Robert Craig Group
Publication List [1]

Recent Publications in Refereed Journals

[1] *"Joint neutrino oscillation analysis from the T2K and NOvA experiments"*, Nature volume 646, pages818–824 (2025)

[2] *"Precision measurement of neutrino oscillation parameters with 10 years of data from the NOvA experiment"*, Submitted, arXiv:2509.04361 (2025)

[3] *"Measurement of the LCLS-II dark current using the LDMX Trigger Scintillator Prototype"*, Submitted to NIM, arXiV:2601.08090 (2026)

[4] *"Expected Sensitivity of the LDMX Experiment to Visible Signatures of Dark Matter "*, In preperation (expected 2026)

[5] *"Searching for Light Dark Matter with the NOvA Near Detector "*, submitted to PRL, arXiv:2507.10754, (2025)

[6] *"Performance Studies of the Mu2e Cosmic Ray Veto Detector "*, Nucl. Instrum. Meth. A 1083, (2026)

[7] *" Temperature-Dependent Calibration Procedures for the Silicon Photomultiplier Readout of the Cosmic Ray Veto Detector for the Mu2e Experiment "*, Nucl. Instrum. Meth. A1081, (2026)

[8] *" Photon-rejection Power of the Light Dark Matter eXperiment in an 8 GeV Beam"*, Journal of High Energy Physics 2023(12)

[9] *" Performance of the Wavelength-Shifting Fiber Upgrade for the Mu2e Cosmic-Ray Veto Detector"*, Journal of Instrumentation, Vol. 18 (2023)

[10] *"Mu2e Run I Sensitivity Projections for the Neutrinoless $\mu \rightarrow e$ Conversion Search in Aluminum"*, Universe 2023, 9(1), 54

[11] *"An Improved Measurement of Neutrino Oscillation Parameters by the NOvA Experiment"*, Phys. Rev. D 106 032004. (2022)

[12] *"Search for Multi-Messenger Signals in NOvA Coincident with LIGO/Virgo Detections"*, Phys. Rev. D 101, 112006 (2020)

[13] *"A High Efficiency Photon Veto for the Light Dark Matter eXperiment"*, Journal of High Energy Physics volume 2020, Article number: 3 (2020)

[14] *"First Measurement of Neutrino Oscillation Parameters using Neutrinos and Antineutrinos by NOvA"*, Phys. Rev. Lett. 123, 151803 (2019)

[1] 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.

[15] *" Performance of Wavelength-Shifting Fibers for the Mu2e Cosmic Ray Veto Detector"*, Journal of Instrumentation, Vol. 13 (2018)

[16] *" New constraints on oscillation parameters from ν_e appearance and ν_μ disappearance in the NOvA experiment"* , Phys. Rev. D98,032012 (2018)

[17] *"Photoelectron Yields of Scintillation Counters with Embedded Wavelength-Shifting Fibers With Silicon Photomultipliers"*, Nucl. Instrum. Meth. A890, 84-95 (2018)

[18] *"Constraints on oscillation parameters from ν_e appearance and ν_μ disappearance in NOvA"*, Phys. Rev. Lett. 118, 231801 (2017)

[19] *"Measurement of the neutrino mixing angle θ_{23} in NOvA"'*, Phys. Rev. Lett. 118, 151802 (2017)

[20] *"First measurement of electron neutrino appearance in NOvA "*, Phys. Rev. Lett. 116, 151806 (2016)

[21] *"First measurement of muon-neutrino disappearance in NOvA"'*, Phys. Rev. D. 93, 051104 (2016)

[22] *" A Study of the Energy Dependence of the Underlying Event in Proton-Antiproton Collisions"*, Phys. Rev. D. 92, 092009 (2015)

[23] *"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)

[24] *"Constraints on models of the Higgs boson with exotic spin and parity using the full CDF data set "*, Phys. Rev. Lett. 114, 141802 (2015)

[25] *"Observation of s-channel production of single top quarks at the Tevatron"*, Phys. Rev. Lett. 112, 231803 (2014)

[26] *"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)

[27] *"First Search for Exotic Z Boson Decays into Photons and Neutral Pions in Hadron Collisions"*, Phys. Rev. Lett. 112, 111803 (2014)

[28] *"Higgs Boson Studies at the Tevatron"*, Phys. Rev. D. 88, 052014 (2013)

[29] *"Combination of Searches for the Higgs Boson Using the Full CDF Data Set"*, Phys. Rev. D. 88, 052013 (2013)

[30] *"Search for Resonant Top-antitop Production in the Semi-leptonic Decay Mode Using the Full CDF Data Set"*, Phys. Rev. Lett. 110, 121802 (2013)

[31] *"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)

[32] *"Search for a Higgs boson in the diphoton final state using the full CDF data set"*, Physics Letters B 717 (2012) 173–181

[33] *"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)

[34] *"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)

[35] *"Search for the standard model Higgs boson produced in association with a $W^{\pm}$ boson with 7.5 fb^{-1}"*, Phys. Rev. D. 86, 032011 (2012)

[36] *"Search for a Higgs Boson in the Diphoton Final State in $p\bar{p}$ at $\sqrt{s} = 1.96$ TeV"*, Phys. Rev. Lett. 108, 011801 (2012)

[37] *"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)

[38] *"Observation of Single Top Quark Production and Measurement of Vtb with CDF"*, Phys. Rev. D. 82, 112005 (2010)

[39] *"Measurement of the WW+WZ Production Cross Section Using a Matrix Element Technique in Lepton + Jets Events"*, Phys. Rev. D. 82, 112001 (2010)

[40] *"Studying the Underlying Event in Drell-Yan and High Transverse Momentum Jet Production at the Tevatron"*, Phys. Rev. D. 82, 034001 (2010)

[41] *"Measurement of the WW and WZ production cross section in $\ell\nu jj$"*, Phys. Rev. Lett. 104, 101801 (2010)

[42] *"Search for Standard Model Higgs Bosons in $WH \to \ell\nu b\bar{b}$ "*, Phys. Rev. Lett. 103, 101802 (2009)

[43] *"Observation of Single Top Quark Production"*, Phys. Rev. Lett. 103, 092002 (2009)

[44] *"Search for a Fermiophobic Higgs Boson Decaying into Diphotons at CDF"*, Phys. Rev. Lett. 103, 061803 (2009)

[45] *"Measurement of Single Top Quark Production at CDF"*, Phys. Rev. Lett. 101, 250601 (2008)

[46] *"The Inclusive Jet Cross Section Using the Midpoint Algorithm in RunII at CDF"*, Phys. Rev. D78, 052006 (2008)

Conference Proceedings and Non-refereed Publications

[1] T. Akesson *et al.* [LDMX Collaboration], *"Design Report of the LDMX Experiment,"* [arXiv:2508.11833].

[2] S. Corrodi *et al.* [Mu2e-II and AMF], *"Workshop on a future muon program at FNAL,"* [arXiv:2309.05933].

[3] K. Byrum *et al.* [Mu2e-II], Snowmass Contribution, *"Mu2e-II: Muon to electron conversion with PIP-II,"* [arXiv:2203.07569].

[4] M. Aoki *et al.* , Snowmass Contribution, *"A New Charged Lepton Flavor Violation Program at Fermilab,"* [arXiv:2203.08278].

[5] T. Åkesson, *et al.*, Snowmass contribution, *"Current Status and Future Prospects for the Light Dark Matter eXperiment,"* [arXiv:2203.08192].

[6] *"A Proposed Evolution of the Mu2e Experiment"*, Published, PoS NuFACT2018 (2019) 129.

[7] *"Studies of the Aging Properties of the Mu2e Cosmic Ray Veto System"*, Published, PoS NuFACT2018 (2019) 040.

[8] *"A High-efficiency Cosmic Ray Veto Detector for the Mu2e Experiment"*, Published, PoS NuFACT2018 (2018) 034.

[9] *"Dark Sector Physics with a Primary Electron Beam Facility at CERN"*, CERN-SPSC-2018-023.

[10] *"Expression of Interest for Evolution of the Mu2e Experiment "*, arXiv:1802.02599.

[11] *" Studies to Understand and Optimize the Performance of Scintillation Counters for the Mu2e Cosmic Ray Veto System"*,C17-07-31,arXiv:1709.09831.

[12] *"Progress in the Search for Dark Matter Using Upward-going Muons in NOvA"*, PoS ICHEP, **2016**, 201 (2016).

[13] *"Performance of Wavelength-Shifting Fibers for the Mu2e Cosmic Ray Veto Detector"*, DPF 2015, arXiv:1511.06225

[14] *"Performance of Scintillator Counters with Silicon Photomultiplier Readout"*, DPF 2015, arXiv:1511.00374

[15] *"A first look at data from the NOνA upward-going muon trigger"*, DPF 2015, arXiv:1511.00155

[16] *"Fermilab Computing at the Intensity Frontier"*,
Conference on Computing in High Energy Physics (CHEP2015), J. Phys. Conf. Ser. 664 (2015) 3, 032012

[17] *"Implementation of an Upward-going Muon Trigger for Indirect Dark Matter Searches at the NOνA Far Detector"*, Conference on Computing in High Energy Physics (CHEP2015), J. Phys. Conf. Ser. 664 (2015) 082034

[18] *"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

[19] *"Mu2e Technical Design Report"*, The Mu2e Project and the Mu2e Collaboration, arXiv:1211.7019 (2014)

[20] *"Observation of the s-channel and other studies of single top quarks at the Teq vatron"*, XXVIII Rencontres de Physique de la Vallee d'Aoste, Italy, arXiv:1405.0071 (2014)

[21] *"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

[22] *"Charged Leptons"*, Summary Report of Snowmass Community Summer Study 2013, arXiv:1311.5278 (2013)

[23] *"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)

[24] *"Feasibility Study for a Next-Generation Mu2e Experiment"*, Contribution to the Snowmass Community Summer Study 2013, arXiv:1307.1168 (2013)

[25] *"The Mu2e Conceptual Design Report"*, The Mu2e Project and the Mu2e Collaboration, arXiv:1211.7019 (2012)

[26] *"Updated Combination CDF and D0 Searches for Standard Model Higgs Boson Production with up to 10.0 fb^{-1} of Data"*, Tevatron New Phenomena and Higgs Working Group, arXiv:1207.0449 (2012)

[27] *"Fundamental Physics at the Intensity Frontier"*, Intensity Frontier Workshop, arXiv:1205.2671 (2012)

[28] *"Combined CDF and D0 Search for Standard Model Higgs Boson Production with up to 10.0 fb^{-1} of Data"*, Tevatron New Phenomena and Higgs Working Group, arXiv:1203.3774 (2012)

[29] *"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)

[30] *"Combined CDF and D0 Limits on Higgs Boson Production with up to 8.6 fb^{-1} of Data"*, Tevatron New Phenomena and Higgs Working Group, arXiv:1107.5518 (2011)

[31] *"Combined CDF and D0 limits on Fermiophobic Higgs Boson Production with up to 8.2 fb^{-1} "*, Tevatron New Phenomena and Higgs Working Group, arXiv:1109.0576 (2011)

[32] *"Combined CDF and D0 Searches for the Higgs Boson Decaying to Two Photons"*, Tevatron New Phenomena and Higgs Working Group, arXiv:1107.4960 (2011)

[33] *"Higgs Boson Searches at CDF "*, Contributed to Lake Louise Winter Institute, arXiv:0905.4267 (2009)

[34] *"Combination of CDF and DØ Single Top Quark Cross Sections Measurements"*, Tevatron New Phenomena and Higgs Working Group, arXiv:0908.2171 (2009)

[35] *"Combination of Single Top Quark Production Results from CDF"*,
Contributed to ICHEP 2008, arXiv:0809.4670 (2008)

[36] *"Recent QCD Studies at the Tevatron"*,
Contributed to XXII Rencontres de Physique de la Vallee d'Aoste, arXiv:0804.4494 (2008)

[37] *"PDF use from the Tevatron to the LHC"*,
Contributed to TeV4LHC workshop, QCD Group Report, hep-ph/0605240 (2005)

[38] *"Slepton Mass Measurements at the LHC II"*,
Contributed to TeV4LHC workshop, Exotics Group Report, hep-ph/0608322 (2005)

[39] *"Slepton Mass Measurements at the LHC"*,
Contributed to Linear Collider Workshop, hep-ph/0507002 (2005)

[40] *"PYTHIA Tune A, HERWIG, and JIMMY in Run 2 at CDF"*,
Contributed to Hera and the LHC workshop, hep-ph/0510198 (2005)

[41] *"The Les Houches Accord PDFs (LHAPDF) and LHAGLUE"*,
Contributed to Hera and the LHC workshop, hep-ph/0508110 (2005)