

Curriculum Vitae

**Mitchell R. Wayne**

**Education:**

University of California, Los Angeles - Ph.D. in Physics, 1985

University of California, Los Angeles - M.S. in Physics, 1980

University of California, Los Angeles - B.S. in Physics, 1977

**Honors and Awards:**

Recipient of Shilts-Leonard Teaching Award, 2002

Recipient of inaugural Kaneb Teaching Award, 1999.

Nominated for the O'Malley Undergraduate Teaching Award, 1995.

Outstanding Teaching Assistant, UCLA Dept. of Physics

Regents Scholarship, University of California

**Professional Societies:**

American Physical Society

Sigma Pi Sigma

Material Research Society

**Experience:**

Chairman, Department of Physics, University of Notre Dame, July 2006 – present

Associate Dean, College of Science, University of Notre Dame, July 2002 – June 2006

Professor of Physics, University of Notre Dame, August 2000 – present

Assistant Chairman, Department of Physics, August 1998 – August 2002

Director of Undergraduate Studies, Department of Physics, August 1998 – August 2002

Associate Professor of Physics, University of Notre Dame, August 1995 – present

Assistant Professor of Physics, University of Notre Dame, August 1991 – July 1995

Research Associate, Iowa State University, March 1988 – July 1991

Research Associate, LAL, Orsay, France, January 1986 – February 1988

**Current Research Interests:**

Study of  $\bar{p}p$  Collisions at 1.8 TeV, D0 Collaboration at Fermilab

Study of Proton Collisions at 14 TeV, CMS Collaboration at CERN

Detector development for the Next Linear Collider

**Ph.D.s Advised**

Dr. Linda Coney, Dr. Ryan Hooper, Dr. Julie Kalk (nee Torborg)

**Graduate Students:**

Mr. Sean Lynch

## Publications

1. "Measurement of Ionization Loss in the Relativistic Rise Region with the Time Projection Chamber," H. Aihara et al. (TPC Collaboration), IEEE Trans. Nucl. Sci. NS-30, 63 (Feb. 1983).
2. "A Muon Detection System for the PEP-4 Facility," H. Aihara et al. (TPC Collaboration), IEEE Trans. Nucl. Sci. NS-30,67 (Feb. 1983).
3. "Spatial Resolution of the PEP-4 Time Projection Chamber," H. Aihara et al. (TPC Collaboration), IEEE Trans. Nucl. Sci. NS-30,76 (Feb. 1983).
4. "Geiger Mode Calorimeter for PEP-4," H. Aihara et al. (TPC Collaboration), IEEE Trans. Nucl. Sci. NS-30,117 (Feb. 1983).
5. "Performance of a Drift Chamber System for the Time Projection Chamber Detector Facility at PEP," H. Aihara et al. (TPC Collaboration), IEEE Trans. Nucl. Sci. NS-30,153 (Feb. 1983).
6. "Performance of the Signal Processing System for the Time Projection Chamber," H. Aihara et al. (TPC Collaboration), IEEE Trans. Nucl. Sci. NS-30, 162 (Feb. 1983).
7. "Performance of the Hexagonal Calorimeter at PEP-4," H. Aihara et al. (TPC Collaboration), Nucl. Inst. Methods. 127, 259 (Nov. 1983).
8. "Search for Charge  $(4/3)e$  Particles Produced in  $e^+e^-$  Annihilations," H. Aihara et al. (TPC Collaboration), LBL-16860, Phys. Rev. Letters 52, 168 (16 Jan. 1984).
9. "Charged Hadron Production in  $e^+e^-$  Annihilation at 29 GeV," H. Aihara et al. (TPC Collaboration), LBL-17142, Phys. Rev. Letters 52, 577 (20 Feb. 1984).
10. "Search for  $Q = (2/3)e$  and  $Q = (1/3)e$  Particles Produced in  $e^+e^-$  Annihilations," H. Aihara et al. (TPC Collaboration), LBL-17551, Phys. Rev. Letters 52, 2332 (25 June 1984).
11. "Phi Meson Production in  $e^+e^-$  Annihilations at 29 GeV," H. Aihara et al. (TPC Collaboration), LBL-17616, Phys. Rev. Letters 52, 2201 (18 June 1984).
12. "Characteristics of Proton Production in Jets From  $e^+e^-$  Annihilation at 29 GeV," H. Aihara et al. (TPC Collaboration), LBL-17705, Phys. Rev. Letters 53, 130 (9 July 1984).
13. "Tau Lepton Branching Fractions," H. Aihara et al. (TPC Collaboration), LBL-18014, Phys. Rev. D30, 2436 (Dec. 1984).
14. "Observation of Strangeness Correlations in  $e^+e^-$  Annihilation at  $\sqrt{s} = 29$  GeV," H. Aihara et al. (TPC Collaboration), LBL-178125, Phys. Rev. Letters 53, 2199 (Dec. 1984).

15. "Evidence for the  $F^*$  Meson," H. Aihara et al. (TPC Collaboration), Phys. Rev. Letters 53, 2465 (Dec. 1984).
16. " $K^{*0}$  and  $K_S^0$  Meson Production in  $e^+e^-$  Annihilations at 29 GeV," H. Aihara et al. (TPC Collaboration), LBL-18325, Phys. Rev. Letters 53, 2378 (Dec. 1984).
17. "Lambda Production in  $e^+e^-$  Annihilation at 29 GeV," H. Aihara et al. (TPC Collaboration), LBL-18382, Phys. Rev. Letters 54, 274 (Jan. 1985).
18. "Tests of Models for Parton Fragmentation by Means of 3-Jet Events in  $e^+e^-$  Annihilation at  $\sqrt{s} = 29\text{GeV}$ ," H. Aihara et al. (TPC Collaboration), LBL-18407, TPC-LBL-84-44, Phys. Rev. Letters 54, 270 (Jan. 1985).
19. "Prompt Electron Production in  $e^+e^-$  Annihilations at 29 GeV," H. Aihara et al. (TPC Collaboration), LBL-17545 (March 1984), Z. Physik C. 27, 39 (Feb. 1985).
20. "Quark Fragmentation Functions and Long Range Correlations in  $e^+e^-$  Annihilation at 29 GeV," H. Aihara et al. (TPC Collaboration), LBL-18911, TPC-LBL-85-1, Z. Physik C. 27, 495 (April 1985).
21. "Inclusive Gamma and Pi-zero Production Cross Sections and Energy Fractions in  $e^+e^-$  Annihilation at 29 GeV," H. Aihara et al. (TPC Collaboration), LBL-18326, Z. Physik C. 27, 187 (1985).
22. "Study of Bose-Einstein Correlations in  $e^+e^-$  Annihilation at 29 GeV," H. Aihara et al. (TPC Collaboration), LBL-18478, TPC-LBL-84-46, Phys. Rev. D31, 996 (March 1985).
23. "Prompt Muon Production in  $e^+e^-$  Annihilation at 29 GeV," H. Aihara et al. (TPC Collaboration), TPC-JHU-85-1, Phys. Rev. D31, 2719 (June 1985).
24. "Exclusive Production of  $K^+K^-\pi^+\pi^-$  in Photon-Photon Collisions," H. Aihara et al. (TPC Collaboration) Phys. Rev. Letters 54, 2564 (June 1985).
25. "Tests of Models for Quark and Gluon Fragmentation in  $e^+e^-$  Annihilation at  $\sqrt{s} = 29\text{ GeV}$ ," H. Aihara et al. (TPC Collaboration), LBL-18408, TPC-LBL-84-45, Z. Physik C. 28, 31-44 (August 1985).
26. "Baryon Production in  $e^+e^-$  Annihilation at  $\sqrt{s}=29\text{ GeV}$ : Clusters or Diquarks?," H. Aihara et al. (TPC Collaboration), LBL-19566, TPC-LBL-85-12 Phys. Rev. Letters 55, 1047 (Sept. 1985).
27. "Study of  $\eta$  Formation in Photon-Photon Collisions," H. Aihara et al. (TPC/Two-Gamma Collaboration) Phys. Rev. D33, 844 (Feb. 1986).
28. "Experimental Limit on Iota  $\rightarrow \gamma\gamma$  and the Interpretation of the Iota as a Glueball," H. Aihara et al. (TPC/Two-Gamma Collaboration), UCSB-HEP-86-2, Phys. Rev. Letters 57, 51 (July 1986).

29. “Pion and Kaon Pair-Production in Photon-Photon Collisions,” H. Aihara et al. (TPC/Two-Gamma Collaboration), UCR-TPC-86-01, Phys. Rev. Letters 57, 404 (July 1986).
30. “Comparison of the Particle Flow in  $q\bar{q}g$  and  $q\bar{q}\gamma$  and Events in  $e^+e^-$  Annihilation,” H. Aihara et al. (TPC/Two-Gamma Collaboration), LBL-21543, Phys. Rev. Letters 57, 945 (August 1986).
31. “Measurement of the Inclusive Branching Fraction  $\tau^- \rightarrow \nu_\tau \pi^- \pi^+ + \text{Neutral Meson(s)}$ ,” H. Aihara et al. (TPC/Two-Gamma Collaboration), LBL-21766, Phys. Rev. Letters 57, 1836 (September 1986).
32. “Charged  $D^*$  Meson Production in  $e^+e^-$  Annihilation at  $\sqrt{s} = 29$  GeV,” H. Aihara et al. (TPC/Two-Gamma Collaboration), Phys. Rev. D34, 1945 (October 1986).
33. “Evidence for a Spin-One Particle Produced by Two Photons,” H. Aihara et al. (TPC/Two-Gamma Collaboration), UCSB-HEP-86-6, Phys. Rev. Letters 57, 2500 (Nov. 1986).
34. “Search for High Mass Narrow Resonances in Virtual Photon-Photon Interactions,” H. Aihara et al. (TPC/Two-Gamma Collaboration), Phys. Rev. Letters 57, 3245 (December 1986).
35. “Study of Baryon Correlations in  $e^+e^-$  Annihilation at 29 GeV,” H. Aihara et al. (TPC/Two-Gamma Collaboration), LBL-22037, Phys. Rev. Letters 57, 3140 (December 1986).
36. “Observation of Scaling of the Photon Structure Function  $F_2^\gamma$  at Low  $Q^2$ ,” H. Aihara et al. (TPC/Two-Gamma Collaboration), UCD-86-26, Phys. Rev. Letters 58, 97 (January 1987).
37. “Comparison of  $\pi^\pm$ ,  $K^\pm$  and  $p$ ,  $\bar{p}$  Production in the Central Rapidity Region in Hadron-Hadron Collisions and in  $e^+e^-$  Annihilation,” H. Aihara et al. (TPC/Two-Gamma Collaboration), LBL-21544, Phys. Letters B184, 114 (January 1987).
38. “Pion and Kaon Multiplicities in Heavy Quark Jets from  $e^+e^-$  Annihilation at 29 GeV,” H. Aihara et al. (TPC/Two-Gamma Collaboration), JHU-HEP-86-52, Phys. Letters B184, 299 (January 1987).
39. “Measurement of  $\tau$  Branching Ratios,” H. Aihara et al. (TPC/Two-Gamma Collaboration), JHU-HEP-86-51, Phys. Rev. D35, 1553 (March 1987).
40. “Measurement of the Photon Structure Function  $F_2^\gamma(x, Q^2)$  in the Region  $0.2 < Q^2 < 7$  GeV<sup>2</sup>,” H. Aihara et al. (TPC/Two-Gamma Collaboration), UCD-86-28, Z. Physik C. 34, 1 (March 1987).
41. “Study of  $\eta'$  Formation in Photon-Photon Collisions,” H. Aihara et al. (TPC/Two-Gamma Collaboration), Phys. Rev. D35, 2650 (May 1987).

42. “Experimental Limit on the Decay  $\tau^- \rightarrow \nu_\tau K^- K^0$ ,” H. Aihara et al. (TPC/Two-Gamma Collaboration), LBL-23176, Phys. Rev. Letters, 59, 751 (August 1987).
43. “Exclusive Production of Proton Antiproton Pairs in Two-Photon Collisions,” H. Aihara et al. (TPC/Two-Gamma Collaboration), Phys. Rev. D36, 3506 (1987).
44. “Production of Four-prong Final States in Photon-Photon Collisions,” H. Aihara et al. (TPC/Two-Gamma Collaboration), Phys. Rev. D37, 28 (1988).
45. “Measurement of the Mass and Width of the  $Z^0$  Particle from Multihadronic Final States Produced in  $e^+e^-$  Annihilations,” (DELPHI Collaboration), CERN-EP/89-134, Phys. Letters B231, 539, (1989).
46. “Study of Hadronic Decays of the  $Z^0$  Boson,” (DELPHI Collaboration), CERN-EP/90-19, Phys. Letters B240, 271, (1990).
47. “Study of the Leptonic Decays of the  $Z^0$  Boson,” (DELPHI Collaboration), CERN-EP/90-31, Phys. Letters B241, 425, (1990).
48. “A Precise Measurement of the Z Resonance Parameters Through its Hadronic Decays,” (DELPHI Collaboration), CERN-EP/90-32, Phys. Letters B241, 435, (1990).
49. “Search for Heavy Charged Scalars in  $Z^0$  Decays,” (DELPHI Collaboration), CERN-EP/90-33, Phys. Letters B241, 449, (1990).
50. “Search for Light Neutral Higgs Particles Produced in  $Z^0$  Decays,” (DELPHI Collaboration), CERN-EP/90-44, Nucl. Phys. B342, 1, (1990).
51. “Search for the t and b’ Quarks in Hadronic Decays of the  $Z^0$  Boson,” (DELPHI Collaboration), CERN-EP/90-46, Phys. Letters B242, 536, (1990).
52. “Search for Pair Production of Neutral Higgs Bosons in  $Z^0$  Decays,” (DELPHI Collaboration), CERN-EP/90-60, Phys. Letters B245, 276, (1990).
53. “A Study for Intermittency in Hadronic  $Z^0$  Decays,” (DELPHI Collaboration), CERN-EP/90-78, Phys. Letters B247, 137, (1990).
54. “Search for Scalar Quarks in  $Z^0$  Decays,” (DELPHI Collaboration), CERN-EP/90-79, Phys. Letters B247, 148, (1990).
55. “A Search for Sleptons and Gauginos in  $Z^0$  Decays,” (DELPHI Collaboration), CERN-EP/90-80, Phys. Letters B247, 157, (1990).
56. “A Comparison of Jet Production Rates on the  $Z^0$  Resonance to Perturbative QCD,” (DELPHI Collaboration), CERN-EP/90-89, Phys. Letters B247, 167, (1990).
57. “Measurement of the Partial Width of the  $Z^0$  into Charm Quark Pairs,” (DELPHI Collaboration) CERN-EP/90-123, Phys. Letters B252, 140, (1990).

58. “Energy-Energy Correlations in Hadronic Final States from the  $Z^0$  Resonance,” (DELPHI Collaboration) CERN-EP/90-122, Phys. Lett. B252, 149, (1990).
59. “Lifetime Measurements of the  $D^+$ ,  $D^0$ ,  $D_s^+$ , and  $\Lambda_c^+$  Charmed Particles,” (NA14’ Collaboration), CERN-EP/90-26, Z. Physik C. 47, 539 (1990).
60. “Photoproduction of the  $\Lambda_c$  Charmed Baryon,” (NA14’ Collaboration), CERN-EP/90-66, Phys. Letters B246, 256, (1990).
61. “Measurement of  $D_s^\pm$  and Cabibbo-Suppressed  $D^\pm$  Decays,” (NA14’ Collaboration), CERN-EP/90-65, Phys. Letters B246, 261, (1990).
62. “Experimental Study of the Triple Gluon Vertex,” (DELPHI Collaboration) Phys. Lett. B255, 466, (1991).
63. “The DELPHI Detector at LEP,” (DELPHI Collaboration) CERN-EP/90-5, CERN-PPE/90-128, Nucl. Inst. Methods A303, 233, (1991).
64. “Charged Particle Multiplicity Distributions in  $Z^0$  Hadronic Decays,” (DELPHI Collaboration) CERN-PPE/90-173, Z. Physik C50, 185, (1991).
65. “Search for Low Mass Higgs Bosons produced in  $Z^0$  Decays,” (DELPHI Collaboration) CERN-PPE/90-193, Z. Physik C51, 25, (1991).
66. “A Study of the Reaction  $e^+e^- \rightarrow \mu^+\mu^-$  around the  $Z^0$  Pole,” (DELPHI Collaboration) CERN-PPE/91-43, Phys. Lett. B260, 240, (1991).
67. “A Measurement of the Lifetime of the Tau Lepton,” (DELPHI Collaboration) CERN-PPE/91-115, Phys. Lett. B267, 422, (1991).
68. “The Reaction  $e^+e^- \rightarrow \gamma\gamma$  ( $\gamma$ ) at  $Z^0$  Energies,” (DELPHI Collaboration) CERN-PPE/91-109, Phys. Lett. B268, 296, (1991).
69. “Charged Particle Multiplicity Distributions in Restricted Rapidity Intervals in  $Z^0$  Hadronic Decays,” (DELPHI Collaboration) Z. Physik C52, 271, (1991).
70. “Results Concerning the Decay  $D_s^\pm \rightarrow \eta' \pi^\pm$ ,” (NA14’ Collaboration), CERN-PPE/90-179 Phys. Letters B255, 639, (1991).
71. “Branching Ratios and Properties of D-meson Decays,” (NA14’ Collaboration), CERN-PPE/90-112, Z. Physik C50, 11, (1991).
72. “Searches for Heavy Neutrinos from Z Decays,” (DELPHI Collaboration), Phys. Lett. B274, 230 (1992).
73. “Study of orientation of Three-jet Events in  $Z^0$  Hadronic Decays Using the DELPHI Detector,” (DELPHI Collaboration), Phys. Lett. B274, 498 (1992).

74. "Search for Excited Charged Leptons in  $Z^0$  Decays," (DELPHI Collaboration), *Zeit. Phys. C*53, 41 (1992).
75. "Multiplicity Dependence of Mean Transverse Momentum in  $e^+e^-$  Annihilations at LEP Energies," (DELPHI Collaboration), *Phys. Lett. B*276, 254 (1992).
76. "A Measurement of the  $b\bar{b}$  Forward-Backward Asymmetry Using Semileptonic Decay Into Muons," (DELPHI Collaboration), *Phys. Lett. B*276, 536 (1992).
77. "Bose-Einstein Correlations in Hadronic Decays of the  $Z^0$ ," (DELPHI Collaboration), *Phys. Lett. B*286, 201 (1992).
78. "Evidence for  $B_s^0$  Meson Production in  $Z^0$  Decays," (DELPHI Collaboration), *Phys. Lett. B*289, 199 (1992).
79. "Search for Scalar Leptoquarks from  $Z^0$  Decays," (DELPHI Collaboration), *Phys. Lett. B*275, 222 (1992).
80. "Production of Strange Particles in the Hadronic Decay of the  $Z^0$ ," (DELPHI Collaboration), *Phys. Lett. B*275, 231 (1992).
81. "Measurement of the  $Z^0$  branching fraction to b quark pairs using the boosted sphericity product," (DELPHI Collaboration), *Phys. Lett. B*281, 383 (1992).
82. "Study of final state photons in hadronic  $Z^0$  decay and limits on new phenomena," (DELPHI Collaboration), *Zeit. fur Phys. C*53, 555 (1992).
83. "A measurement of  $\sin^2\theta_w$  from the charge asymmetry of hadronic events at the  $Z^0$  peak," (DELPHI Collaboration), *Phys. Lett. B*277, 371 (1992).
84. " $D\bar{D}$  correlations in photoproduction," (NA14' Collaboration), *Phys. Lett. B*278, 385 (1992).
85. "Measurement of the average lifetime of B hadrons," (DELPHI Collaboration), *Zeit. fur Phys. C*53, 567 (1992).
86. "Determination of  $\alpha_s$  in second order QCD from hadronic Z decay," (DELPHI Collaboration), *Zeit. fur Phys. C*54, 55 (1992).
87. "Classification of the hadronic decays of the  $Z^0$  into b and c quark pairs using a neural network," (DELPHI Collaboration), *Phys. Lett. B*295, 383 (1992).
88. "A Scintillating Fiber Detector for the D0 Upgrade," Proceedings of the 7<sup>th</sup> Meeting of the APS Division of Particles and Fields, November 1992, 1650-1652.
89. "Test beam results using scintillating fibers read out by a multianode phototube and visible light photon counters," B. Abbott et al., Purdue-UCLA-Notre Dame (B. Baumbaugh, J. Jaques, R. Kehoe, J. Marchant, R. Ruchti, J. Warchol and M. Wayne)-

- FNAL-Illinois-Pennsylvania Collaboration, Nucl. Inst. and Meth. in Phys. Res. A327, 319-327 (1993).
90. "Measurement of inclusive production of light meson resonances in hadronic decays of the  $Z^0$ ," (DELPHI Collaboration), Phys. Lett. B298, 236 (1993).
  91. "A search for lepton flavour violation in  $Z^0$  decays," (DELPHI Collaboration), Phys.Lett. B298, 247 (1993).
  92. "A measurement of the tau lifetime," (DELPHI Collaboration), Phys. Lett. B302, 356 (1993).
  93. "A measurement of B meson production and lifetimes using  $D^{*-}$  events in  $Z^0$  decays," (DELPHI Collaboration), Zeit. fur Phys. C57, 181 (1993).
  94. "Determination of  $\alpha_s$  using the next-to-leading-log approximation of QCD," (DELPHI Collaboration), Zeit. fur Phys. C59, 21-33 (1993).
  95. "Measurement of the triple-gluon vertex from 4-jet events at LEP," (DELPHI Collaboration), Zeit. fur Phys. C59, 357-368 (1993).
  96. "Determination of  $\alpha_s$  for b quarks at the  $Z^0$  resonance," (DELPHI Collaboration), Physics Letters B307, 221-236 (1993).
  97. "Study of charm photoproduction mechanisms," (NA14' Collaboration) Zeit. fur Phys., 60, 53 (1993).
  98. "Beam Tests of the D0 Uranium Liquid Argon End Calorimeter (D0 Collaboration), Nucl. Instr. And Methods, A324, 53 (1993).
  99. "Beam test of a 12-layer scintillating-fiber charged-particle tracking system," B. Abbott et al., Notre Dame (B. Baumbaugh, M. Ivancic, J. Jaques, R. Kehoe, M. Kelley, M. Mahoney, J. Marchant, R. Ruchti, M. Wayne) Nucl. Instr. & Meth. in Phys. Res. A339, 439-448 (1994).
  100. "First Generation Leptoquark Search in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (V. Balamurali, N. Biswas, J. Jaques, R. Kehoe, M. Kelly, R. Ruchti, J. Warchol, and M. Wayne)-D0 Collaboration, Phys. Rev. Letters 72, 965-969 (1994).
  101. "Search for the Top Quark in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (V. Balamurali, N. Biswas, J. Jaques, R. Kehoe, M. Kelly, R. Ruchti, J. Warchol, and M. Wayne)-D0 Collaboration, Phys. Rev. Letters 72, 2138-2142 (1994).
  102. "Rapidity Gaps Between Jets in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (V. Balamurali, N. Biswas, J. Jaques, R. Kehoe, M. Kelly, R. Ruchti, J. Warchol, and M. Wayne)-D0 Collaboration, Phys. Rev. Letters 72, 2332-2336 (1994).
  103. "Performance of multicladd scintillating and clear waveguide fibers read out with visible light photon counters," B. Baumbaugh, J. Erdman, D. Gaskell, Q. Lu, J. Marchant, R.



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104. "Uses of Plastic Optical Fibers for Charged Particle Tracking in High Energy Physics," Mitchell R. Wayne, Materials Research Society 348, Scintillator and Phosphor Materials, M.J. Weber, P. LeCoq, R. Ruchti, C. Woody, W. Yen and R.-Y. Zhu, editors, 27 (1994).
  105. "The D0 Upgrade Tracker and Projections for B Physics," Mitchell R. Wayne, Nucl. Instr. & Meth. in Phys. Res. 351, 77-83 (1994).
  106. "The D0 Detector," D0 Collaboration, Nucl. Instr. And Methods, A338, 185 (1994).
  107. "First Generation Leptoquark Search in  $p\bar{p}$  Collisions at  $\sqrt{s}=1.8$  TeV," D0 Collaboration, Phys. Rev. Letters 72, 965 (1994).
  108. "Cosmic ray test results of the D0 prototype scintillating fiber tracker," D. Adams et al., Notre Dame (B. Baumbaugh, R. Ruchti, J. Warchol, M. Wayne), Nucl. Phys. B. (Proc. Suppl.) 44 332-339 (1995).
  109. "First Large Sample Study of Visible Light Photon Counters (VLPC's)," D. Adams et al., (B. Baumbaugh, R. Ruchti, J. Warchol, M. Wayne), Nucl. Phys. B (Proc. Suppl.) 44, 340-348 (1995).
  110. "Inclusive  $\mu$  and b-Quark Production Cross Sections in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (V. Balamurali, N. Biswas, J. Jaques, R. Kehoe, M. Kelly, R. Ruchti, J. Warchol and M. Wayne)-D0 Collaboration, Phys. Rev. Lett. 74, 3548-3552 (1995).
  111. "Search for Squarks and Gluinos in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (V. Balamurali, N. Biswas, J. Jaques, R. Kehoe, M. Kelly, R. Ruchti, J. Warchol and M. Wayne)-D0 Collaboration, Phys. Rev. Lett. 75, 618-623 (1995).
  112. "Search for W Boson Pair Production in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (V. Balamurali, N. Biswas, J. Jaques, R. Kehoe, M. Kelly, R. Ruchti, J. Warchol and M. Wayne)-D0 Collaboration, Phys. Rev. Lett. 75, 1023-1027 (1995).
  113. "Limits on the Anomalous  $ZZ\gamma$  and  $Z\gamma\gamma$  Couplings in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (V. Balamurali, N. Biswas, J. Jaques, R. Kehoe, M. Kelly, R. Ruchti, J. Warchol and M. Wayne)-D0 Collaboration, Phys. Rev. Lett. 75, 1028-1033 (1995).
  114. "Measurement of the  $WW\gamma$  Gauge Boson Couplings in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (V. Balamurali, N. Biswas, J. Jaques, R. Kehoe, M. Kelly, R.

- Ruchti, J. Warchol and M. Wayne)-D0 Collaboration, Phys. Rev. Lett. 75, 1034-1039 (1995).
115. "W and Z Boson Production in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (V. Balamurali, N. Biswas, J. Jaques, R. Kehoe, M. Kelly, R. Ruchti, J. Warchol and M. Wayne)-D0 Collaboration, Phys. Rev. Lett. 75, 1456-1461 (1995).
  116. "Search for High Mass Top Quark Production in  $p\bar{p}$  Collisions at  $\sqrt{s} = 1.8$  TeV," S. Abachi et al., Notre Dame (N. Biswas, R. Ruchti, J. Warchol, M. Wayne)-D0 Collaboration, Phys. Rev. Lett. 74, 2422-2426 (1995).
  117. "Observation of the Top Quark," S. Abachi et al., Notre Dame (N. Biswas, R. Ruchti, J. Warchol, M. Wayne)-D0 Collaboration, Phys. Rev. Lett. 74, 2632-2637 (1995).
  118. "Study of the Strong Coupling Constant Using W + Jet Processes," S. Abachi et al., Notre Dame (N. Biswas, R. Ruchti, J. Warchol, M. Wayne)-D0 Collaboration, Phys. Rev. Lett. 75, 3226-3231 (1995).
  119. "Top quark search with the D0 1992-1993 data sample," S. Abachi et al., Notre Dame (N. Biswas, R. Ruchti, J. Warchol, M. Wayne)-D0 Collaboration, Phys. Rev. D52, 4877-4919 (1995).
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390. "Relative Rates of B Meson Decays into  $\psi(2S)$  and  $J/\psi$ ," Phys. Rev. D **79**, 111102(R) (2009).
391. "Measurements of Differential Cross Sections of Z/ $\gamma^*$ +jets+X Events in pp Collisions at  $\sqrt{s} = 1.96$  TeV," Phys. Lett. B **678**, 45 (2009).

392. “Measurement of the  $Z\gamma \rightarrow \nu\nu\gamma$  Production Cross Section and Limits on Anomalous  $ZZ\gamma$  and  $Z\gamma\gamma$  Couplings in pp Collisions at  $\sqrt{s} = 1.96$  TeV,” Phys. Rev. Lett. **102**, 201802 (2009).
393. “Search for Charged Higgs Bosons Decaying into Top and Bottom Quarks in pp Collisions,” Phys. Rev. Lett. **102**, 191802 (2009).
394. “Measurement of  $\gamma + b + X$  and  $\gamma + c + X$  Production Cross Sections in pp Collisions at  $\sqrt{s} = 1.96$  TeV,” Phys. Rev. Lett. **102**, 192002 (2009).
395. “Search for Long-Lived Charged Massive Particles with the DØ Detector,” Phys. Rev. Lett. **102**, 161802 (2009).
396. “Evidence of WW+WZ Production with Lepton+Jets Final States in pp Collisions at  $\sqrt{s} = 1.96$  TeV,” Phys. Rev. Lett. **102**, 161801 (2009).
397. “Search for the Lightest Scalar Top Quark in Events with Two Leptons in pp Collisions at  $\sqrt{s} = 1.96$  TeV,” Phys. Lett. B **675**, 289 (2009).
398. “Search for Anomalous Top-Quark Couplings with the DØ Detector,” Phys. Rev. Lett. **102**, 092002 (2009).
399. “Evidence for the Decay  $B_s^0 \rightarrow D_s^{(*)} D_s^{(*)}$  and a Measurement of  $\Delta\Gamma_s^{\text{CP}}/\Gamma_s$ ,” Phys. Rev. Lett. **102**, 091801 (2009).
400. “Measurement of the Lifetime of the  $B_c^\pm$  Meson in the Semileptonic Decay Channel,” Phys. Rev. Lett. **102**, 092001 (2009).
401. “Search for Admixture of Scalar Top Quarks in the tt Lepton+Jets Final State at  $\sqrt{s} = 1.96$  TeV,” Phys. Lett. B **674**, 4 (2009).
402. “Search for Neutral Higgs Bosons at High  $\tan\beta$  in the  $b(h/H/A) \rightarrow b\tau^+\tau^-$  Channel,” Phys. Rev. Lett. **102**, 051804 (2009).
403. “Search for Large Extra Spatial Dimensions in the Dielectron and Diphoton Channels in pp Collisions at  $\sqrt{s} = 1.96$  TeV,” Phys. Rev. Lett. **102**, 051601 (2009).
404. “Search for Associated W and Higgs Boson Production in pp Collisions at  $\sqrt{s} = 1.96$  TeV,” Phys. Rev. Lett. **102**, 051803 (2009).
405. “Measurement of the Semileptonic Branching Ratio of  $B_s^0$  to an Orbitally Excited  $D_s^{**}$  State:  $\text{Br}(B_s^0 \rightarrow D_{s1}^-(2536)\mu^+\nu_X)$ ,” Phys. Rev. Lett. **102**, 051801 (2009).
406. “Measurement of the Angular and Lifetime Parameters of the Decays  $B_d^0 \rightarrow J/\psi K^{*0}$  and  $B_s^0 \rightarrow J/\psi\phi$ ,” Phys. Rev. Lett. **102**, 032001 (2009).
407. “Search for pair production of second generation scalar leptoquarks,” Phys. Lett. B **671**, 224 (2009).
408. “Measurement of the t-Channel Single Top Quark Production Cross Section,” Phys. Lett. B **682**, 363 (2010).



409. "Measurement of  $Z/\gamma^*$ +jet+X Angular Distributions in pp Collisions at  $\sqrt{s} = 1.96$  TeV."  
Phys. Lett. B **682**, 370 (2010).

### **Edited Volumes**

1. “SciFi93 – Workshop on Scintillating Fiber Detectors,” World Scientific Press, A. Bross, R. Ruchti, and M. Wayne, editors.
2. “SciFi97 – Conference on Scintillating and Fiber Detectors,” AIP Press, A. Bross, R. Ruchti, and M. Wayne, editors.

## Invited Talks

“Recent Results from the TPC/Two-Gamma Collaboration,” UCLA Dept. of Physics Seminar, 1985.

“Results from the Final Hawaii Conference on Particle Physics,” UCLA Dept. of Physics Seminar, 1985.

“Recent Results from the TPC/Two-Gamma Collaboration,” Laboratoire d’Accelérateur Lineaire, Orsay, France, Invited Talk, November 1985.

“ $Z^0$  Physics with the DELPHI Detector at LEP,” University of Notre Dame, Colloquium, February 1991.

“Recent Results from the DELPHI Detector at LEP,” Iowa State University, Seminar, February 1991.

“Recent Results from the DELPHI Detector at LEP,” University of California at Riverside, Seminar, February 1991.

“Recent Results from the DELPHI Detector at LEP,” University of California at Santa Cruz, Seminar, March 1991.

“The Poor Sleeper’s Impatience or  $Z^0$  Physics at LEP,” University of Notre Dame, Seminar, October 1991.

“A Scintillating Fiber Detector for the D0 Upgrade,” American Physical Society, Meeting of the Division of Particles and Fields, Fermilab, November 1992.

Co-chair of the Workshop on Scintillating Fiber Detectors, Notre Dame, October 1993.

“The D0 Upgrade,” invited talk to Fermilab Users Executive Committee and chairman of HEPAP, Fermilab, March 1994.

“Use of Plastic Optical Fibers for Charged Particle Tracking in High Energy Physics,” invited talk at the spring meeting of the Materials Research Society, San Francisco, California, April 4-8, 1994.

“The D0 Upgrade and B Physics Projections,” invited talk at the 2<sup>nd</sup> International Conference on B Physics, Mount St. Michel, Normandy, France, April 25-29, 1994.

“Performance of a Large Scale Scintillating Fiber Tracker Using VLPC Readout,” invited talk at the IEEE 1995, Nuclear Science Symposium and Medical Imaging Conference held in San Francisco, California, October 21-28, 1995.

“Visible Light Photon Counters and the D0 Scintillating Fiber Tracker,” invited talk at BEAUNE 96 - New Developments in Photodetection held in Beaune, France, June 24-28, 1996.

“Tests of a Large Scale Scintillating Fiber Tracker,” invited talk at the Division of Particles and Fields meeting of the American Physical Society, University of Minnesota, August 10-15, 1996.

“The DØ Upgrade,” invited talk at Beauty ‘97, the 5<sup>th</sup> International Workshop on B-Physics at Hadron Machines, UCLA, October 13-17, 1997.

“The Central Fiber Tracker for the D0 Upgrade,” invited talk at Northeastern University, Boston, Massachusetts, October 18, 1999.

“The Central Fiber Tracker for the D0 Upgrade,” invited talk at Florida State University, Tallahassee, Florida, November 2, 1999.

“The D0 Central Fiber Tracker: Development and Status,” invited talk at the University of Minnesota, Minneapolis, Minnesota, November 30, 1999.

“The D0 Central Fiber Tracker,” invited High Energy Seminar at the Stanford Linear Accelerator Center, Stanford, California, July 8, 2003.

“The D0 Central Fiber Tracker,” invited seminar at Wayne State University, Detroit, Michigan, December 5, 2003.

“Fabrication Status of the Quarter Scale Scintillating Strip Muon Detector Prototype Planes,” at the LCWS Workshop, Stanford, CA, March 21, 2005.

“Fabrication of Quarter-size Scintillating Strip Muon Detector Planes,” at the Snowmass Linear Collider Workshop, Snowmass, CO, August 22, 2005.

“An Introduction to Experimental High Energy Physics,” invited talk at Indiana University-South Bend, October 25, 2007.

“Overview of QuarkNet,” invited talk at the Division of Particles and Fields 2009 Meeting, Wayne State University, Detroit, MI, July 28, 2009.