

Refereed publications co-authored by Dr. Dhiman Chakraborty

Note: * denotes major contribution; ¹⁰⁰⁺ denotes more than 100 citations etc.

- *¹⁰⁰⁺1. “Top Quark Physics”, D. Chakraborty, J. Konigsberg, D. L. Rainwater, *Ann. Rev. Nucl. & Part. Phys.* **53** 301 (2003). hep-ph/0303092
Notable contribution: A primary author.
- *2. “Photon Detectors” (in “Review of Particle Physics”), K. Nakamura *et al.* (the Particle Data Group), *J. Phys.* **G37**:075021 (2010).
Notable contribution: A primary author.
- *³⁰⁰⁰⁺3. “Photon Detectors” (in “Review of Particle Physics”), C. Amsler *et al.* (the Particle Data Group), *Phys. Lett.* **B667**:1 (2008).
Notable contribution: A primary author.
- *⁴⁰⁰⁰⁺4. “Photon Detectors” (in “Review of Particle Physics”), W. -M. Yao *et al.* (the Particle Data Group), *J. Phys.* **G33**:1-1232 N1 (2006).
Notable contribution: A primary author.
- *5. “Directly Coupled tiles as elements of a scintillator calorimeter with MPPC readout”, G. Blazey *et al.*, *NIM A* **605** 277 (2009). 10.1016/j.nima.2009.03.25
Notable contribution: A primary author.
- *6. “Investigation of a solid-state photodetector”, D. Beznosko *et al.*, *NIM A* **553** 438 (2005).
Notable contribution: A primary author.
- *7. “Small Scintillating Cells as the Active Elements in a Digital Hadron Calorimeter for the e+e- Linear Collider Detector”, A. Dyshkant *et al.*, *J. Phys.* **G30** N1 (2004).
Notable contribution: A primary author.
8. “Response of the CALICE Si-W Electromagnetic Calorimeter Physics Prototype to Electrons”, C. Adloff *et al.* (the CALICE Collaboration), *J. INST* **5**, P05004 (2010). arXiv.org:1003.2662
9. “Response of the CALICE Si-W Electromagnetic Calorimeter Physics Prototype to Electrons”, J. Repond *et al.* (the CALICE Collaboration), *J. INST* **3**, P08001 (2008). arXiv.org:0805.4833
10. “Response of the CALICE Si-W Electromagnetic Calorimeter Physics Prototype to Electrons”, C. Adloff *et al.* (the CALICE Collaboration), *Nucl. Instrum. Methods in Phys. Res. Sect. A* **608**, 372 (2009). arXiv.org:0811.2354
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12. “Measurement of the $W \rightarrow \ell\nu$ and $Z/\gamma^* \rightarrow \ell^+\ell^-$ production cross sections in proton-proton collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector”, G. Aad *et al.* (the ATLAS Collaboration), *J. High Energy Phys.* **1012**, 060 (2010).
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14. “Readiness of the ATLAS Tile Calorimeter for LHC collisions”, G. Aad *et al.* (the ATLAS Collaboration), Eur. Phys. J. **C70**, 1193 (2010).
15. “The ATLAS detector digitization project for 2009 data taking”, J. D. Chapman *et al.* (the ATLAS Collaboration), J. Phys. Conf. Ser. 219 032031 (2010).
16. “Commissioning of the ATLAS Muon Spectrometer with Cosmic Rays”, G. Aad *et al.* (the ATLAS Collaboration), Eur. Phys. J. **C70**, 875 (2010).
17. “Performance of the ATLAS detector using first collision data”, G. Aad *et al.* (the ATLAS Collaboration), J. High Energy Phys. **1009**, 056 (2010). 10.1007/JHEP09(2010)056
18. “The ATLAS Inner Detector Commissioning and Calibration”, G. Aad *et al.* (the ATLAS Collaboration), Eur. Phys. J. C. 10.1140/epjc/s10052-010-1366-7 (2010).
19. “Charged-particle multiplicities in pp interaction at $\sqrt{s} = 900$ GeV measured with the ATLAS detector at the LHC”, G. Aad *et al.* (the ATLAS Collaboration), Phys. Lett. B. **688**, 21 (2010). 10.1016/j.physletb.2010.03.064
20. “Drift Time measurement in the ATLAS Liquid Argon Electromagnetic Calorimeter using Cosmic Ray Muons”, G. Aad *et al.* (the ATLAS Collaboration), Submitted to Eur. Phys. J. C. (2010).
21. “Readiness of the ATLAS Liquid Argon Electromagnetic Calorimeter for LHC Collisions”, G. Aad *et al.* (the ATLAS Collaboration), Eur. Phys. J. C. 10.1140/epjc/s10052-010-1354-y (2010).
- ¹⁰⁰⁺22. “The ATLAS Experiment at the CERN Large Hadron Collider”, G. Aad *et al.* (the ATLAS Collaboration), JINST **3**, S08003 (2008).
23. “Measurement of Spin Correlation in $t\bar{t}$ Production Using Dilepton Final States”, V. M. Abazov *et al.* (the DØ Collaboration), Submitted 3/10/11: Phys. Lett. B, arXiv.org:1103.1871
24. “Search for the Standard Model Higgs Boson in the $H \rightarrow WW \rightarrow \ell\nu qq$ Decay Channel”, V. M. Abazov *et al.* (the DØ Collaboration), Submitted 1/30/11: Phys. Rev. Lett., arXiv.org:1101.6079 plots 5.4 fb-1
25. “Search for $W' \rightarrow tb$ Resonances with Left- and Right-Handed Couplings to Fermions”, V. M. Abazov *et al.* (the DØ Collaboration), Submitted 1/4/11: Phys. Rev. Lett., arXiv.org:1101.0806
26. “Measurement of Color Flow in $t\bar{t}$ Events from $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV”, V. M. Abazov *et al.* (the DØ Collaboration), Submitted 1/4/11: Phys. Rev. Lett., arXiv.org:1101.0648
- *27. “Measurement of the Top Quark Pair Production Cross Section in the Lepton+Jets Channel in Proton-Antiproton Collisions at $\sqrt{s} = 1.96$ TeV”, V. M. Abazov *et al.* (the DØ Collaboration), Submitted 12/30/10: Phys. Rev. D, arXiv.org:1101.0124
Notable contribution: Member of the editorial board. This paper derives heavily from the methods I developed.
28. “Search for Resonant WW and WZ Production in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV”, V. M. Abazov *et al.* (the DØ Collaboration), Submitted 11/30/10: Phys. Rev. Lett., arXiv.org:1011.6278

29. “High Mass Exclusive Diffractive Dijet Production in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV”, V. M. Abazov *et al.* (the DØ Collaboration), Submitted 9/13/10: Phys. Lett. B, arXiv.org:1009.2444
30. “Precise Study of the Z/γ^* Boson Transverse Momentum Distribution in $p\bar{p}$ Collisions Using a Novel Technique”, V. M. Abazov *et al.* (the DØ Collaboration), Accepted 11/28/11: Phys. Rev. Lett., arXiv.org:1010.0262
31. “Azimuthal Decorrelations and Multiple Parton Interactions in $\gamma + 2$ Jet and $\gamma + 2$ Jet and $+ 3$ Jet Events $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV”, Accepted 2/5/11: Phys. Rev. D, arXiv.org:1101.1509
32. “Measurement of the W Boson Helicity in Top Quark Decays using 5.4 fb^{-1} of $p\bar{p}$ Collisions Data”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Rev. D. **83**, 032009 (2011), arXiv.org:1011.6549
33. “Search for Neutral Higgs Bosons in the Multi-b-Jet Topology in 5.2 fb^{-1} of $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Lett. B **698**, 97 (2011), arXiv.org:1011.1931
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36. “Search for WH Associated Production in 5.3 fb^{-1} of $p\bar{p}$ Collisions at Fermilab the Tevatron”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Lett. B **698**, 6 (2011), arXiv.org:1012.0874
37. “Determination of the Width of the Top Quark”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Rev. Lett. **106**, 022001 (2011), arXiv.org:1009.5686
38. “Search for Pair Production of the Scalar Top Quark in the Electron+Muon Final State”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Lett. B **696**, 321 (2011), arXiv.org:1009.5950
39. “Search for $ZH \rightarrow \ell^+ \ell^- b\bar{b}$ Production in 4.2 fb^{-1} of $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV” Phys. Rev. Lett. **105**, 251801 (2010), arXiv.org:1008.3564
40. “Search for Events with Leptonic Jets and Missing Transverse Energy in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Rev. Lett. **105**, 211802 (2010), arXiv.org:1008.3356
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43. “Measurement of the $WZ \rightarrow \ell_1 \nu_1 \ell_2^- \ell_2^+$ Cross Section and Limits on Anomalous Triple Gauge Boson Couplings in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Lett. B **695**, 67 (2011), arXiv.org:1006.0761

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45. “Search for Sneutrino Production in $e\mu$ Final States in 5.3 fb^{-1} of $p\bar{p}$ Collisions at $\sqrt{s} = 1.96 \text{ TeV}$ ”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Rev. Lett. **105**, 191802 (2010), arXiv.org:1008.4835
- *46. “Measurement of $t\bar{t}$ Production in the τ +Jets Topology using $p\bar{p}$ Collisions at $\sqrt{s} = 1.96 \text{ TeV}$ ”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Rev. D. **82**, 071102 (2010). arXiv.org:1008.4284
Notable contribution: A primary author.
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57. “Combined Tevatron Upper Limit on $gg \rightarrow H \rightarrow W^+W^-$ and Constraints on the Higgs Boson Mass in Fourth-Generation Fermion Models”, Co-authors: DØ and CDF collaborations, Phys. Rev. D. **80**, 011102 (2010). arXiv.org:1005.3216
58. “Search for Randall-Sundrum Gravitons in the Dielectron and Diphoton Final States with 5.4 fb^{-1} of $p\bar{p}$ Collisions at $\sqrt{s} = 1.96 \text{ TeV}$ ”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Rev. Lett. **104**, 241802 (2010). arXiv.org:1004.1826

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- *60. “Search for Single Top Quarks in the τ +jets Channel using 4.8 fb^{-1} of $p\bar{p}$ Collision Data”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Lett. B. **690**, 5 (2010). arXiv.org:0912.1066
Notable contribution: Identification of τ leptons.
- *61. “Search for the Associated Production of a b Quark and a Neutral Supersymmetric Higgs Boson that Decays into τ Pairs”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Rev. Lett. **104**, 151801 (2010). arXiv.org:0912.0968
Notable contribution: Identification of τ leptons.
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Notable contribution: A primary author.

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Notable contribution: Member of the editorial board. This paper derives heavily from the methods I developed in Run 1.
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- *87. “Search for Squark Production in Events with Jets, Hadronically Decaying Tau Leptons and Missing Transverse Energy at $\sqrt{s} = 1.96$ TeV”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Lett. B. **680**, 24 (2009). arXiv.org:0905.4086.
Notable contribution: Identification of τ leptons.

- *88. “Search for NMSSM Higgs Bosons in the $h \rightarrow aa \rightarrow \mu\mu\mu\mu, \mu\mu\tau\tau$ Channels”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Rev. Lett. **103**, 061801 (2009). arXiv.org:0905.3381.
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- 90. “Search for CP Violation in Semileptonic B_s^0 Decays”, V. M. Abazov *et al.* (the DØ Collaboration), Phys. Rev. **D 82**, 012003 (2010). arXiv.org:0904.3907.
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Notable contribution: Identification of τ leptons.
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Notable contribution: I performed this analysis. Also led the working group that oversaw this analysis.
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Notable contribution: Background modeling.
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326. “The Azimuthal Decorrelation of Jets Widely Separated in Rapidity”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **77**, 595 (1996).
- ¹⁰⁰⁺327. “J/Ψ Production in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Lett. B **370**, 239 (1996).
- *100+328. “Search for Light Top Squarks in $\bar{p}p$ Collisions at 1.8 TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **76**, 2222 (1996).
Notable contribution: I led the working group that oversaw this analysis.

329. “Search for Right-Handed W Bosons and Heavy W' in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **76**, 3271 (1996).
330. “Search for $\widetilde{W}_1\widetilde{Z}_2$ via Trilepton Final States in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **76**, 2228 (1996).
331. “Jet Production via Strongly-Interacting Color-Singlet Exchange in $\bar{p}p$ Collisions” S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **76**, 734 (1996).
332. “Studies of Topological Distributions of Inclusive Three- and Four-Jet Events in $\bar{p}p$ Collisions at $\sqrt{s} = 1800$ GeV with the DØ Detector”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. D **53**, 6000 (1996).
333. “Second Generation Leptoquark Search in $\bar{p}p$ Collisions at 1.8 TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **75**, 3618 (1995).
334. “Search for Heavy W Bosons in 1.8 TeV $\bar{p}p$ Collisions”, S. Abachi *et al.* (the DØ Collaboration), Phys. Lett. B **358**, 405 (1995).
335. “Transverse Energy Distributions within Jets in $\bar{p}p$ Collisions at 1.8 TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Lett. B **357**, 500 (1995).
- *100+336. “Top Quark Search with the DØ 1992 – 93 Data Sample”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. D **52**, 4877 (1995).
Notable contribution: This is a more detailed version of the “search” letters listed below.
- *337. “A Study of the Strong Coupling Constant Using W + Jets Processes”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **75**, 3226 (1995).
Notable contribution: I studied these processes in detail as they were the most serious background to my signal. I was in charge of porting and tuning the simulation program used to model these processes, and for producing large samples of such simulated events for the entire collaboration.
- ¹⁰⁰+338. “ W and Z Boson Production in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **75**, 1456 (1995). hep-ex/9505013.
339. “Measurement of the $WW\gamma$ Gauge Boson Coupling in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **75**, 1034 (1995).
340. “Limits on the Anomalous $ZZ\gamma$ and $Z\gamma\gamma$ Couplings in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **75**, 1028 (1995).
341. “Search for W Boson Pair Production in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **75**, 1023 (1995).
- ¹⁰⁰+342. “Search for Squarks and Gluinos in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **75**, 618 (1995).
- ¹⁰⁰+343. “Inclusive μ and b -Quark Production Cross Sections in $p\bar{p}$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **74**, 3548 (1995).
- *1000+344. “Observation of the Top Quark”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **74**, 2632 (1995).
Notable contribution: This paper, an important milestone in High Energy Physics, draws heavily on the continuation of my thesis research.

- *345. “Search for High Mass Top Quark Production in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **74**, 2422 (1995).

Notable contribution: My thesis research forms a large part of this paper.

- *100+346. “Rapidity Gaps between Jets in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **72**, 2332 (1994).

Notable contribution: Chair of the editorial board.

- *250+347. “Search for the Top Quark in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **72**, 2138 (1994).

Notable contribution: My thesis research forms a large part of this paper.

348. “First Generation Leptoquark Search in $\bar{p}p$ Collisions at $\sqrt{s} = 1.8$ TeV”, S. Abachi *et al.* (the DØ Collaboration), Phys. Rev. Lett. **72**, 965 (1994).

- *500+349. “The DØ Detector”, S. Abachi *et al.* (the DØ Collaboration), Nucl. Instrum. Methods Phys. Res. **A338**, 185 (1994).

Notable contribution: Commissioning and online monitoring of the Central Drift Chamber, calorimeter reconstruction software.

350. “Beam Tests of the DØ Uranium Liquid Argon End Calorimeters”, S. Abachi *et al.* (the DØ Collaboration), Nucl. Instrum. Methods Phys. Res. **A324**, 53-76 (1993).