

*CURRICULUM VITAE for MICHAEL D. MARX*

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**Date of Birth:** July 14, 1946 -- Durban, South Africa

**Citizenship:** United States

**Education:**  
1960-1963 Forest Hills High School, NY  
1963-1967 City College of New York -- B.S. Physics, January 1967  
1967 Cornell University, Ithaca, NY  
1967-1974 Massachusetts Institute of Technology, Cambridge, MA --  
Ph.D., September 1974

**Thesis:** "Production of Two-Pi-Zeroes in Proton-Antiproton Annihilations"

**Honors & Awards:**  
1963-1967 New York State Regents Scholarship  
1967-1971 New York State Regents Teaching Fellow  
1980 D.O.E. Outstanding Junior Investigator Award (\$50,000)  
1990 Fellow of the American Physical Society

**Employment:**  
2001 – Present Project Manager KOPIO Experiment  
Guest Scientist, Brookhaven National Laboratory

1987-Present Professor, Department of Physics & Astronomy., SUNY Stony Brook

1996-2000 Deputy Project Director PHENIX Experiment  
Guest Scientist, Brookhaven National Laboratory

1994 Associate Dean, Physical Sciences & Mathematics

1992-1993 Acting Head GEM Physics Group  
Guest Scientist SSC Laboratory

1989 Visitor, Consultant to SSC-CDG, Berkeley (Jan.-June, '89)

1985-1987 Guest Scientist, Fermi National Accelerator Laboratory

1983-1987 Associate Professor, Department of Physics, SUNY Stony Brook

1980-1983 Assistant Professor, Department of Physics, SUNY Stony Brook

1977-1980 Associate Physicist, Brookhaven National Laboratory

1975-1977 Assistant Physicist, Brookhaven National Laboratory

1974-1975 Research Associate and Instructor, Massachusetts Institute of Technology

1967-1974 Research Assistant, Massachusetts Institute of Technology

1970-1971 Instructor, City College of New York, Evening Division



## RESEARCH AND EXPERIENCE

I received my degree from MIT with Larry Rosenson in 1974 for work on proton-antiproton annihilations into neutral particles, performed at Brookhaven National Laboratory (BNL) using optical spark chambers. The object of this work was the clarification of low energy resonances in the  $p\bar{p}$  system.

I joined the staff of BNL in 1975 and worked initially on a program of radiative K-decays. Subsequently I worked on measurement of total and absorptive cross sections at FNAL, and on the earliest search for H dibaryons at BNL. In 1978 I joined a collaboration to work on an extensive program of neutrino physics at BNL, particularly measurement of the elastic scattering of neutrinos from electrons and protons. I was responsible for the design and implementation of the construction of the detector, utilizing industrial production of components to ensure a detector with an unprecedented ratio of active to total weight. This detector was later duplicated at Los Alamos – a unique testament to its optimization.

At BNL, I was also active in development of the ISABELLE machine. I introduced the idea of operating a collider in bunched mode, and suggested a method for single-step training of the superconducting magnets. I was active in the development of large detectors for ISABELLE, especially non-magnetic detectors especially those emphasizing calorimetry. In 1980 I joined the faculty at Stony Brook, and continued participation in both the neutrino program and detector development. I initiated (with Paul Grannis) a program of detector R&D to develop low cost and radiation hard lead glass. With the approaching demise of ISABELLE and a call for a second detector at the Tevatron, we proposed using an ISABELLE detector design (LAPDOG) at the FNAL collider. As co-spokesman of LAPDOG with Grannis, I was instrumental in helping evolve the design and in defending the proposal. This experiment evolved into the  $D\bar{0}$  experiment, and as Deputy Spokesman, and Detector Coordinator, I was responsible for the overall management of the detector design, detector costing and facility development at FNAL. I spent 18 months in residence at FNAL (1984-85) organizing the detector effort for  $D\bar{0}$ . In 1986, I returned to Stony Brook to coordinate the  $D\bar{0}$  calorimeter effort.

In 1987 I spent 6 weeks at the SSC Central Design Group working with the experimental facilities group. This led to a longer stay, for 6 months in early 1989, during which I led a site-specific study of experimental facilities for the SSC. In this time period I also developed the ideas for an SSC experiment, based on a non-magnetic inner tracking system, hermetic calorimetry, and a novel system of air core toroidal magnets for precision measurements of muon (EMPACT - Electrons, Muons, Partons with Air-Core Toroids). This proposal was one of the 3 finalists in choosing the 2 major detectors for the SSC, and was unique in its inclusion of high-technology industrial partners as collaborators. Although this experiment was not chosen for the SSC, its concept using of air-core toroids for the muon system was later adopted for the Atlas experiment at the LHC.

In 1991 I started work with the GEM experiment, which was formed from the collaborations of EMPACT, TEXAS, and L3. I was involved in the specification of the architecture of GEM, and advanced the proposal to utilize a superconducting magnet with no field return to reduce costs and installation time. I moved to the SSC in 1992, headed the GEM physics group and was responsible for coordinating detector integration. Later that year I joined the muon group of GEM and became the Deputy Head responsible for engineering.

I returned to Stony Brook in 1993 and after the demise of the SSC explored the utilization of the RHIC facility at BNL for high energy physics to exploit the large production of B hadrons to investigate rare B-decays.

In 1995 I joined the PHENIX experiment at RHIC as Deputy Project Director, where I was responsible for detector integration and for installation. I also had line responsibilities for PHENIX safety issues. I coordinated an effort that found and implemented a novel approach to mapping the huge magnetic field volumes in PHENIX, utilizing a Green's function method suggested by MIT to convert measurements of a single component of the field on a surface to a full volume map. Using this method the PHENIX magnets were mapped using a rotating frame instrumented with a few hundred 1-D Hall probes, at a huge savings in time and money. Results of this method were within the ½% specification for field integrals throughout the field volume. PHENIX was installed and ran successfully for the first major data run, providing first measurements of particles at high-Pt with hints of energy loss in the collision debris. I co-chaired and organized the 15<sup>th</sup> International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions (Quark Matter 2001) at which first RHIC results were the highlight. I also advanced a proposal for a versatile next-generation neutrino and nucleon decay detector utilizing an inexpensive (but huge) submersible ferro-concrete shell. This concept could dramatically cut the conventional construction costs associated with such a project, while avoiding geo-political issues.

In 2001 I was appointed Project Manager for the KOPIO experiment at BNL, part of the NSF MRE initiative called RSVP (Rare Symmetry Violating Processes). KOPIO seeks to measure the very rare decay of the K – long to a pizero and neutrino-antineutrino, whose tiny branching ratio is one of the cleanest measurements of direct CP-violation.

### *OTHER SERVICE*

- 1985 Chairman, Review Panel for Brookhaven National Laboratory, Experiment E802.
- 1986 Member, Detector Cost Evaluation Panel for SSC Central Design Group.
- 1986 Consultant to D.O.E. for Review of the L-3 Detector for LEP at CERN.
- 1986 Consultant to DESY for Review of cryostat for H1 Detector at HERA.
- 1987 Member, Task Force on Collision Hall Limitation for the SSC.
- 1987 Member, Review Panel for the US/Japan Cooperative Program on High Energy Physics.
- 1987 Member, D.O.E. Review Panel for Review of the L-3 Detector for LEP at CERN.
- 1988 Consultant to D.O.E. for Review of SLD Detector at SLAC
- 1988 Consultant to D.O.E. for Review of the L-3 Detector for LEP at CERN.
- 1989-91 Experimental Research Program Advisory Committee for the Accelerator Storage Complex (UNK), USSR.
- 1991-95 Technical Advisory Committee for RHIC Detectors, BNL.
- 1992 SSCL Physics Research Division Recruiting Committee
- 1992 Organizer and Session Chair for "Experimental Techniques and Computing" at International Conference on High Energy Physics, Dallas, TX, August 1992.
- 1992 Organizing Committee, Third International Conference on Calorimetry for High Energy Physics, Corpus Christi, TX, October 1992.
- 1993 Executive Committee, User's Organization of the SSC
- 1995 Chairman, RHIC End Game Task Force
- 1996-2000 Deputy Project Director, PHENIX Experiment

1996-97 University Senate, Arts and Sciences Senate

1996-99 AGS/RHIG Users Executive Committee

1997-98 President, Arts, and Sciences Senate

1997 Chair, Technical Advisory Committee reviewing BRAHMS experiment, BNL

2000 Member Expert Review Committee, National Science & Engineering Council (Canada) review of Canada Atlas Project

2000 – Board of Directors, Hillel Foundation for Jewish Life, University at Stony Brook

2001 Co-Chair, 15<sup>th</sup> International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions, “Quark Matter 2001”, January 15 –20, 2001

2001 Member DOE Review Panel, ATLAS Annual Review, BNL March 20-22

2001- Project Manager KOPIO Experiment

**Research Support**  
**Michael D. Marx, Principal Investigator**

Stony Brook Research & Development Allocation - 07/01/80 to 01/11/82, 9360B Low Energy Neutral Current Neutrino Interactions \$9,000

DOE Contract DEAC0280ER10699 - 08/15/80 to 08/14/81, 6271A Experimental High Energy Physics Research Using Electromagnetic Energy Calorimetry (Outstanding Junior Investigator Program) \$50,000

DOE Contract DEAC0280ER10699 - 08/15/81 to 08/14/82, 6271B Experimental High Energy Physics Research Using Electromagnetic Energy Calorimeter \$140,154

DOE Contract DEAC0280ER10699 - 08/15/82 to 08/14/83, 6271C Experimental High Energy Physics Research Using Electromagnetic Energy Calorimetry \$207,293

DOE Contract DEAC0280ER10699 - 08/15/83 to 05/14/84, 6271D Experimental High Energy Physics Research Using Electromagnetic Energy Calorimetry \$196,537

DOE Contract DEAC0280ER10699 - 05/15-84 to 05/31/85, 6271E Research and Development of the D $\bar{0}$  Project \$30,000

DOE Contract DEAC0280ER10699 - 05/15/85 to 11/14/85, 6271E Experimental High Energy Physics Research Using Electromagnetic Calorimetry \$215,000

DOE Contract DEAC0280ER10699 - 11/15/85 to 11/14/86, 6271F Experimental High Energy Physics Using Electromagnetic Energy \$515,000

DOE Contract DEAC0280ER10699 - 11/15/86 to 11/14/87, 6271G Extension of Term for Experimental High Energy Physics Using Electromagnetic Energy Calorimetry \$469,000

DOE Contract DEAC0280ER10699 - 11/15/87 to 11/14/88, 6271G Extension of Term for Experimental High Energy Physics Using Electromagnetic Energy Calorimetry \$575,000 + \$479,701 D $\bar{0}$  Experiment Funds

DOE Contract DEAC0280ER10699 - 11/15/88 to 11/14/89, 6271G Extension of Term for Experimental High Energy Physics Using Electromagnetic Energy Calorimetry \$592,000 + \$1,483,455 D $\bar{0}$  Experiment Funds

DOE Contract DEAC0280ER10699 - 11/15/88 to 11/14/89, 6271G Cryostat Systems for Generic Hermetic Liquid Argon Calorimeters for the SSC \$250,000

DOE Contract DEAC0280ER10699 - 11/15/89 to 11/14/90, RENEWAL OF: 6271G  
Experimental High Energy Physics Using Electromagnetic Energy Calorimetry \$637,105 +  
\$1,432,955 D0 Experiment Funds

DOE Contract DEAC0280ER10699 - 11/15/89 to 11/14/90, Grant 6271G, Generic R & D  
Liquid Argon Calorimetry Engineering \$269,895

DOE Contract DEAC0280ER10699 - 11/15/89 to 11/14/90, Grant 6271G, SSC Major  
Subsystem R & D Toroid \$470,000

New York State Urban Development Corporation - 04/01/90 to 03/31/91, 6824A, EMPACT  
\$170,000

A Chancellor's Venture Fund Proposal for SSC Detector Development 1989 - 1991 \$69,375

DOE Contract DEAC0280ER10699 - 11/15/90 to 11/14/91, 6271H Calorimeter Based  
Detectors for High Energy Hadron Colliders - \$780,000 + \$2,425,000 for D0 Experiment  
Funds

DOE Contract DEAC0280ER10699 - 11/15/90 to 11/14/91, 6271H Toroidal Spectrometer  
Collaboration Under the SSC - \$160,000

SSC Contract SSC90W01074 - 08/01/90 - 03/31/91, 3772A, EMPACT Letter of Intent Design -  
\$1,000,000

DOE Contract DEFG0292ER40697 - 11/15/91 - 11/14/92, 4387A & X, Calorimeter Based  
Detectors for High Energy Hadron Colliders - \$815,000 + \$353,250 for D0 Experiment Funds

DOE Contract DEFG0292ER40697 - 11/15/92 - 11/14/93, 4387A, Calorimeter Based Detectors  
for High Energy Hadron Colliders - \$899,744.

DOE Contract DEFG0292ER40697 - 11/15/93 - 11/14/94, 4387A, Calorimeter Based Detectors  
for High Energy Hadron Colliders. \$917,000.

DOE Contract DEFG029ER40697 - 11/15/94 - 11/14/95, 4387A, Calorimeter Based Detectors  
for High Energy Hadron Colliders - \$725,000 + \$85,000 (Jung Super-K equipment), + \$70,000  
(Jung OJI award) (Total \$880,000)

DOE Contract DEFG029ER40697 - 11/15/95 - 11/14/96, 4387A, Calormieter Based Detectors  
for High Energy Hadron Colliers - \$724,000 + \$100,000 (Jung Super-K equipment), + \$70,000  
(Jung-OJI award) (Total \$912,000)



DOE Contract DE-FG02-96ER40988 -07/01/96 - 06/30/97, 431-0660A, Studies of Relativistic Heavy Ion Collisions at RHIC - \$385,000

DOE Contract DE-FG02-96ER40988 -7/1/97 - 6/30/98, 431-0660A, Studies of Relativistic Heavy Ion Collisions at RHIC - \$675,000

DOE Contract DE-FG02-96ER40988 -07/01/98 - 06/30/99, 431-0660A, Studies of Relativistic Heavy Ion Collisions at RHIC - \$755,000

DOE Contract DE-FG02-96ER40988 -07/01/99- 03/31/00, 431-0660A, Studies of Relativistic Heavy Ion Collisions at RHIC - \$655,180

DOE Contract DE-FG02-96ER40988 -04/01/00 - 03/31/01, 431-0660A, Studies of Relativistic Heavy Ion Collisions at RHIC - \$785,000

DOE Contract # DEFG0201ER41156-2000-2001 The Fifteenth International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions "Quark Matter 2001", \$70,000

NSF Grant NSF # 0102346 2001 The Fifteenth International Conference on Ultra-Relativistic Nucleus-Nucleus Collisions "Quark Matter 2001", \$6,000

NSF Grant NSF #0140009 "Measurement of CP-Violation Parameters" \$305K (FY02), \$305K FY03

## PUBLICATIONS

1. *A 4 $\pi$  Scintillation Counter Optical Spark Chamber System for Neutral Particles* -- C. DeMarzo, A. Distanto, L. Guerriero, C. Niccolini, F. Posa, F. Waldner, G.T.Y. Chen, C.R. Fletcher, R.E. Lanou, R.K. Thornton, D.S. Barton, T. Lyons, M.D. Marx, L. Rosenson, and R. Thern, Nucl. Instr. Methods 131, 47, (1975).
2. *Search for Substructure in  $\bar{p}p$  Total Cross Section in the 2200 MeV Mass Region* -- C. DeMarzo, D.C. Peaslee, L. Guerriero, F. Posa, E. Vaccari, F. Waldner, R. Dulude, R.E. Lanou, J. Massimo, R.K. Thornton, W. Aitkenhead, D.S. Barton, M.D. Marx, B.A. Nelson, and L. Rosenson, Phys. Letters 57B 189, (1975).
3. *Measurement of Neutral to Charged Pion Ratio in  $\bar{p}p$  Annihilations in the 2200 MeV Mass Region* -- D.C. Peaslee, C. De Marzo, L. Guerriero, F. Posa, E. Vaccari, F. Waldner, R. Dulude, R.E. Lanou, J. Massimo, R.K. Thornton, W. Aitkenhead, D.S. Barton, M.D. Marx, B.A. Nelson, and Rosenson, L. Phys. Lett. 73B, 385, (1978).
4. *Search for Six-Quark States* -- A.S. Carroll, I.H. Chiang, R.A. Johnson, T.F. Kycia, K.K. Li, L.S. Littenberg, M.D. Marx, R. Cester, R.C. Webb, and M.S. Witherell, Phys. Rev. Letters 41 777, (1978). (BNL 24720)
5. *Measurement of  $\bar{p}p \rightarrow \pi^0 \pi^0$ ,  $\pi^0 \eta^0$  in the T- and U-Meson Region* -- R.S. Dulude, R.E. Lanou, J.T. Massimo, D.C. Peaslee, R.K. Thornton, D.S. Barton, M.D. Marx, B.A. Nelson, L. Rosenson, C. De Marzo, L. Guerriero, F. Posa, E. Vaccari, E., and F. Waldner, Phys. Lett. 79B, 329, (1978).
6. *Observation of Structure in  $\bar{p}p \rightarrow \pi^0 \pi^0$*  -- R.S. Dulude, R.E. Lanou, J.T. Massimo, D.C. Peaslee, R.K. Thornton, D.S. Barton, M.D. Marx, B.A. Nelson, L. Rosenson, C. De Marzo, L. Guerriero, F. Posa, E. Vaccari, and F. Waldner, Phys. Lett. 79B, 335, (1978).
7. *Absorption Cross Section of  $\pi^\pm$ ,  $K^\pm$ ,  $p$  and  $\bar{p}$  on Nuclei between 60 and 280 GeV/c* -- A.S. Carroll, I.H. Chiang, T.F. Kycia, K.K. Li, M.D. Marx, D. Rahm, W.F. Baker, D.P. Eartly, G. Giacomelli, A.M. Jonckheere, P.F.M. Koehler, P.O. Mazur, R. Rubinstein, and O. Fackler, Phys. Lett. 80B, 319, (1979). (BNL 25304)
8. *Total Cross Sections of  $\pi^\pm$ ,  $K^\pm$ ,  $p$  and  $\bar{p}$  on Protons and Deuterons between 200 and 370 GeV/c* -- A.S. Carroll, I.H. Chiang, T.F. Kycia, K.K. Li, M.D. Marx, D. Rahm, W.F. Baker, D.P. Eartly, G. Giacomelli, A.M. Jonckheere, P.F.M. Koehler, P.O. Mazur, R. Rubinstein, and O. Fackler, Phys. Lett. 80B, 423, (1979). (BNL 25305)

9. *Study of the Decay  $K^0_L \rightarrow \pi^+ \pi^- \gamma$*  -- A.S. Carroll, I.H. Chiang, T.F. Kycia, K.K. Li, L. Littenberg, M.D. Marx, P.O. Mazur, J.P. de Brion, and W.C. Carithers, Phys. Rev. Lett. 44, 529, (1980). (BNL 26697)
10. *Observation of the Dalitz Decay Modes of the  $K^0_L$*  -- A.S. Carroll, I.H. Chiang, T.F. Kycia, K.K. Li, L. Littenberg, M.D. Marx, P.O. Mazur, J.P. de Brion and W.G. Carithers, Phys. Rev. Lett. 44, 525, (1980). (BNL Report 26696).
11. *A Search for Narrow  $\bar{p}p$  States* -- A.S. Carroll, I.H. Chiang, R.A. Johnson, T.F. Kycia, K.K. Li, L.S. Littenberg, M.D. Marx, R. Cester, R.C. Webb, and M. Witherell, Phys. Rev. Lett. 44, 1572, (1980).
12. *Observation of the Decay  $K^0_L \rightarrow \pi^0 \pi^\pm e^\mp \nu$*  -- A.S. Carroll, I.H. Chiang, T.F. Kycia, K.K. Li, L.S. Littenberg, M.D. Marx, P.O. Mazur, W.C. Carithers, and J.P. de Brion, Phys. Lett. 96B, 407, (1980).
13. *Low Cost Lead Glass Cerenkov Detectors* -- P.D. Grannis, D. Jaffe, M.D. Marx, Nucl. Instru. Methods 188, 239, (1981).
14. *Response of a Highly Segmented Extruded Lead Glass Calorimeter to Electrons and Pions between 15 and 45 GeV/c*, R. Engelman, L. Godfrey, P.D. Grannis, D. Hedin, D.E. Jaffe, T. Kafka, M.D. Marx, R. Dixon, H. Jostlein, P. Franzini, D. Cutts, R.E. Lanou, S. Aronson, Nuclear Instrum. Methods 216, 45, (1983).
15. *Measurement of the Cross Section of  $\nu_\mu + e^- \rightarrow \nu_\mu + e^-$* , L.A. Ahrens, S.H. Aronson, P.L. Connolly, B.G. Gibbard, M.J. Murtagh, S. Murtagh, S. Terada, D.H. White, J.L. Callas, D. Cutts, J. Hoftun, R.E. Lanou, T. Shinkawa, K. Amako, S. Kabe, Y. Nagashima, Y. Suzuki, S. Tatsumi, K. Abe, E.W. Beier, D.C. Doughty, L.S. Durkin, S.M. Heagy, M. Hurley, A.K. Mann, H.H. Williams, T. York, D. Hedin, M.D. Marx, E. Stern, Phys. Rev. Lett., 51, pp. 1514-1517 (1983).
16. *Data acquisition for a large neutrino detector*, L.A. Ahrens, et al. IEEE Trans. on Nucl. Sci., NS-30, No. 5, pp. 3782-3786 (1983).
17. *Measurement of the Ratio of Cross Sections for Neutrino and Antineutrino Scattering from Electrons*, L.A. Ahrens, et al., Phys. Rev. Lett. 54, No. 1, pp. 18-21 (1985).
18. *A New Limit on the Strength of Mixing Between  $\nu_\mu$  and  $\nu_e$*  L.A. Ahrens, et al., Phys. Rev. D 31, No. 11, pp. 2732-2736, (1985).
19. *Radiation Damage Studies of Cerium-Doped Radiation-Resistant Lead Glass Detectors*, M.R. Adams, et al. Nucl. Instrum. Methods A238 333-340 (1985).

20. *Determination of the Neutrino Fluxes in The Brookhaven Wide Band Beams*, L.A. Ahrens, et al., Phys. Review D. 34, No. 1, pp. 75-84 (1986).
21. *Precise Determination of  $\sin^2 \theta_w$  from Measurements of the Differential Cross Sections for  $\nu_\mu + p \rightarrow \nu_\mu + p$  and  $\bar{\nu} + p \rightarrow \bar{\nu} + p$* , K. Abe, et al., Phys. Rev. Lett., 56, No. 11, pp. 1107-1111 (1986).
22. *Measurement of neutrino-proton and antineutrino-proton elastic scattering*, L.A. Ahrens, et al., Phys. Rev. D35, No. 3, pp. 785-809 (1987).
23. *A Massive Fine-Grained Detector for the Elastic Reactions Induced by Neutrinos in the GeV Energy Region*, L.A. Ahrens, et al., Nuclear Instrum. Methods in Physics Research A254, pp. 515-528 (1987).
24. *Measurement of the weak neutral current coupling constants of the electron and limits on the electromagnetic properties of the muon neutrino*. L. Ahrens, et al., Phys. Rev. Lett. 58, No. 7, pp. 636-639 (1987).
25. *Comparison of narrow-band and wide-band neutrino beams in the search for  $\nu_\mu \rightarrow \nu_e$  oscillations*. L. Ahrens, et al., Phys. Rev. D36, No. 3, pp. 702-706 (1987).
26. *A search for heavy neutrino decays in a neutrino beam*, L. Ahrens, et al., Phys. Lett. B194, No. 4, pp. 420-424 (1987).
27. *A study of the axial-vector form factor and second class currents by the antineutrino quasielastic scattering*, L.A. Ahrens, et al., Phys. Lett. B202, No. 2, pp. 284-288 (1988).
28. *Hadron and Electron Response of Uranium/Liquid Argon Calorimeter Modules for the  $D\bar{0}$  Detector*, M. Abolins, et al., Nucl. Instrm. Methods A269 492 (1988).
29. *Determination of  $\sin^2 \theta_w$  from measurements of differential cross sections for muon-neutrino and -antineutrino scattering by electrons*. K. Abe, et al., Phys. Rev. Lett., 62, No. 15, 1709-1712 (1989).
30. *Determination of electro-weak parameters from the elastic scattering of muon neutrinos and antineutrinos on electrons*. L.A. Ahrens, et al., Phys. Rev. Lett. 62 No. 15, 1709-1172 (1989).
31. *Hadron and Electron Response of Uranium/Liquid Argon Calorimeter Modules for the  $D\bar{0}$  Detector*. M. Abolins, et al., Nucl. Instrm. Methods A280 36, (1989).

32. *Beam Tests of the DØ Uranium Liquid Argon End Calorimeters.* S. Abachi, et al., (DØ Collaboration), Nucl. Instrm. Methods A324 53, (1993).
33. *The DØ Detector.* S. Abachi, et al., (DØ Collaboration), Nucl. Instrm. Methods A338 185 (1994).
34. *First Generation Leptoquark Search in  $\bar{p}p$  Collisions at  $\sqrt{s} = 1.8$  TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 72 No. 965 (1994).
35. *Rapidity Gaps between Jets in  $\bar{p}p$  Collisions at  $\sqrt{s} = 1.8$  TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 72, No. 2332 (1994).
36. *Search for the Top Quark in  $\bar{p}p$  Collisions at  $\sqrt{s} = 1.8$  TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 72 No. 2138 (1994).
37. *Search for High Mass Top Quark Production in  $\bar{p}p$  Collisions at  $\sqrt{s} = 1.8$  TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 74 No. 2422 (1995).
38. *Inclusive mu and b-Quark Production Cross Sections in  $\bar{p}p$  Collisions at  $\sqrt{s} = 1.8$  TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 74 No. 3548 (1995).
39. *Observation of the Top Quark.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 74 No. 2632 (1995).
40. *Limits on the ZZgamma and Zgammagamma Couplings in  $\bar{p}p$  Collisions at  $\sqrt{s} = 1.8$  TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 75 No. 1028 (1995).
41. *Search for W Boson Pair Production in  $\bar{p}p$  Collisions at  $\sqrt{s} = 1.8$  TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 75 No. 1023 (1995).
42. *Search for Squarks and Gluinos at  $\sqrt{s} = 1.8$  TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 75 No. 618 (1995).
43. *Transverse Energy Distributions within Jets in  $\bar{p}p$  Collisions at 1.8 TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. B357 No. 500 (1995).
44. *A Study of the Strong Coupling Constant Using W - Jets Processes.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 75 No. 3226 (1995).
45. *Second Generation Leptoquark Search in  $\bar{p}p$  Collisions at 1.8 TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 75 No. 1034 (1995).

46. *Measurement of the WWgamma Gauge Boson Coupling in  $\bar{p}p$  Collisions at  $\sqrt{s} = 1.8$  TeV* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 75 No. 1034 (1995).
47. *W and Z Boson Production in  $\bar{p}p$  Collisions at  $\sqrt{s} = 1.8$  TeV.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 75 No. 1456 (1995).
48. *Top Quark Search with the DØ1992-1993 Data Sample.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. D52 No. 4877 (1995).
49. *Search for Heavy W Bosons in 1.8 TeV  $\bar{p}p$  Collisions.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. B358 No. 405 (1995).
50. *Jet Production via Strongly-Interacting Color-Singlet Exchange in  $\bar{p}p$  Collisions.* S. Abachi et al., (DØ Collaboration), Phys. Rev. Lett. 76 No. 734 (1996).
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