduate Research, North Carolina Central University, June, 1996

"Tracing Light Through a Wormhole", Spring Meeting of the Texas APS, Abilene, March, 1996 (co-authored with A. Haney and presented by A. Haney)

"Numerical Solution of Constraints in a Planar Cosmological Model", Spring Meeting of the Texas APS, Abilene, March, 1996 (co-authored with E. Whittington and N. Kumar. Presented by E. Whittington)

"Perturbative Test-Bed Check of a Planar Cosmological Numerical Code", Spring Meeting of the Texas APS, Abilene, March, 1996 (co-authored with E. Whittington and N. Kumar. Presented by N. Kumar)

"Fixing Initial Gravitational Waves in Numerical Relativity", North Texas Relativity Seminar, Dallas, January, 1996

"Connection Approaches to Numerical Relativity in 3+1 and 2+2 Formalisms", 7th Greynog Relativity Workshop, Wales, England, August, 1995

"A Connection Approach to Numerical Relativity", General Relativity and Gravitation 14, Florence, Italy, August, 1995

"Hawking Black Hole Radiation and the Information Loss Puzzle: An Introduction", North Texas Relativity Seminar, University of Texas at Dallas, May, 1995

"A Connection Approach to Numerical Relativity", Pacific Coast Gravity Meeting, California Institute of Technology, March, 1995

"Loops, Knots ... and Knotty Spacetime Problems", Physics Colloquium, Austin College, October, 1994

"Introduction to Ashtekar Variables in Classical (and What the Heck, Quantum) Gravity", Mathematics Colloquium, East Texas State University, Commerce, October, 1994

"A Connection Approach to Numerical Relativity", Spring Meeting of the Texas Section of the APS, University of Texas at Dallas, March, 1994

"Toward Numerical Solutions of Colliding Gravitational Plane-Fronted Waves Using Ashtekar Variables", Spring Meeting of the Texas Section of the APS, University of Texas at Dallas, March, 1994 (presented by B. Turner)

"A Connection Approach to Numerical Relativity", North Texas Relativity Seminar, University of Texas at Dallas, February, 1994

"Use of Ashtekar Variables in Numerical Planar Cosmology", Relativity Seminar, University of Texas at Austin, October, 1993

"Numerical Code for the Planar Vacuum Einstein Equations in Triad Variables", Fall Meeting of the Texas Section of the APS, Texas A&M University, October, 1993

"Development of a MathTensor Package for the Calculation of Ashtekar Variables in General Relativity", Fall Meeting of the Texas Section of the APS, Texas A&M University, October, 1993 (presented by Larry Turvan)

"Use of Ashtekar Variables in Numerical Planar Cosmology", Numerical Relativity Conference, Penn State University, October, 1993 (AC students Darren Mann and Larry Turvan participated in presentation)

"Applying MathTensor to Ashtekar Variables in General Relativity", Spring Meeting of the Texas Section of the APS, University of Texas-Pan American, March, 1993 (presented by Larry Turvan)

"Toward Numerical Solutions of Colliding Gravitational Waves", Spring Meeting of the Texas Section of the APS, University of Texas-Pan American, March, 1993 (presented by Brian Turner)

"Astronomical Observations of the Ancient Maya", Physics Colloquium, University of North Texas, February, 1993

"Agujeros Negros", Amigos de la Astronomía, Barranquilla, Colombia, December, 1992

"Real Phantoms: Or How I Learned to Stop Worrying and Love the Big Bang", Last Lecture Series, Austin College, October, 1992

"New Approaches to Quantum Gravity", North Texas Relativity Seminar, Southern Methodist University, May, 1992

"Progress Toward Non-Perturbative Quantum Gravity: The Ashtekar Program", North Texas Relativity Seminar, University of Texas at Dallas, February, 1992

"The Hamiltonian Symmetry Group Realized by Ashtekar Variables", Fall Meeting of the Texas Section of the American Physical Society, University of North Texas, November, 1991

"Hamiltonian Symmetry Groups and Ashtekar Variables", IX Italian Conference on General Relativity and Gravitational Physics, Capri, Italy, September, 1990

"Quantum Relativistic Action at a Distance", University of Barcelona, Spain, June, 1990

"Classical Relativistic Action at a Distance", University of Barcelona, Spain, June, 1990

RECORDED INTERVIEWS

Roger Penrose, Oxford, England, October 14, 2018 (With Dean Rickles)

Joshua Goldberg, Columbus, Ohio, April 15, 2018

Chris Isham, London, England, June 19, 2017 (With Dean Rickles)

Roger Penrose, Oxford, England, June 16, 2017 (With Dean Rickles)

Andrew Hodges, Oxford, England, June 15, 2017

Karel Kuchar, Salt Lake City, Utah, April 17, 2016 (With Charles Torre)

Andrzej Trautman, Warsaw, Poland, June 26, 29, 2016

Louis Witten, Dallas, Texas, December 14, 2013

Joshua Goldberg and Jim Anderson, Dallas, Texas, December 14, 2013 (With Alex Blum)

Roy Kerr, Dallas, Texas, December 13, 2013

Dieter Brill and Charles Misner, December 12, 2013 (With Alex Blum)

Jim Anderson, Dieter Brill, Joshua Goldberg, Roy Kerr, Charles Misner, Ezra Newman, Roger Penrose, Wolfgang Rindler, Bernard Schultz and Louis Witten, Richardson, Texas, December 11, 2013 (With Alex Blum and Jürgen Renn)

Jim Anderson, Teaneck, New Jersey, March 19, 2011 (With Dean Rickles)

Louis Witten, Cincinnati, Ohio, March 17, 2011 (With Dean Rickles)

Cecile DeWitt, Austin, Texas, March 13, 2011 (With Dean Rickles)

Stanley Deser, Pasadena, California, March 12, 2011 (With Dean Rickles)

Jürgen Ehlers, Berlin, Germany, March 19, 2008

Jim Anderson and Ralph Schiller, Woods Hole, Massachusetts, July 26, 2007

Engelbert Schücking, New York, New York, July 12, 2006

SESSION CHAIR

Remembering Julian Schwinger, April meeting of the American Physical Society, Denver, Colorado, April 13, 2019

The Chapel Hill Conference and its Role in the Renaissance of General Relativity, April meeting of the American Physical Society, Columbus, Ohio, 2018

POSTER SESSIONS

"In Appreciation of Joshua Goldberg (1925 - 2020)", April meeting of the American Physical Society, April 21, 2021

"Andrzej Trautman, Ivor Robinson, and the Foundations of Gravitational Radiation", American Physical Society Spring Meeting, New Orleans, LA, March 14, 2017

Last Update December 27, 2019