

CURRICULUM VITAE

Richard J. Gonsalves

CONTACT INFORMATION

Address: Department of Physics
University at Buffalo, The State University of New York
Buffalo, New York 14260-1500, USA

Telephone: +1 (716) 645-2017 x 191

Email: phygons@buffalo.edu

Webpage: <http://www.physics.buffalo.edu/gonsalves/>

EDUCATION

1971 - 1976 Columbia University
New York, New York 10027
Ph.D 1976 Theoretical High Energy Physics
Thesis: *On the Quantization of Soliton Scattering
Solutions in Model Field Theories*
M.Phil 1974 Theoretical Physics
M.A. 1974 Theoretical Physics

1969 - 1971 University of Madras
Madras Christian College, Madras, India
M.Sc. 1971 Theoretical and Nuclear Physics

1964 - 1969 University of Madras
Loyola College, Madras, India
B.Sc. 1969 Major: Physics
Minors: Mathematics, Chemistry

EMPLOYMENT HISTORY

Department of Physics
State University of New York at Buffalo
Buffalo, New York 14260-1500
Chairman, Department of Physics, January 1996 - August 2004
Professor of Physics, September 1995 - present
Associate Professor, September 1986 - August 1995
Assistant Professor, September 1980 - August 1986

Updated: September 27, 2009

Department of Physics
 University of California at San Diego
 La Jolla, California 92093
 Postgraduate Research Physicist, September 1978 - August 1980

School of Natural Sciences
 The Institute for Advanced Study
 Princeton, New Jersey 08540
 Member, 1976-1977 and 1977-1978 Academic Years

AWARDS AND HONORS

Government of India Merit Scholarship (1969-1971).

First rank in the M.Sc. Degree Examination and the Sir K.S. Krishnan Gold Medal for Physics (1971).

Faculty Fellowships (1971-73) and Joseph C. Pfister Fellowship (1974-76) at Columbia University.

Faculty Research Fellowship, SUNY Research Foundation (July - August 1981).

Awarded a Travel Grant by the Division of Particles and Fields of the American Physical Society to attend the 1985 International Symposium on Lepton and Photon Interactions at High Energies, Kyoto, Japan.

Argonne National Laboratory Faculty Research Participation Award (August 1986).

State University of New York Chancellor's Award For Excellence in Teaching (May 1994).

GRANT SUPPORT

UAP/JAC Faculty Research Fellowship and Grant-in-Aid
 Sponsor: SUNY Research Foundation, Albany, New York
 Status: Principal Investigator
 Title: *Applicability of QCD to Jet Production Cross Sections*
 Period: 3/1/81 - 2/28/85 Amount: \$3,400

Cottrell Research Grant
 Sponsor: The Research Corporation, Minneapolis, Minnesota
 Status: Principal Investigator
 Title: *Study of Higher Order QCD Corrections to Jet Production in e^+e^- Annihilation*
 Period: 1/1/81 - 8/31/84 Amount: \$3,020

NSF PHY 81-109483 (New)

Sponsor: National Science Foundation, Washington DC
Status: Principal Investigator
Title: *Study of Corrections to Leading-Order Quantumchromodynamic Predictions for High Energy Processes*
Period: 1/1/81 - 8/31/84 Amount: \$22,634

NSF PHY 83-10883 (Renewal)
Sponsor: National Science Foundation, Washington DC
Status: Principal Investigator
Title: *Study of Perturbative and Non-Perturbative Quantumchromodynamic Effects at High Energies*
Period: 10/1/83 - 3/31/86 Amount: \$21,757

Travel Award: To attend 1985 International Lepton Photon Symposium
Sponsor: Division of Particles and Fields, American Physical Society
Amount: \$1,000

NSF PHY 83-10883 (Renewal)
Sponsor: National Science Foundation, Washington DC
Status: Principal Investigator
Title: *Study of Quantumchromodynamic Effects at High Energies*
Period: 10/1/85 - 9/30/88 Amount: \$31,454

NSF PHY 87-13231 (Renewal)
Sponsor: National Science Foundation, Washington DC
Status: Principal Investigator
Title: *Standard Model Predictions for Physics at High Energy Colliders*
Period: 12/1/87 - 11/30/90 Amount: \$36,889

NSF PHY 90-12541 (Renewal)
Sponsor: National Science Foundation, Washington DC
Status: Principal Investigator
Title: *Standard Model Predictions for Physics at High Energy Colliders*
Period: 9/1/90 - 8/31/92 Amount: \$46,000

NSF PHY 92-12177 (Renewal)
Sponsor: National Science Foundation, Washington DC
Status: Principal Investigator
Title: *Standard Model Predictions for Physics at High Energy Colliders*
Period: 9/1/92 - 8/31/94 Amount: \$50,280

NSF PHY 92-12177 (Continuation)
Sponsor: National Science Foundation, Washington DC
Status: Principal Investigator
Title: *Standard Model Predictions for Physics at High Energy Colliders*
Period: 9/1/94 - 8/31/96 Amount: \$26,277

DoE Grant for Conference Support
Sponsor: US Department of Energy, Washington DC

Status: Co-Principal Investigator
 Title: *LoopFest VII: Radiative Corrections for the LHC and ILC*
 Period: 12/1/07 - 7/31/08 Amount: \$5,000

NSF DMS 08-02994 (New)
 Sponsor: National Science Foundation, Washington DC
 Status: Faculty Participant
 Title: *Collaborative Research: CSUMS: URGE to Compute*
 Period: 9/15/08 - 8/31/11 Amount: \$495,904

PUBLICATIONS: REFEREED JOURNALS

Quantizing solitons without using a box

R.J. Gonsalves

Phys. Rev. **D14**, 2610-1614 (1976).

Semiclassical Approach to Lattice Theories

R.J. Gonsalves and S.-S. Shei

Nucl. Phys. **B130**, 221-256 (1977).

Color-charge algebras in Adler's chromodynamics

P. Cvitanović, R.J. Gonsalves, and D. E. Neville

Phys. Rev. **D18**, 3881-3884 (1978).

Quantum-Chromodynamics Perturbation Expansions in a Coupling Constant Renormalized by Momentum-Space Subtraction

W. Celmaster and R.J. Gonsalves

Phys. Rev. Lett. **42**, 1435-1438 (1979).

Renormalization prescription dependence of the quantum-chromodynamic coupling constant

W. Celmaster and R.J. Gonsalves

Phys. Rev. **D20**, 1420-1434 (1979).

Analytic Calculation of Higher-Order Quantum-Chromodynamic Corrections in e^+e^- Annihilation

W. Celmaster and R.J. Gonsalves

Phys. Rev. Lett. **44**, 560-564 (1980).

Fourth-order quantum-chromodynamic contributions to the e^+e^- annihilation cross section

W. Celmaster and R.J. Gonsalves

Phys. Rev. **D20**, 3112-3128 (1980).

Dimensionally regularized two-loop on-shell quark form factor

R.J. Gonsalves

Phys. Rev. **D28**, 1542-1549 (1983).

QCD-Electroweak Interference in Vector-Boson Production

R.J. Gonsalves

Phys. Rev. Lett. **56**, 1647-1650 (1986).*Invariant amplitudes for $q\bar{q}g$ final states in e^+e^- annihilation*

R.J. Gonsalves

Phys. Rev. **D34**, 1316-1325 (1986).*QCD radiative corrections to electroweak-boson production at large transverse momentum in hadron collisions*

R.J. Gonsalves, J. Pawłowski, and C.-F. Wai

Phys. Rev. **D40**, 2245-2268 (1989).*Scale dependence of the W and Z distributions at large transverse momentum*

R.J. Gonsalves, J. Pawłowski, and C.-F. Wai

Phys. Lett. **252B**, 663-668 (1990).*Heavy-quark triangle diagram contributions to Z boson production in hadron collisions*

R.J. Gonsalves, C.M. Hung and J. Pawłowski

Phys. Rev. **D46**, 4930-4942 (1992).*Chromo-electroweak interference and parity-violating asymmetries in electroweak boson pair production*

R.J. Gonsalves and C.-F. Wai

Phys. Rev. **D49**, 190-218 (1994); Erratum: *ibid.*, **D 51**, 1428 (1995). *W Production at Large Transverse Momentum at the Large Hadron Collider*R.J. Gonsalves, N. Kidonakis and A. Sabio-Vera, Phys. Rev. Lett. **95**, 222001 (2005)

arXiv:hep-ph/0507317.

*Perturbative QCD at High Energy Colliders*R. J. Gonsalves, Int. J. Mod. Phys. E **17**, 870 (2008), arXiv:0807.0828 [hep-ph].*FeynChois: A Feynman diagram generator*C. W. Choi and R. J. Gonsalves, Int. J. Mod. Phys. E **17**, 940 (2008).**PUBLICATIONS: CONFERENCE PROCEEDINGS***Scheme and Scale Fixing Problems in QCD*

R.J. Gonsalves

Proceedings of the Sixth Annual Montreal-Rochester-Syracuse-Toronto (MRST) Meeting, Syracuse University, May 17-18, 1984; pages 18-42.

Next-to-leading Order Perturbative QCD Effects at SSC Energies

R.J. Gonsalves

Proceedings of the 1984 Summer Study on the Design and Utilization of the Superconducting Super Collider, Snowmass Colorado, June 23 - July 13, 1984, R. Donaldson and J.G. Morfín, Eds., pages 209-211.

Compact Covariant Cross Sections for Vector Boson Production

R.K. Ellis and R.J. Gonsalves

Proceedings of the Workshop on Super High Energy Physics, University of Oregon, Eugene, March-August 1985, D. Soper Ed., (World Scientific, 1986); pages 287-293.

Theory of the W/Z Transverse Momentum Distribution

R.J. Gonsalves

in *Proceedings of the Rice Meeting*, 1990 Meeting of the Division of Particles and Fields of the American Physical Society, Houston, Texas, January 3-6 1990, B. Bonner and H. Miettinen, Eds., (World Scientific, Singapore, 1990) pp. 536-540.*W-boson production with large transverse momentum at the LHC*

N. Kidonakis, R. J. Gonsalves and A. Sabio-Vera, 14th International Workshop on Deep Inelastic Scattering (DIS 2006), Tsukuba, Japan, 20-24 Apr 2006, arXiv:hep-ph/0606145.

PUBLICATIONS: CONFERENCE ABSTRACTS*Order α_s^2 Corrections to Jet Production in e^+e^- Annihilation*

R.J. Gonsalves

Bull. Am. Phys. Soc **26**, 36 (1981).*Structure Factors from Lattice Theory*

R.J. Gonsalves

Bull. Am. Phys. Soc **28**, 23 (1983).*QCD-electroweak Interference in Vector Boson Production*

R.J. Gonsalves

XXIII International Conference on High Energy Physics, Berkeley, CA, July 16-23, 1986. Submitted paper No. 7234.

New Predictions for Parity Violation in Vector Gauge Boson Pair Production

C.-F. Wai and R.J. Gonsalves

Bull. Am. Phys. Soc **33**, 1075 (1988).*Dimensional Regularization and γ_5 in QCD Radiative Correction Calculations*

J. Pawłowski and R.J. Gonsalves

Bull. Am. Phys. Soc **34**, 1248 (1989).**SEMINARS AND INVITED CONFERENCE PRESENTATIONS***Can one use weak coupling methods to study the strong interactions?*

Seminar, SUNY Buffalo, November 4, 1980.

Applicability of QCD to Jet Production Cross Sections in e^+e^- Annihilation at PEP/PETRA Energies

Invited Talk, 5th. Annual SUNY Physics Symposium, Stony Brook, November 7-8, 1980.

Normalization Problems in Higher Order QCD Predictions

Theoretical Physics Seminar, Columbia University, January 26, 1981.

Summing Infrared Logarithms in QCD

Seminar, SUNY Buffalo, November 17, 1981.

Magnetic Monopoles

Seminar, SUNY Buffalo, May 4, 1982.

Structure Factors from Lattice Theories

Seminar, SUNY Buffalo, April 5, 1983.

Scale Fixing Problems in QCD Predictions

High Energy Physics Seminar, University of Rochester, March 29, 1984.

The Quark Form Factor in QCD

Invited Talk, 7th. Annual SUNY Physics Symposium, Buffalo, April 6-7, 1984.

Scale Fixing Problems in QCD Predictions

Invited Talk, 6th. Annual MRST Meeting, Syracuse University, May 17-18, 1984.

Vector Boson Production in Hadron Collisions

Seminar, SUNY Buffalo, October 16, 1984.

Vector Boson Production in Hadron Collisions

Invited Talk, 7th. Annual MRST Meeting, University of Rochester, May 16-17, 1985.

Seeing Quarks and Gluons in Next-to-leading Order QCD

Colloquium, SUNY Binghamton, October 21, 1985.

QCD-Electroweak Interference and a New Parity-violating Asymmetry in Vector Boson Production

Seminar, SUNY Buffalo, December 10, 1985.

QCD-Electroweak Interference and Parity-violating Asymmetries in High Energy Hadron Collisions

Seminar, Argonne National Laboratory, Argonne, IL, August 19, 1986.

The Theory of the Vector Boson Transverse Momentum Distribution

Invited talk presented at DPF90, the General Meeting of the APS Division of Particles and Fields, Rice University, Houston, TX, January 3-6, 1990.

QCD Corrections to Electroweak Boson Production at Large Transverse Momentum

Seminar, Department of Physics, University of Rochester, January 29, 1990.

W/Z Boson Production at Hadron colliders

Seminar, SUNY Buffalo, February 6, 1990.

High Energy Physics in the 1990's

Colloquium, Physics Department, Kent State University, Kent OH, March 8, 1990.

Search for the t quark and the Higgs boson

Seminar, SUNY at Buffalo, March 19, 1991.

The Standard Model at High Energy Colliders
Seminar, SUNY at Buffalo, December 8, 1992.

Chromo-electroweak interference and parity-violating asymmetries in electroweak boson pair production in hadron collisions
Seminar, Brookhaven National Laboratory, November 24, 1993.

Theoretical Tools for Studying Fast Partons
Seminar, SUNY at Buffalo, October 17, 1995.

Soft gluon resummation
Buffalo-Rochester Journal Club, SUNY at Buffalo, November 3, 2005.

OTHER CONFERENCE PARTICIPATIONS

American Physical Society, Annual Meeting, New York City, January 26-29, 1981.

Conference on Perturbative Quantum Chromodynamics, Florida State University, Tallahassee, FL, March 25-28, 1981.

Summer Visitor, Fermi National Accelerator Laboratory, August 3-29, 1981.

American Physical Society, New York State Section, 46th. Semiannual Symposium, Cortland, NY, April 2-3, 1982.

American Physical Society, Spring Meeting, Washington DC, April 26-29, 1982.

Summer Visitor, Brookhaven National Laboratory, June 14 - July 16, 1982.

Workshop on Drell-Yan Processes, Fermi National Accelerator Laboratory, October 7-8, 1982.

American Physical Society, Division of Particles and Fields, Annual Meeting, University of Maryland, College Park, October 27-30, 1982.

American Physical Society, Annual Meeting, New York City, January 24-25, 1983.

Summer Visitor, Stanford Linear Accelerator Center, June-July, 1983. Also attended 11th. SLAC Summer Institute on Particle Physics, July 18-29.

American Physical Society, Spring Meeting, Washington DC, April 23-26 1984.

1984 Snowmass Workshop on the Design and Utilization of the Superconducting Super Collider, Snowmass CO June 23 - July 13, 1984.

Summer Visitor, Fermi National Accelerator Laboratory, July 16 - August 17, 1984.

Symposium on Anomalies, Geometry and Topology, Argonne National Laboratory and University of Chicago, Chicago IL, March 28-30, 1985.

Summer Visitor, Lawrence Berkeley Laboratory, June 3-28, 1985.

Oregon Workshop on Super High Energy Physics, University of Oregon, Eugene, OR, July 1-26, 1985.

1985 International Symposium on Lepton and Photon Interactions at High Energies, Kyoto, Japan, August 19-24, 1985, (by invitation).

1986 Snowmass Workshop on the Physics of the Superconducting Super Collider, Snowmass CO, June 23 - July 11, 1986.

Faculty Research Participant, Argonne National Laboratory, July 28 - August 22, 1986.

Visitor, Fermi National Accelerator Laboratory, August 25-29, 1986.

1988 Snowmass Workshop on High Energy Physics in the 1990's, Snowmass CO, June 27 - July 15, 1988.

Guest Scientist, Fermi National Accelerator Laboratory, Batavia, IL, April 1 - May 31, 1992.

CONFERENCES ORGANIZED

Cosmology, Strings, and Particle Physics

American Physical Society, New York State Section, Fall 2000 Symposium, University at Buffalo, October 20-21 (2000).

Symposium: 50+ Years of High Energy Physics at UB

University at Buffalo, October 20-21 (2006). Edited the Proceedings Int. J. Mod. Phys. E, Volume 17, Issue 5, May 2008.

LoopFest VII: Radiative Corrections for the LHC and ILC University at Buffalo, May 14-16 (2008)

RESEARCH SUPERVISION

Mr. Young-Heon Chang

M.A. in Physics, September 1985

Thesis: *One Dimensional Lattice Spin Systems*

Present Position: Doctoral studies, University of Chicago at Illinois Circle

Dr. Chung-Fai Wai

Ph.D in Physics, February 1988

Thesis: *New Predictions for Parity Violation in Vector Gauge Boson Production*

Present Position: ForEx Market, Hong Kong

Mr. Sasenarine P. Sankar

M.A. in Physics, February 1988

Thesis: *Higgs Particle Production in Electron-Positron Collisions*

Present Position: Physics Department, University of Guyana

Mr. Chi Ming Hung

M.A. in Physics, September 1989

Thesis: *A QCD Contribution to Z Production*

Present Position: Doctoral student, Physics Department, SUNY at Stony Brook

Ms. Sungsil Park

M.A. in Physics, February 1990

Thesis: *Monte Carlo Methods in the 2-Dimensional Ising Model*

Present Position: Returned to Korea for further studies.

Mr. Andreas Orth

M.A. in Physics, June 1990

Project: *Monte Carlo Studies of the Antiferromagnetic Ising Model*

Present Position: Returned to Germany for further studies.

Mr. Jen-Lung Tseng

M.A. in Physics, February 1991

Project: *Optimized Monte Carlo Studies*

Present Position: Graduate Studies, Rutgers University

Mr. Stefan Röhl

M.A. in Physics, June 1991

Project: *Neural Networks and Associative Memory*

Present Position: Returned to Germany for further studies.

Mr. Alexander Jung

M.A. in Physics, June 1991

Thesis: *Noisy Trajectories in Chaotic Systems*

Present Position: Returned to Germany for further studies.

Ms. Cordula Sonnhalter

M.A. in Physics, June 1991

Thesis: *Structure and Stability of Neutron Stars: An Application of General Relativity and Nuclear Physics*

Present Position: Returned to Germany for further studies.

Dr. Jerzy Pawłowski

Ph.D in Physics, September 1991

Thesis: *A Method for Spinor Calculations in Dimensional Regularization*

Present Position: CitiBank, New York City.

Mr. Feng-Qi Yu

M.A. in Physics, September 1992

Project: *A Growth Model for Simulating the Slow Aggregation of Colloidal Particles*

Present Position: Graduate studies, UCLA

Mr. Jens Graewe

M.A. in Physics, June 1993

Project: *Numerical Studies on Infinite-Range Ising Spin Glasses*
Present Position: Returned to Germany for further studies.

Mr. Michael Szimtenings
M.A. in Physics, July 1993

Project: *Numerical Studies of Nonlinear Resonance Zones of Microwave Perturbed Hydrogen Atoms*
Present Position: Returned to Germany for further studies.

Mr. Chul-Woo Choi
M.A. in Physics, February 1994

Project: *Study of CP violation in the decay of the top quark*
Present Position: Ph.D. candidate, Physics Department, UB

Mr. John Feinberg
M.A. in Physics, May 1994

Project: *Avalanche Scaling in Self-Organized Critical Systems*
Present Position: Programmer, Hoffmann-LaRoche, New Jersey.

Dr. Stephan Grage
M.A. in Physics, June 1994

Project: *Monte-Carlo Simulations on the Melting Transition of an Abrikosov Vortex Lattice*
Present Position: Postdoc in Biochemistry, Oxford University, England

Mr. Wing-Hang Choi
B.S. in Physics, June 1994

Senior Thesis: *Oscillations of Neutrinos*
Present Position: Graduate studies in physics at Columbia U.

Ms. Gauri D. Kamat
M.A. in Physics, September 1996

Project: *Image Analysis Using Fractals and Multifractals*

Mr. Idris S. Hamid
M.A. in Physics, September 1996

Thesis: *Gödel's Universe, the Mach Principle, and the Cosmological Principle: Considerations for the Philosophy of Physics*

Mr. Jason Dragon
Ph.D in Physics, February 1997

Thesis: *Metropolis Simulations of Various Numerical Representations of the Abrikosov State*

Ms. Rumiana Nikolova
M.A. in Physics, February 1997

Project: *Calculation of Orbits for the Restricted Planar Three Body System*

Mr. Felix Schuermann
M.S. in Physics, September 2000

Thesis: *Interactive Quantum Computation*

Dr. Sanjay Raina

Ph.D. in Physics, June 2002

Thesis: *Interference Phenomena in Electron Positron Annihilation*

Dr. Chul-Woo Choi

Ph.D. in Physics, September 2004

Thesis: *FeynChois: System for Automating the Process of Feynman Diagram Generation*

Mr. Siu Fai Chow

B.S. in Physics, June 2007

Senior Thesis: *Z Boson Production by pp Collision*

Mr. Fu-Chang Sun

M.S. in Physics, February 2010 (Expected)

Thesis: *Solitons in Lattice Field Theories*

COURSES TAUGHT*

Fall 1980	PHA 101	College Physics	[34]
Spring 1981	PHA 511	Quantum Theory of Fields	[6]
	PHA 581	Advanced Modern Physics - Special Topics in Elementary Particle Physics	[4]
Fall 1981	PHA 113	University Physics for Science Majors	[39]
	PHA 507	Quantum Mechanics I	[14]
Spring 1982	PHA 508	Quantum Mechanics II	[12]
Fall 1982	PHA 507	Quantum Mechanics I	[19]
	PHA 598	Independent Study	[1]
Spring 1983	PHA 508	Quantum Mechanics II	[18]
	PHA 522	Topics in Elementary Particle Physics	[4]
	PHA 598	Independent Study	[1]
Fall 1983	PHA 108	General Physics II	[234]
	PHA 515	Advanced Quantum Mechanics	[9]
	PHA 598	Independent Study	[1]
	PHA 600	Graduate Research	[1]
Spring 1984	PHA 511	Quantum Theory of Fields	[4]
	PHA 598	Independent Study	[4]
	PHA 600	Graduate Research	[2]
Fall 1984	PHA 108	General Physics II	[55]
	PHA 599	Supervised Teaching	[5]
	PHA 600	Graduate Research	[2]
Spring 1985	PHA 522	Topics in Elementary Particle Physics	[1]

* Enrollment in []

	PHA 600	Graduate Research	[2]	
Fall 1985	PHA 515	Advanced Quantum Mechanics	[5]	
	PHA 600	Graduate Research	[1]	
Spring 1986	PHA 511	Quantum Theory of Fields	[5]	
	PHA 598	Independent Study	[1]	
	PHA 600	Graduate Research	[1]	
Fall 1986	PHA 501	Introduction to Mathematical Physics I	[13]	
	PHA 500	Thesis Guidance	[1]	
	PHA 598	Independent Study	[2]	
	PHA 600	Graduate Research	[1]	
Spring 1987	PHA 502	Introduction to Mathematical Physics II	[11]	
	PHA 522	Topics in Elementary Particle Physics	[2]	
	PHA 500	Thesis Guidance	[1]	
	PHA 600	Graduate Research	[2]	
Fall 1987	PHA 107	General Physics I	[283]	
	PHA 598	Independent Study	[2]	
	PHA 599	Supervised Teaching	[2]	
	PHA 600	Graduate Research	[2]	
Spring 1988	PHA 511	Quantum Theory of Fields	[9]	
	PHA 598	Independent Study	[1]	
	PHA 600	Graduate Research	[1]	
Fall 1988	PHA 515	Advanced Quantum Mechanics	[4]	
	PHA 581	Computational Physics	[14]	
	PHA 500	Thesis Guidance	[2]	
Spring 1989	PHA 522	Topics in Elementary Particle Physics	[7]	
	PHA 500	Thesis Guidance	[2]	
	PHA 600	Graduate Research	[1]	
Fall 1989	PHA 410	Computational Physics I	[3]	
	PHA 505	Computational Physics I	[21]	
	PHA 500	Thesis Guidance	[2]	
Spring 1990	PHA 506	Computational Physics II	[12]	
	PHA 600	Graduate Research	[2]	
Fall 1990	PHA 505	Computational Physics I	[23]	
	PHA 500	Thesis Guidance	[1]	
	PHA 598	Independent Study	[1]	
	PHA 600	Graduate Research	[2]	
Spring 1991	PHA 506	Computational Physics II	[14]	
	PHA 512	Quantum Theory of Fields	[14]	
	PHA 500	Thesis Guidance	[4]	
	PHA 600	Graduate Research	[3]	
Fall 1991		On Sabbatical Leave		
	PHA 600	Graduate Research	[2]	

Spring 1992	On Sabbatical Leave		
	PHA 600	Graduate Research	[1]
Fall 1992	PHA 410	Computational Physics I	[3]
	PHA 505	Computational Physics I	[19]
	PHA 600	Graduate Research	[1]
Spring 1993	PHA 506	Computational Physics II	[10]
	PHA 522	Topics in Elementary Particle Physics	[6]
	PHA 598	Independent Study	[1]
	PHA 600	Graduate Research	[3]
Fall 1993	PHA 510	Introduction to Mathematical Physics I	[12]
	PHA 600	Graduate Research	[5]
Spring 1994	PHA 410	Computational Physics I	[2]
	PHA 505	Computational Physics I	[18]
	PHA 598	Independent Study	[1]
	PHA 600	Graduate Research	[6]
Fall 1994	PHA 117	General Physics Honors I	[12]
	PHA 600	Graduate Research	[2]
Spring 1995	PHY 108C	General Physics II	[22]
	PHY 600	Graduate Research	[5]
Fall 1995	PHY 108C	General Physics I	[68]
	PHY 598	Independent Study	[1]
	PHY 600	Graduate Research	[4]
Spring 1996	PHY 108C	General Physics II	[79]
	PHY 410	Computational Physics I	[3]
	PHY 505	Computational Physics I	[21]
	PHY 600	Graduate Research	[5]
Fall 1996	PHY 207	General Physics III	[64]
	PHY 600	Graduate Research	[6]
Spring 1997	PHY 410	Computational Physics I	[3]
	PHY 505	Computational Physics I	[6]
	PHY 600	Graduate Research	[3]
Fall 1997	PHY 506	Computational Physics II	[7]
	PHY 600	Graduate Research	[4]
Spring 1998	PHY 107	General Physics I	[118]
	PHY 600	Graduate Research	[4]
Fall 1998	PHY 100	Introduction to Physics	[5]
	PHY 410	Computational Physics I	[5]
	PHY 505	Computational Physics I	[11]
	PHY 600	Graduate Research	[4]
Spring 1999	PHY 411	Computational Physics II	[1]
	PHY 506	Computational Physics II	[4]

	PHY 600	Graduate Research	[2]	
Fall 1999	PHY 410	Computational Physics I	[7]	
	PHY 505	Computational Physics I	[11]	
	PHY 600	Graduate Research	[2]	
Spring 2000	PHY 411	Computational Physics II	[1]	
	PHY 506	Computational Physics II	[11]	
	PHY 600	Graduate Research	[4]	
Fall 2000	PHY 410	Computational Physics I	[1]	
	PHY 505	Computational Physics I	[14]	
	PHY 600	Graduate Research	[3]	
Spring 2001	PHY 506	Computational Physics II	[6]	
	PHY 600	Graduate Research	[3]	
Fall 2001	PHY 410	Computational Physics I	[3]	
	PHY 505	Computational Physics I	[12]	
	PHY 600	Graduate Research	[3]	
Spring 2002	PHY 411	Computational Physics I	[2]	
	PHY 516	High Performance Computing II	[8]	
	PHY 600	Graduate Research	[3]	
Fall 2002	PHY 108	General Physics II	[175]	
	PHY 410	Computational Physics I	[2]	
	PHY 505	Computational Physics I	[10]	
	PHY 600	Graduate Research	[2]	
Spring 2003	PHY 506	Computational Physics II	[7]	
	PHY 600	Graduate Research	[2]	
Fall 2003	PHY 410	Computational Physics I	[3]	
	PHY 505	Computational Physics I	[7]	
	PHY 600	Graduate Research	[1]	
Spring 2004	PHY 411	Computational Physics II	[2]	
	PHY 506	Computational Physics II	[3]	
	PHY 600	Graduate Research	[1]	
Fall 2004	PHY 100	Introduction to Physics	[52]	
	PHY 410	Computational Physics I	[9]	
	PHY 505	Computational Physics I	[9]	
Fall 2005	PHY 100	Introduction to Physics	[32]	
	PHY 410	Computational Physics I	[5]	
	PHY 505	Computational Physics I	[16]	
Fall 2006	PHY 410	Computational Physics I	[3]	
	PHY 505	Computational Physics I	[15]	
Spring 2007	PHY 100	Introduction to Physics	[38]	
	PHY 411	Computational Physics II	[1]	
	PHY 506	Computational Physics II	[2]	

Fall 2007	PHY 100	Introduction to Physics	[40]
	PHY 410	Computational Physics I	[2]
	PHY 505	Computational Physics I	[13]
Spring 2008	PHY 506	Computational Physics II	[6]
Fall 2008	PHY 101	College Physics I	[297]
	PHY 410	Computational Physics I	[5]
	PHY 505	Computational Physics I	[7]
	PHA 598	Independent Study	[1]
Spring 2009	PHY 411	Computational Physics II	[4]
	PHY 506	Computational Physics II	[5]
	PHY 600	Graduate Research	[1]

NEW COURSE DEVELOPMENT

Proposed in 1988 to introduce a new course on Computational Physics into the curriculum. Developed and offered the course on a trial basis as PHA 581 in Fall of 1988. A formal proposal was then made to DUE and the Graduate School for a two semester sequence Computational Physics I and II, to be cross-listed at the senior undergraduate and beginning graduate levels. The proposal was approved, and PHY 410-411 and PHY 505-506 are now being offered regularly by the Department.

UNIVERSITY SERVICE

Served as (alternate) member of the Faculty Senate, 1984 - 85.

Departmental Representative, FNSM Computer Committee, 1988 - 1989.

Departmental Representative to Faculty Senate, 1990 - 91.

College of Arts & Sciences Committee on Appointments, Promotion and Tenure, 2006 - present, Chair (2007-2008)

College of Arts & Sciences Policy Committee, 2006 - present

College of Arts & Sciences Steering Committee, 2007 - present

DEPARTMENTAL SERVICE

1980 - 1981 Preliminary Examination Committee

1981 - 1982 Comprehensive Examination Committee
New Appointments Committee

	Computer Committee
	Ph.D Committees (2 students)
1982 - 1983	Graduate Student Committee
	Preliminary Examination Committee
	Computer Committee
	M.A. Committees (2 students)
1983 - 1984	Graduate Student Committee
	Preliminary Examination Committee
	New Appointments Committee
	Computer Committee
	Ph.D Committee (1 student)
1984 - 1985	Graduate Student Committee
	Preliminary Examination Committee
	Computer Committee
	Assisted in data gathering for Departmental Self Study
1985 - 1986	Departmental Seminar Chairman
	Preliminary Examination Committee
	Computer Committee
1986 - 1987	New Appointments Committee, Chairman
	Preliminary Examination Committee
	Advisory Committee
1987 - 1988	New Appointments Committee
	Graduate Studies Committee
	Advisory Committee
	Ph.D Committees (2 students)
1988 - 1989	New Appointments Committee, Chairman
	Preliminary Examination Committee
	Advisory Committee
	Ad Hoc Committee on the Qualifying Examination
	Ph.D Committees (2 students)
1989 - 1990	Departmental Computer Committee, Chairman
	Qualifying Examination Committee
	Ph.D Committees (2 students)
1990 - 1991	Departmental Computer Committee, Chairman
	Qualifying Examination Committee, Chairman
	Ph.D Committee (1 student)
1991 - 1992	Sabbatical Leave
1992 - 1993	Departmental Computer Committee, Chairman
	Qualifying Examination Committee
	Undergraduate Studies Committee
1993 - 1994	New Appointments Committee, Chairman
	Departmental Computer Committee, Chairman

	Qualifying Examination Committee Undergraduate Studies Committee
1994 - 1995	Departmental Computer Committee, Chairman Qualifying Examination Committee Teaching Assignments Committee (Spring) FNSM Undergraduate and Graduate Grievance Committees Associate Acting Chairman (Spring)
1995 - 1996	Departmental Computer Committee Teaching Assignments Committee (Fall) Associate Chairman (Fall) Chairman (Spring)
1996 - 1997	Department Chairman
1997 - 1998	Department Chairman
1998 - 1999	Department Chairman
1999 - 2000	Department Chairman
2000 - 2001	Department Chairman
2001 - 2002	Department Chairman Colloquium Chair (Fall) High Energy Theorist Search Committee
2002 - 2003	Department Chairman
2003 - 2004	Department Chairman
Fall 2004	High Energy Faculty Search Committee Faculty External Recognition Committee Qualifying Examination Committee
Spring 2005	Sabbatical Leave
Fall 2005	Biological Physics Search Committee Faculty External Recognition Committee (Chair) Qualifying Examination Committee Teaching Assignments Committee
Spring 2006	Biological Physics Search Committee Faculty External Recognition Committee (Chair) Qualifying Examination Committee Teaching Assignments Committee
Fall 2006	Cosmology Search Committee Faculty External Recognition Committee (Chair) Qualifying Examination Administering Committee Teaching Assignments Committee
Spring 2007	Cosmology Search Committee Faculty External Recognition Committee (Chair) Qualifying Examination Administering Committee Teaching Assignments Committee

Fall 2007	Faculty External Recognition Committee (Chair) Qualifying Examination Administering Committee Teaching Assignments Committee
Spring 2008	Faculty External Recognition Committee (Chair) Qualifying Examination Administering Committee Teaching Assignments Committee
Fall 2008	Advisory Committee Faculty External Recognition Committee (Chair) Qualifying Examination Administering Committee Rustgi Lecture Committee (Chair) Teaching Assignments Committee
Spring 2009	Advisory Committee Faculty External Recognition Committee (Chair) Qualifying Examination Administering Committee Rustgi Lecture Committee (Chair) Teaching Assignments Committee

PROFESSIONAL SOCIETY MEMBERSHIPS AND ACTIVITIES

Member: American Physical Society.

Foreign Member: Indian Physics Association.

Delivered talks at two SUNY Physics Symposia (1980 and 1984).

Participated in annual meetings of the MRST (Montreal Rochester Syracuse Toronto) High Energy Theory Association, and delivered invited talks in 1984 and 1985.

Participated in Superconducting Super Collider planning workshops at Snowmass Colorado (June-July 1984, 1986 and 1988), and Eugene Oregon (July 1985).

Participated in the summer visitor programs of the National Laboratories: Fermi National Accelerator Laboratory (August 1981 and July-August 1984); Brookhaven National Laboratory (June-July 1982); Stanford Linear Accelerator Center (June-July 1983); Lawrence Berkeley Laboratory (June 1985); Argonne National Laboratory (August 1986).

Guest Scientist, Fermi National Accelerator Laboratory, April-May 1992 (on sabbatical leave).

Referee for Physical Review Letters, Physical Review D, Physics Letters B, Annals of Physics (NY), Zeitschrift für Physik C; and NSF Theoretical Physics and CRDF proposals.

COMMUNITY SERVICE

Delivered lectures *Quarks, Leptons, and the Grand Unification Hypothesis* (November 1982), and *Tiny Particles and Giant Colliders* (March 1985), to audiences of about 250

area high school students as part of the "Physics in the 80's" Program.

Delivered similar lectures to smaller audiences of high school students as part of the annual "Science Exploration Day" at SUNY Buffalo (May 1983, 1984, 1985, 1986, 1989, 1990, 1991, 1993, 1994, and 1995).

Delivered a lecture *Modern Gauge Theories of Elementary Particles* to the U.B. Natural Sciences Student Association (April 1985).