

KRISHNA SUBRAMANIAN KUMAR

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RESEARCH INTERESTS:

Experimental Nuclear and Particle Physics:
Low energy searches for physics beyond Standard Model,
QCD structure of the nucleon and other tests of low energy QCD.

WORK EXPERIENCE:

Sep. '04 - **University of Massachusetts**, Amherst, MA.
Professor of Physics.

Sep. '99 - Aug. '04 **University of Massachusetts**, Amherst, MA.
Associate Professor of Physics.

Sep. '93 - Aug. '99 **Princeton University**, Princeton, NJ.
Assistant Professor of Physics.

Feb. '90 - Aug. '93 **Harvard University**, Cambridge, MA.
Research Associate at the L3 experiment at CERN.

Jan. '85 - Jan. '90 **Syracuse University**, Syracuse, NY.
Graduate Research Assistant at the MIT-Bates Linac.

EDUCATION:

Sep. '84 - Jan. '90 **Syracuse University**, Syracuse, NY.
Ph. D. Physics, Thesis Advisor: Paul Souder
Thesis Title: *Parity Violation in Elastic $\bar{e} - ^{12}\text{C}$ Scattering*

Sep. '79 - Aug. '84 **Indian Institute of Technology**, Bombay, INDIA.
M. Sc. Physics

AWARDS:

- **2005 Fellow, American Physical Society**, *For his leadership in parity-violating electron scattering experiments, especially those focused on low energy searches for physics beyond the standard model.*
- **1995 Outstanding Junior Investigator Award**, *Precision Electroweak Tests with Polarized Electrons*, awarded by the US Department of Energy, Division of High Energy Physics.
- **1990 Peter T. Demos Award**, Achievement in Graduate Student Research, awarded by the MIT-Bates Linear Accelerator Center Users Group.
- **1990 Doctoral Prize**, awarded by the Graduate School at Syracuse University.

PROFESSIONAL SERVICE

- Co-convener, session on *Fixed Target Physics* at the International Conference on the Future of Particle Physics, Snowmass, 2001
- Elected member of SLUO (the Users Organization of SLAC) from 2001-2004
- Co-organizer, session on *Light Quarks and Leptons*, at the 8th International Conference on the Intersections between Nuclear and Particle Physics (CIPANP2003), NY City, May 2003
- Member, Nuclear Science Advisory Committee (NSAC) from 2001 to 2003. NSAC members are appointed by the Secretary of Energy for three year terms.
- Lecturer, Hampton University Graduate Summer School in Nuclear Physics, 2005
- Co-convener, *Spin Physics* session at DIS2005, XIII International Workshop on Deep Inelastic Scattering
- Chair, National Nuclear Physics Summer School Committee, 2006
- Co-convener, session on *Electroweak Physics and Physics Beyond the Standard Model* at CIPANP 2006: Ninth Conference on the Intersections of Particle and Nuclear Physics, San Juan, Puerto Rico
- Member, Program Committee of the Division of Nuclear Physics, American Physical Society, 2006-7
- Member, Executive Committee of the Division of Nuclear Physics, American Physical Society, 2007-8
- Co-Organizer, 10 week program on *Low Energy Precision Tests of the Standard Model in the LHC Era* at the Institute for Nuclear Theory, Seattle, USA, 2008
- Member, International Scientific Advisory Committee of the *10th Conference on the Intersections of Particle and Nuclear Physics*, San Diego, CA, May 2009
- Member, APS-DNP Fellowship Committee, 2010-11
- Lecturer, Joint US-Canadian Nuclear Physics Summer School, Vancouver, Canada, 2010
- Lecturer, Joliot-Curie French Nuclear Physics Summer School, Lacanau, France, 2010
- Co-Organizer, International Workshop on *Precision Tests of the Standard Model: From Atomic Parity Violation to Parity Violating Electron Scattering* at ECT*, Trento, Italy, 2010
- Member, Organizing Committee of PAVI11, 5th International Workshop on *Parity Violation, Hadron Structure and More....*, Rome, Italy, 2011
- Co-Convener, session on *Symmetries and Conservation Laws* at PANIC11: 2011 Particle and Nuclear Conference, Boston, USA, 2011
- Chair, NSAC Subcommittee on Fundamental Nuclear Physics with Neutrons, 2011
- Member, International Scientific Advisory Committee of the *11th Conference on the Intersections of Particle and Nuclear Physics*, St. Petersburg, FL, May 2012

- Member, NSAC Subcommittee on the Implementation of the 2007 Long Range Plan for Nuclear Science, 2012

PROFESSIONAL COLLABORATION LEADERSHIP

- Principal Spokesperson: Stanford Linear Accelerator Center E158 Experiment: 1997-2005
- Co-Spokesperson: Jefferson Laboratory HAPPEXII Experiment, 1999-2007
- Co-Spokesperson: Jefferson Laboratory PREX Experiment, 2007-
- Principal Spokesperson: Jefferson Laboratory MOLLER Experiment, 2009-

OTHER PROFESSIONAL COLLABORATION MEMBERSHIP

- Fermilab Mu2e Collaboration, 2006-
- EXO Collaboration, 2007-

Ph.D. THESES SUPERVISION

- G. Wilson Miller, *Parity Violation in Elastic Electron Proton Scattering*, Princeton University, 2001.
- D. Relyea, *Parity Violation in Møller Scattering*, Princeton University, 2003.
- L. Kaufman, *Parity Violation in Elastic Electron Proton Scattering at low Q^2* , University of Massachusetts, 2006.
- L. Mercado, *Parity Violation in Elastic Electron Proton Scattering at high Q^2* , University of Massachusetts, December 2011
- J. Wexler, *A Measurement of the Neutron Skin of ^{208}Pb using Parity Violating Electron Scattering*, University of Massachusetts, 2013 (anticipated)

DEPARTMENTAL & UNIVERSITY SERVICE

- Advisor, Society for Physics Students, 2001-2
- Member, Personnel Committee 2000-
- Member, Executive Search Committee, 2004
- Member, Chairman's Advisory Committee, 2002-6, 2008-
- Member, Personnel Subcommittee, 2003-2005
- Member, Graduate Admissions Committee, 2000
- Member, Comprehensive Exam Committee, Spring 2000
- Chair, Experimental Nuclear Faculty Search Committee, 2004
- Chair, Graduate Admissions Committee, 2001, 2003-05
- Chair, Physics Department Personnel Committee, 2006-7
- Member, Experimental Particle Search Committee, 2008
- Director, Physics Graduate Program, 2007-
- Member, NSM College Personnel Committee, 2007-9

CONFERENCE SESSIONS AND WORKSHOPS ORGANIZATION

1. "Fixed Target Physics", co-organizers P. Reimer, R. Ray and M. Strovink, parallel session at the *APS/DPF/DPB Summer Study on the Future of Particle Physics*, June 2001.
2. "Light Quarks and Leptons" co-organizer A. Czarnecki, parallel session at the *VIII International Conference on the Intersections between Nuclear and Particle Physics* (CIPANP2003), New York City, May 2003.
3. "Spin Physics" co-organizers P. di Nezza and M. Stratmann, parallel session at the XIII International Conference on Deep Inelastic Scattering (DIS2005), Madison, WI, May 2005
4. "EW and BSM Physics" co-conveners C. Kolda and B. Heineman, parallel session at the *Conference on the Intersections of Nuclear and Particle Physics* (CIPANP2006), San Juan, Puerto Rico, May 2006
5. "Low Energy Precision Electroweak Physics in the LHC Era", Institute of Nuclear Theory Program, co-organizers V. Cirigliano, J. Erler, M.J. Ramsey-Musolf, Seattle, WA, September-December 2008,
6. Member, International Scientific Advisory Committee of the *10th Conference on the Intersections of Particle and Nuclear Physics*, San Diego, CA, May 2009
7. Co-convenor, Electroweak Physics, INT Program on "Gluons and the Quark Sea at High Energies: Distributions, Polarizations, Tomography", Seattle, October 2010
8. Co-organizer, Workshop on "Precision Test of the Standard Model", ECT*, Trento, Italy, November 2010
9. "Tests of Symmetries and Conservation Laws", Co-convenor D. Bryman, *Particles and Nuclei* (PANIC11), Cambridge, MA, June 2011
10. Member, Organizing Committee of the *Workshop on Parity Violation* (PAVI11), Rome, Italy, September 2011
11. Member, International Scientific Advisory Committee of the *11th Conference on the Intersections of Particle and Nuclear Physics*, St. Petersburg, FL, May 2012
12. External Organizer, Workshop on "Low Energy Precision Physics", Mainz Institute for Theoretical Physics, Mainz, Germany, September 2013.

INVITED CONFERENCE AND WORKSHOP TALKS

1. "Recent τ Results from the L3 Detector at LEP."
The Vancouver DPF Meeting, Vancouver, Canada, 1991.
2. "Electroweak Tests with the τ Lepton at LEP"
X DAE Symposium on High Energy Physics, Bombay, India, December 1992.
3. "Measurement of τ Polarization in Z^0 Decays"
ICHEP 92, Dallas, TX, August 1992.
4. "Precision Low Q^2 Weak Neutral Current Experiments"
1995 Aspen Winter Conference of Particle Physics, Aspen, CO, January 1995.
5. "Parity Nonconservation in Møller Scattering"
Physics Beyond the Standard Model at Low and Intermediate Energies, Seattle, WA, June 1995.

6. "An Experiment to Measure Parity Nonconservation in Møller Scattering"
SLAC in the Year 2000 and Beyond, SLAC, CA, March 1996.
7. "Fixed Target Møller Scattering at the NLC"
Workshop on Future Directions in High Energy Physics, Snowmass, CO, June 1996.
8. "Parity Violation Experiments at TJNAF"
DAFCE96, Workshop on Hadron Dynamics with the new DAFNE and CEBAF facilities, Frascati, Italy, November 1996.
9. "Testing the Standard Model with ee and ep Scattering"
Future Directions in Parity Violation, Workshop at the Institute for Nuclear Theory, Seattle, WA, June 1997.
10. "Status of the HAPPEX Experiment at TJNAF"
Workshop of Parity Violation in Electron-Hadron Electroweak Interactions, Paris, France, October 1997.
11. "Parity Violation and Fundamental Electroweak Physics", Invited talk the the APS New England Section Fall Meeting, October 1998.
12. "Probing Nucleon Structure with Parity Violating Electron Scattering"
Juelich Workshop on Hadron Structure, June 1999.
13. "Recent Progress in Parity Violating Electron Scattering at Jefferson Laboratory", invited talk at the Gordon Research Conference on Nuclear Physics, Newport, RI, July 1999.
14. "Experiment Overview", Plenary talk at the joint Jefferson Lab-University of Connecticut workshop on *Low Energy Electroweak Sea Quark Structure of the Nucleon*, November 1999.
15. "Experiment Summary", Plenary Talk at the joint Jefferson Lab-Temple University workshop on *Nucleon Structure in the High-x Region*, April 2000.
16. "New Results from HAPPEX and Future Plans at Jefferson Lab and SLAC", invited talk at the joint DNP/DPF APS meeting, Long Beach, CA, April 2000.
17. "Status of SLAC E158: Parity Violation in Møller Scattering", ECT* Workshop on *Parity Violation in Atomic, Nuclear and Hadronic Systems*, Trento, Italy, June 2000.
18. "Overview of Parameters and Experiments", Opening Talk at the Jefferson Laboratory Parity Workshop, October 2001.
19. "Experimental Review", Plenary Talk at *From Parity Violation to Hadronic Structure and more...*, University of Mainz, Germany, June 2002.
20. "Status of Neutral Weak Form Factor Measurements", Plenary talk at QNP2002, *International Conference on Quark Nuclear Physics*, Juelich, Germany, June 2002.
21. "Spin Dependant Asymmetries at low Q^2 and high W ", invited talk at the BNL-RIKEN Workshop on Current and Future Directions, Brookhaven, August 2002.
22. "Parity Violating Electron Scattering", Plenary talk at SPIN2002, *15th International Spin Physics Symposium*, Upton, NY, September 2002.

23. "SLAC E158: Recent Progress and First Results", Presentation at the DoE HEP Institutional Review of the Stanford Linear Accelerator Center, April 2003.
24. "Parity Violation Experiments", Plenary talk at *Celebration of the First Seven Years*, Jefferson Lab Annual Users Meeting, June 2003.
25. "The SLAC E158 Experiment", Invited talk at the *2003 Gordon Research Conference on Nuclear Physics*, Colby College, ME, July 2003.
26. "Electroweak Tests at Low Q^2 ", Invited Talk at the *Workshop on Nucleon Form Factors and Parity Violation*, Athens, Greece, October 2003
27. "Frontiers of Parity-Violating Electron Scattering Experiments", Invited talk at the *Workshop on Parity Violating Electron Scattering* (PAVI04), Grenoble, France, June 2004.
28. "Proving Subatomic Matter with Polarized Electrons: MeV to TeV Physics", Plenary Talk at the APS April Meeting, Tampa, FL, April 2005.
29. "Parity Violation in Møller Scattering", invited talk at the *XIII International Workshop on Deep Inelastic Scattering* (DIS2005), Madison, WI, April 2005.
30. "Parity-Violating Deep Inelastic Scattering", Invited talk at the *Workshop on Parton Distributions in the 21st Century*, Seattle, WA, November 2004.
31. "Symmetries in Nuclear Physics", Invited talk at the *Jefferson Laboratory 12 GeV Science Review*, Newport News, VA, April 2005
32. "Tests of the Standard Model below the Z Pole", Invited Talk at the *Jefferson Laboratory Hall C Summer Workshop*, Newport News, VA, August 2005.
33. "Parity-Violating Deep Inelastic Scattering: A New Probe of Charge Symmetry Breaking", invited talk at the *ECT* International Workshop on Charge Symmetry Breaking and Other Isospin Violations*, Trento, Italy, June 2005.
34. "Parity-Violating Electron Scattering: New Results and Future Prospects", Invited plenary talk at the *Conference on the Intersections of Nuclear and Particle Physics* (CIPANP2006), San Juan, Puerto Rico, May 2006
35. "Conclusions and Perspectives", Summary Talk at the *Workshop on Parity Violation* (PAVI06), Milos, Greece, May 2006
36. "Parity-Violating Electron Scattering: New Results and Future Prospects", Invited talk at the *Jefferson Laboratory Annual Users Meeting*, Newport News, VA, June 2006
37. "MeV to TeV Physics with Parity-Violating Electron Scattering", Invited talk at the *Gordon Research Conference on Nuclear Physics*, Newport, RI, May 2007.
38. "Long Range Plan: Fundamental Symmetries and Neutrinos", Plenary talk at the Jefferson Laboratory Users Meeting, Newport News, VA, June 2007.
39. "Parity-Violating Deep Inelastic Scattering with the 12 GeV Upgrade", Invited talk at the *XV International Workshop on Deep Inelastic Scattering* (DIS2007), Munich, Germany, April 2007.

40. "Probing the TeV Scale: New Opportunities with the Jefferson Laboratory 12 GeV Upgrade", Invited talk at the *Workshop on Electroweak and Precision Physics*, APS Division of Nuclear Physics Fall Meeting, Newport News, VA, October 2007.
41. "Deep Inelastic Scattering and Electroweak Physics", Invited talk at the *Workshop on the Structure of Hadrons and Nuclei at an Electron-Ion Collider*, ECT* Trento, Italy, June 2008
42. "Introduction to Parity Violation", Opening Talk at the *PREX Workshop at Jefferson Laboratory*, Newport News, VA, August 2008.
43. "Beyond the Standard Model: Future Prospects with Parity-Violating Electron Scattering", Plenary Talk at the *18th International Spin Physics Symposium (SPIN 2009)*, Charlottesville, VA, October 2008.
44. "Parity-Violating Møller Scattering", Invited talk at the *Workshop on Parity-Violating Electron Scattering* at the Institute for Nuclear Theory, Seattle, WA, November 2008.
45. "Electroweak and Precision QCD Tests: Experimental Opportunities at a Polarized Electron-Ion Collider", Invited Talk at the *Electron Ion Collider International Advisory Committee Meeting*, Washington D.C., February 2009.
46. "Parity-Violating Møller Scattering: Past Results and Future Prospects", Invited talk at the *10th Conference on the Intersections of Particle and Nuclear Physics*, San Diego, CA, May 2009.
47. "Møller Scattering at 11 GeV at Jefferson Laboratory", Invited talk at *4th International Workshop on Parity Violation and Hadron Structure*, Bar Harbor, ME, June 2009.
48. "Overview of Parity-Violating Electron Scattering", Opening talk at the workshop on *The Lead Radius Experiment and Neutron Rich Matter in Astrophysics and the Laboratory*, Trento, Italy, August 2009.
49. "Parity Violation and Beyond the Standard Model Aspects", Invited talk at the *8th European Research Conference on Electromagnetic Interactions with Nucleons and Nuclei (EINN09)*, Milos, Greece, September 2009.
50. "Low Energy Tests of the Standard Model: The 12 GeV Parity-Violation Program at Jefferson Laboratory", Plenary talk at the *International Conference on Nuclear Reactions on Nucleons and Nuclei*, Messina, Italy, October 2009
51. "Electroweak Physics with the EIC: Experimental Prospects", invited talk at the *INT Workshop on the Physics of Lepton-Ion Colliders*, Seattle, WA, October 2009
52. "Electroweak Physics at a Future Electron-Ion Collider", invited talk at *XVIII International Conference on Deep Inelastic Scattering and Related Subjects*, Florence, Italy, April 2010.
53. "Overview of Electroweak Physics Measurements at the EIC", invited talk at the *EIC EW JLab User Workshop*, Williamsburg, VA, May 2010.
54. "Beyond the Standard Model with Electron and Muon Beams", plenary talk at *International Nuclear Physics Conference (INPC2010)*, Vancouver, Canada, July 2010.
55. "The Møller Project at Jefferson Laboratory", invited talk at the *Second Workshop on Hadron Physics in China and Opportunities with 12 GeV JLab (WHAT2010)*, Beijing, China, July 2010.

56. "Parity Violation and Standard Model Tests", invited plenary talk at *19th International Spin Physics Symposium* (SPIN2010), Juelich, Germany, September 2010.
57. "Electroweak Structure Functions: Measurement Aspects", invited talk at the INT Program on *Gluons and the Quark Sea at High Energies: Distributions, Polarizations, Tomography*, Seattle, Washington, October 2010
58. "Beyond the Standard Model at Low Energy: Experimental Overview", invited talk at the workshop on *Precision Tests of the Standard Model*, ECT*, Trento, November 2010
59. "Parity-Violating Electron Scattering: Introduction and Overview of the World Experimental Program", at *Many-Body Structure of Strongly Interacting Systems*, Conclusive Symposium at Johannes Gutenberg University, Mainz, Germany, February 2010
60. "Introduction to Parity Violating Electron Scattering", opening talk at the *Minisymposium on Parity Violation*, APS April Meeting, Anaheim, CA, April 2011
61. "Measurements of the Weak Mixing Angle: An Experimental Overview", invited talk at the *Workshop on Machine Aspects and Physics of the MESA Accelerator*, Mainz, Germany, May 2011
62. "What is the Proton Made of?", Invited pedagogical lecture at the *19th Particles and Nuclei International Conference* (PANIC11), MIT, Cambridge, MA, July 2011
63. "Searches for BSM Physics at Low Energy", plenary talk at *Fall Meeting of the Division of the Particles and Fields* (DPF2011), Brown University, Providence, RI, August 2011
64. "High Precision Electroweak Measurements of Electrons and Muons", invited talk at the *Tenth ICFA Seminar on Future Perspectives in High Energy Physics*, CERN, Geneva, Switzerland, October 2011
65. "Parity-Violating Electron Scattering: MeV to TeV Physics", Invited talk at the *50th International Meeting on Nuclear Physics*, Bormio, Italy, January 2012
66. "The PREX Experiment at Jefferson Laboratory", invited talk at the workshop on *The Nucleon Dipole Polarizability and its Impact on Nuclear Structure and Astrophysics*, ECT*, Trento, Italy, June 2012
67. "Low Energy Standard Model Tests with Parity-Violating Electron Scattering", invited talk at *Electron-Nucleus XII*, Elba, Italy, June 2012.

SEMINARS AND COLLOQUIA

1. “ τ Polarization with the L3 detector”
High Energy Physics Seminar at Princeton University, April 1992.
2. “ τ Polarization with the L3 detector”
High Energy Physics Seminar at Syracuse University, March 1992.
3. “ τ Polarization with the L3 detector”
Weekly Seminar at the MIT-Bates Linac, March 1992.
4. “ τ Polarization with the L3 detector”
High Energy Physics seminar at Harvard University, March 1992.
5. “Precision Parity-Violating Neutral Current Experiments”
Physics Department Colloquium at Harvard University, April 1993.
6. “Precision Parity-Violating Neutral Current Experiments”
Physics Department Colloquium at Johns Hopkins University, March 1993.
7. “Parity Nonconservation in Møller Scattering”
High Energy Physics Seminar at Columbia University, March 1995.
8. “Parity Nonconservation in Møller Scattering”
Orange Room Seminar at SLAC, April 1995.
9. “Strange and New Physics with Virtual Zs”
LNS Colloquium at MIT, May 1995.
10. “Physics Potential of Weak Neutral Current Experiments at CEBAF”
Invited Talk at the Hall A Collaboration Meeting, CEBAF, VA, February, 1996.
11. “Strange and New Physics with Virtual Zs”
Nuclear Physics Seminar at University of Illinois, Champagne, Il, March 1996.
12. “Precision Weak Neutral Current Experiments at Low Q^2 ”
High Energy Physics Seminar at University of California, San Diego, CA, May 1996.
13. “Precision Measurement of the Spin Structure Function of the Neutron g_1 : First Results from E-154”
Orange Room Seminar at SLAC, Stanford, CA, July 1996.
14. “Future Prospects of Weak Neutral Current Experiments at CEBAF”
Experimental Seminar at TJNAF, Newport News, VA, July 1996.
15. “An Experiment to Measure Parity Nonconservation in Møller Scattering”
Nuclear Physics Seminar at CEN, Saclay, France, October 1996.
16. “Parity Violation: Probing the Nucleon and Beyond”
LNS Colloquium at MIT, February 1997.
17. “A Precision Measurement of the Electroweak Mixing Angle in Møller Scattering: A SLAC Proposal”
High Energy Physics Seminar at the University of Chicago, April 1997.
18. “Probing Subatomic Matter with Polarized Electrons: MeV to TeV Physics”
Particles and Fields Seminar at Boston University, April 1998.

19. "SLAC E158: A Precision Measurement of the Weak Mixing Angle in Møller Scattering"
Physics Division Seminar at Jefferson Laboratory, March 1998.
20. "Probing Subatomic Matter with Polarized Electrons: MeV to TeV Physics"
Physics Department Colloquium at University of Connecticut, February 1998.
21. "Probing Subatomic Matter with Polarized Electrons: MeV to TeV Physics"
Physics Department Colloquium at University of Massachusetts, Amherst, February 1998.
22. "Probing Subatomic Matter with Polarized Electrons", Physics Department Colloquium at Princeton University, April 1999.
23. "Probing Subatomic Matter with Polarized Electrons", Physics Department Colloquium at Amherst College, February 2000.
24. "Strange, New Physics with parity Violating Electron Scattering", Physics Colloquium at the Argonne National Laboratory, April 2002.
25. "Strange, New Physics with Parity Violating Electron Scattering", High Energy Physics Seminar at the Tata Institute of Fundamental Research, Mumbai, India, December 2002.
26. "First Result from the SLAC E158 Experiment", Seminar at the Stanford Linear Accelerator Center, Stanford, CA, April 2003
27. "Electrons and Mirror Symmetry", Physics Department Colloquium at University of Massachusetts, Amherst, April 2003.
28. "Electrons and Mirror Symmetry", Physics Department Colloquium at University of Connecticut, February 2004.
29. "Electrons and Mirror Symmetry", Physics Department Colloquium at University of Kentucky, April 2004.
30. "Electrons and Mirror Symmetry", Physics Department Colloquium at Brown University, November 2004.
31. "Parity Violating Møller Scattering", PPE Seminar at CERN, Geneva, Switzerland, March 2005.
32. "Parity Violating Electron Scattering: Past, Present and Future", High Energy Physics Seminar at CalTech, May 2005.
33. "Parity Violating Electron Scattering: Past, Present and Future", High Energy Physics Seminar at UC San Diego, May 2005.
34. "Parity Violating Electrong Scattering: Past, Present and Future", Nuclear Physics seminar at INFN, Frascati, Italy, June 2005
35. "Probing Subatomic Matter with Polarized Electrons", HENP Seminar at UMass, Amherst, April 2005.
36. "Low Energy Electroweak Physics", Invited talk at the New England Particle Physics Retreat, Cape Cod, MA, August 2006
37. "Electrons and Mirror Symmetry", Physics Department Colloquium at Brookhaven National Laboratory, Upton, NY January 2006.

38. "Electrons and Mirror Symmetry", Physics Department Colloquium at the University of South Carolina, March 2006
39. "Electrons and Mirror Symmetry", Physics Department Colloquium at Indiana University, April 2006
40. "Electrons and Mirror Symmetry", Physics Department Colloquium at Amherst College, April 2006
41. "Parity-Violating Electron Scattering: New Results and Future Prospects", Nuclear Physics Seminar at Oakridge National Research Laboratory, Oakridge, TN, August 2006
42. "Electrons and Mirror Symmetry", Colloquium at Fermi National Accelerator Laboratory, April 2007.
43. "Electrons and Mirror Symmetry", Colloquium at Argonne National Laboratory, April 2007.
44. "Electrons and Mirror Symmetry", Physics Department Colloquium at UNAM, Mexico City, Mexico, March 2007.
45. "Probing the TeV Scale with Parity-Violating Electron Scattering", Seminar at the Indiana University Cyclotron Facility, Bloomington, IN, October 2007
46. "Probing the TeV Scale with Parity-Violating Electron Scattering", Seminar at the Department of Physics NPAC Forum, University of Wisconsin, Madison, WI, May 2008.
47. "The Physics of Electron-Electron Scattering", Seminar at Jefferson Laboratory, Newport News, VA, January 2009.
48. "Electrons and Mirror Symmetry", Colloquium at Jefferson Laboratory, Newport News, VA, July 2009.
49. "The 12 GeV Parity-Violation Program at Jefferson Laboratory", seminar at the Istituto Superiore di Sanita', Rome, Italy, October 2009
50. "The Physics of Electron-Electron Scattering", Institute Colloquium at Johannes Gutenberg University, Mainz, Germany, December 2009
51. "The Physics of Electron-Electron Scattering", Physics Department Colloquium at Duke University, October 2011
52. "MeV to TeV Physics with Parity-Violating Electron Scattering", Nuclear Science Division Colloquium at Lawrence Berkeley National Laboratory, November 2011
53. "Electrons are not Ambidextrous: New Insights from a Subatomic Matter of Fact", Physics Department Colloquium at the University of New Hampshire, November 2012
54. "Electrons are not Ambidextrous: New Insights from a Subatomic Matter of Fact", Physics Department Colloquium at SUNY Stony Brook, November 2012
55. "Electrons are not Ambidextrous: New Insights from a Subatomic Matter of Fact", Physics Department Colloquium at Rensselaer Polytechnic Institute, February 2013

PUBLICATIONS

1. “First Observation of the Negative Muonium Ion produced by Electron Capture in a Beam Foil Experiment”,
Y. Kuang *et al.*, *Physical Review* **A36**, RC, 3172, (1987).
2. “Formation of Negative Muonium Ion and Charge Processes for Positive Muons passing through Thin Metal Foils.”,
Y. Kuang *et al.*, *Physical Review* **A39**, No. 12, 6109, (1989).
3. “The Bates Polarized Electron Source.”,
G.D. Cates *et al.*, *Nuclear Instruments and Methods in Physics Research* **A278** No. 2, 293, (1989).
4. * “Measurement of Parity Violation in the Elastic Scattering of Polarized Electrons from ^{12}C ”,
P.A. Souder *et al.*, *Physical Review Letters* **65**, No. 6, 694, (1990).
5. “Operation of the LAMPF Stopped Muon Channel for Small Gas Targets.”,
R. Holmes *et al.*, *Nuclear Instruments and Methods in Physics Research* **A303**, 226, (1991).
6. “Mass Limits for Excited Electrons and Muons from Z^0 Decay.”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **247B** (1990) 177.
7. “A Determination of Electroweak Parameters from $Z^0 \rightarrow \mu^+ \mu^- (\gamma)$.”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **247B** (1990) 473.
8. “A Precision Measurement of the Number of Neutrino Species”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **249B** (1990) 341.
9. “Search for Neutral Higgs Boson in Z^0 Decay.”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **248B** (1990) 203.
10. “Determination of α_s from Jet Multiplicities Measured on the Z^0 Resonance.”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **248B** (1990) 462.
11. “A Test of QCD based on 4-Jet Events from Z^0 Decays.”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **248B** (1990) 227.
12. “Test of QED in $e^+e^- \rightarrow \gamma\gamma$ at LEP.”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **250B** (1990) 199.
13. * “Search for Excited Taos from Z^0 Decays.”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **250B** (1990) 205.
14. “Search for the Neutral Higgs Bosons of the Minimal Supersymmetric Standard Model from Z^0 Decays.”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **251B** (1990) 311.
15. * “A Search for Heavy Charged and Neutral Leptons from Z^0 Decays”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **251B** (1990) 321.
16. * “A Determination of Electroweak Parameters from Z^0 Decays into Charged Leptons.”,
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **250B** (1990) 183.

17. "Search for the Charged Higgs Boson in Z^0 Decays.",
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **252B** (1990) 511.
18. "Search for a Low Mass Neutral Higgs Boson in Z^0 Decays.",
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **252B** (1990) 518.
19. "A Measurement of B^0 - \bar{B}^0 Mixing in Z^0 Decays.",
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **252B** (1990) 703.
20. "Search for Excited Neutrinos from Z^0 Decays.",
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **252B** (1990) 525.
21. "A Measurement of the $Z^0 \rightarrow b\bar{b}$ Forward-Backward Asymmetry.",
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **252B** (1990) 713.
22. "Determination of α_s from Energy-Energy Correlations Measured on the Z^0 Resonance.",
The L3 Collaboration, B. Adeva *et al.*, *Physics Letters* **257B** (1991) 469.
23. "Search for the Neutral Higgs Boson.", The L3 Collaboration, B. Adeva *et al.*,
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