

# Robert Craig Group

## PUBLICATION LIST <sup>1</sup>

### Recent Publications in Refereed Journals

- [1] “*Expected Sensitivity of the LDMX Experiment to Visible Signatures of Dark Matter*”, In preparation (expected 2023)
- [2] “*Fabrication of the Mu2e Cosmic Ray Veto Detector*”, In preparation (expected 2023)
- [3] “*Mu2e Run I Sensitivity Projections for the Neutrinoless  $\mu \rightarrow e$  Conversion Search in Aluminum*”, In preparation (expected 2022)
- [4] “*Update on Testing and Performance of Wavelength-Shifting Fibers for the Mu2e Cosmic Ray Veto Detector*”, In preparation (expected 2022)
- [5] “*An Improved Measurement of Neutrino Oscillation Parameters by the NOvA Experiment*”, arXiv:2108.08219, submitted to Phys. Rev. Lett. (2021)
- [6] “*Search for Multi-Messenger Signals in NOvA Coincident with LIGO/Virgo Detections*”, Phys. Rev. D 101, 112006 (2020)
- [7] “*A High Efficiency Photon Veto for the Light Dark Matter eXperiment*”, Journal of High Energy Physics volume 2020, Article number: 3 (2020)
- [8] “*First Measurement of Neutrino Oscillation Parameters using Neutrinos and Antineutrinos by NOvA*”, Phys. Rev. Lett. 123, 151803 (2019)
- [9] “*Performance of Wavelength-Shifting Fibers for the Mu2e Cosmic Ray Veto Detector*”, Journal of Instrumentation, Vol. 13 (2018)
- [10] “*New constraints on oscillation parameters from  $\nu_e$  appearance and  $\nu_\mu$  disappearance in the NOvA experiment*”, Phys. Rev. D 98, 032012 (2018)
- [11] “*Photoelectron Yields of Scintillation Counters with Embedded Wavelength-Shifting Fibers With Silicon Photomultipliers*”, Nucl. Instrum. Meth. A890, 84-95 (2018)
- [12] “*Constraints on oscillation parameters from  $\nu_e$  appearance and  $\nu_\mu$  disappearance in NOvA*”, Phys. Rev. Lett. 118, 231801 (2017)
- [13] “*Measurement of the neutrino mixing angle  $\theta_{23}$  in NOvA*”, Phys. Rev. Lett. 118, 151802 (2017)
- [14] “*First measurement of electron neutrino appearance in NOvA*”, Phys. Rev. Lett. 116, 151806 (2016)
- [15] “*First measurement of muon-neutrino disappearance in NOvA*”, Phys. Rev. D. 93, 051104 (2016)

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<sup>1</sup>In addition to publications listed, I was a member of the CDF author list since 2006-2013 with more than 400 publications and almost 30,000 citations (based on the SPIRES - High-Energy Physics Literature Database). I have also made contributions to hundreds of internal experimental notes for the CDF, Mu2e, NOvA, and LDMX experiments.

## Past Publications in Refereed Journals

- [1] “*A Study of the Energy Dependence of the Underlying Event in Proton-Antiproton Collisions*”, Phys. Rev. D. 92, 092009 (2015)
- [2] “*Tevatron Constraints on Models of the Higgs Boson with Exotic Spin and Parity Using Decays to Bottom-Antibottom Quark Pairs*”, Phys. Rev. Lett. 114, 151802 (2015)
- [3] “*Constraints on models of the Higgs boson with exotic spin and parity using the full CDF data set*”, Phys. Rev. Lett. 114, 141802 (2015)
- [4] “*Observation of s-channel production of single top quarks at the Tevatron*”, Phys. Rev. Lett. 112, 231803 (2014)
- [5] “*Evidence for s-channel Single-Top-Quark Production in Events with one Charged Lepton and two Jets at CDF*”, Phys. Rev. Lett. 112, 231804 (2014)
- [6] “*First Search for Exotic Z Boson Decays into Photons and Neutral Pions in Hadron Collisions*”, Phys. Rev. Lett. 112, 111803 (2014)
- [7] “*Higgs Boson Studies at the Tevatron*”, Phys. Rev. D. 88, 052014 (2013)
- [8] “*Combination of Searches for the Higgs Boson Using the Full CDF Data Set*”, Phys. Rev. D. 88, 052013 (2013)
- [9] “*Search for Resonant Top-antitop Production in the Semi-leptonic Decay Mode Using the Full CDF Data Set*”, Phys. Rev. Lett. 110, 121802 (2013)
- [10] “*Evidence for a particle produced in association with weak bosons and decaying to a bottom-antibottom quark pair in Higgs boson searches at the Tevatron*”, Phys. Rev. Lett. 109, 071804 (2012)
- [11] “*Search for a Higgs boson in the diphoton final state using the full CDF data set*”, Physics Letters B 717 (2012) 173181
- [12] “*Combined search for the standard model Higgs boson decaying to a bb pair using the full CDF data set*”, Phys. Rev. Lett. 109, 111802 (2012)
- [13] “*Search for the standard model Higgs boson decaying to a bb pair in events with one charged lepton and large missing transverse energy using the full CDF data set*”, Phys. Rev. Lett. 109, 111804 (2012)
- [14] “*Search for the standard model Higgs boson produced in association with a  $W^\pm$  boson with  $7.5 \text{ fb}^{-1}$* ”, Phys. Rev. D. 86, 032011 (2012)
- [15] “*Search for a Higgs Boson in the Diphoton Final State in  $p\bar{p}$  at  $\sqrt{s} = 1.96 \text{ TeV}$* ”, Phys. Rev. Lett. 108, 011801 (2012)
- [16] “*Search for a Higgs Boson produced in Association with a W Boson Using a Method Based on Matrix Element Techniques*”, Phys. Rev. D. 85, 072001 (2012)

- [17] “*Observation of Single Top Quark Production and Measurement of  $V_{tb}$  with CDF*”, Phys. Rev. D. 82, 112005 (2010)
- [18] “*Measurement of the  $WW+WZ$  Production Cross Section Using a Matrix Element Technique in Lepton + Jets Events*”, Phys. Rev. D. 82, 112001 (2010)
- [19] “*Studying the Underlying Event in Drell-Yan and High Transverse Momentum Jet Production at the Tevatron*”, Phys. Rev. D. 82, 034001 (2010)
- [20] “*Measurement of the  $WW$  and  $WZ$  production cross section in  $\ell\nu jj$ ”*, Phys. Rev. Lett. 104, 101801 (2010)
- [21] “*Search for Standard Model Higgs Bosons in  $WH \rightarrow \ell\nu b\bar{b}$ ”*”, Phys. Rev. Lett. 103, 101802 (2009)
- [22] “*Observation of Single Top Quark Production*”, Phys. Rev. Lett. 103, 092002 (2009)
- [23] “*Search for a Fermiophobic Higgs Boson Decaying into Diphotons at CDF*”, Phys. Rev. Lett. 103, 061803 (2009)
- [24] “*Measurement of Single Top Quark Production at CDF*”, Phys. Rev. Lett. 101, 250601 (2008)
- [25] “*The Inclusive Jet Cross Section Using the Midpoint Algorithm in RunII at CDF*”, Phys. Rev. D78, 052006 (2008)

## Recent Conference Proceedings and Non-refereed Publications

- [1] K. Byrum *et al.* [Mu2e-II], Snowmass Contribution, “*Mu2e-II: Muon to electron conversion with PIP-II*,” [arXiv:2203.07569].
- [2] M. Aoki *et al.*, Snowmass Contribution, “*A New Charged Lepton Flavor Violation Program at Fermilab*,” [arXiv:2203.08278].
- [3] T. Åkesson, *et al.*, Snowmass contribution, “*Current Status and Future Prospects for the Light Dark Matter eXperiment*,” [arXiv:2203.08192].
- [4] “*A Proposed Evolution of the Mu2e Experiment*”, Published, PoS NuFACT2018 (2019) 129.
- [5] “*Studies of the Aging Properties of the Mu2e Cosmic Ray Veto System*”, Published, PoS NuFACT2018 (2019) 040.
- [6] “*A High-efficiency Cosmic Ray Veto Detector for the Mu2e Experiment*”, Published, PoS NuFACT2018 (2018) 034.
- [7] “*Dark Sector Physics with a Primary Electron Beam Facility at CERN*”, CERN-SPSC-2018-023.
- [8] “*Expression of Interest for Evolution of the Mu2e Experiment*”, arXiv:1802.02599.
- [9] “*Studies to Understand and Optimize the Performance of Scintillation Counters for the Mu2e Cosmic Ray Veto System*”, C17-07-31, arXiv:1709.09831.
- [10] “*Progress in the Search for Dark Matter Using Upward-going Muons in NOvA*”, PoS ICHEP, **2016**, 201 (2016).

## Past Conference Proceedings and Non-refereed Publications

- [1] “*Performance of Wavelength-Shifting Fibers for the Mu2e Cosmic Ray Veto Detector*”, DPF 2015, arXiv:1511.06225
- [2] “*Performance of Scintillator Counters with Silicon Photomultiplier Readout*”, DPF 2015, arXiv:1511.00374
- [3] “*A first look at data from the NOvA upward-going muon trigger*”, DPF 2015, arXiv:1511.00155
- [4] “*Fermilab Computing at the Intensity Frontier*”, Conference on Computing in High Energy Physics (CHEP2015), J. Phys. Conf. Ser. 664 (2015) 3, 032012
- [5] “*Implementation of an Upward-going Muon Trigger for Indirect Dark Matter Searches at the NOvA Far Detector*”, Conference on Computing in High Energy Physics (CHEP2015), J. Phys. Conf. Ser. 664 (2015) 082034
- [6] “*Recent Evolution of the Offline Computing Model of the NOvA Experiment*”, Conference on Computing in High Energy Physics (CHEP2015), J. Phys. Conf. Ser. 664 (2015) 3, 032011
- [7] “*Mu2e Technical Design Report*”, The Mu2e Project and the Mu2e Collaboration, arXiv:1211.7019 (2014)
- [8] “*Observation of the s-channel and other studies of single top quarks at the Tevatron*”, XXVIII Rencontres de Physique de la Vallée d’Aoste, Italy, arXiv:1405.0071 (2014)
- [9] “*Software Trigger Algorithms to Search for Magnetic Monopoles with the NOvA Far Detector*”, Conference on Computing in High Energy Physics, Journal of Physics, Vol. 513, 2014
- [10] “*Charged Leptons*”, Summary Report of Snowmass Community Summer Study 2013, arXiv:1311.5278 (2013)
- [11] “*Design considerations for the cosmic-ray-veto system of the Mu2e experiment*”, Proceedings, APS Division of Particles and Fields, Santa Cruz, CA, arXiv:1310.1377 (2013)
- [12] “*Feasibility Study for a Next-Generation Mu2e Experiment*”, Contribution to the Snowmass Community Summer Study 2013, arXiv:1307.1168 (2013)
- [13] “*The Mu2e Conceptual Design Report*”, The Mu2e Project and the Mu2e Collaboration, arXiv:1211.7019 (2012)
- [14] “*Updated Combination CDF and D0 Searches for Standard Model Higgs Boson Production with up to  $10.0 \text{ fb}^{-1}$  of Data*”, Tevatron New Phenomena and Higgs Working Group, arXiv:1207.0449 (2012)
- [15] “*Fundamental Physics at the Intensity Frontier*”, Intensity Frontier Workshop, arXiv:1205.2671 (2012)

- [16] “*Combined CDF and D0 Search for Standard Model Higgs Boson Production with up to 10.0 fb<sup>-1</sup> of Data*”, Tevatron New Phenomena and Higgs Working Group, arXiv:1203.3774 (2012)
- [17] “*Combined CDF and D0 measurement of WZ and ZZ production with b-tagged jets*”, Tevatron New Phenomena and Higgs Working Group, arXiv:1203.3782 (2012)
- [18] “*Combined CDF and D0 Limits on Higgs Boson Production with up to 8.6 fb<sup>-1</sup> of Data*”, Tevatron New Phenomena and Higgs Working Group, arXiv:1107.5518 (2011)
- [19] “*Combined CDF and D0 limits on Fermiophobic Higgs Boson Production with up to 8.2 fb<sup>-1</sup>*”, Tevatron New Phenomena and Higgs Working Group, arXiv:1109.0576 (2011)
- [20] “*Combined CDF and D0 Searches for the Higgs Boson Decaying to Two Photons*”, Tevatron New Phenomena and Higgs Working Group, arXiv:1107.4960 (2011)
- [21] “*Higgs Boson Searches at CDF*”,  
Contributed to Lake Louise Winter Institute, arXiv:0905.4267 (2009)
- [22] “*Combination of CDF and DØ Single Top Quark Cross Sections Measurements*”, Tevatron New Phenomena and Higgs Working Group, arXiv:0908.2171 (2009)
- [23] “*Combination of Single Top Quark Production Results from CDF*”,  
Contributed to ICHEP 2008, arXiv:0809.4670 (2008)
- [24] “*Recent QCD Studies at the Tevatron*”,  
Contributed to XXII Rencontres de Physique de la Vallee d’Aoste, arXiv:0804.4494 (2008)
- [25] “*PDF use from the Tevatron to the LHC*”,  
Contributed to TeV4LHC workshop, QCD Group Report, hep-ph/0605240 (2005)
- [26] “*Slepton Mass Measurements at the LHC II*”,  
Contributed to TeV4LHC workshop, Exotics Group Report, hep-ph/0608322 (2005)
- [27] “*Slepton Mass Measurements at the LHC*”,  
Contributed to Linear Collider Workshop, hep-ph/0507002 (2005)
- [28] “*PYTHIA Tune A, HERWIG, and JIMMY in Run 2 at CDF*”,  
Contributed to Hera and the LHC workshop, hep-ph/0510198 (2005)
- [29] “*The Les Houches Accord PDFs (LHAPDF) and LHAGLUE*”,  
Contributed to Hera and the LHC workshop, hep-ph/0508110 (2005)