

# CURRICULUM VITÆ

## JOCELYN MONROE

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### ADDRESS:

Royal Holloway University of London  
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### EDUCATION:

- 2006:** Ph.D. (Physics) Columbia University  
Dissertation Title: “A Combined  $\nu_\mu$  and  $\nu_e$  Oscillation Search at MiniBooNE,”  
Advisor: Prof. Michael Shaevitz
- 2002:** M.A. (Physics) Columbia University
- 2002:** M.Phil. (Physics) Columbia University
- 1999:** B.A. (Astrophysics) Columbia University

### EMPLOYMENT:

- May 2013-:** Professor of Physics, Royal Holloway University of London
- 2011-2013:** Senior Lecturer, Royal Holloway University of London
- 2009-2014:** Assistant Professor, Massachusetts Institute of Technology
- 2006-2009:** Pappalardo Fellow, Massachusetts Institute of Technology
- 2000-2006:** Research Assistant, Columbia University
- 1999-2000:** Engineering Physicist, Beams Division,  
Fermi National Accelerator Laboratory
- 1997:** DOE REU Summer Program, Particle Physics Division,  
Fermi National Accelerator Laboratory

### COLLABORATION MEMBERSHIPS:

- 2017-:** DarkSide-20k Collaboration, UK P.I. (LNGS, IT), Deputy Spokesperson (2021-)
- 2019-:** The PlomBox Project, P.I. (<https://plombox.org/>)
- 2008-:** DEAP-3600 (SNOLab, Canada), Executive Board Chair (2014-15)
- 2006-2016:** DMTPC (WIPP, USA), Spokesperson (2011-2016)
- 2006-2009:** SNO (SNOLab, Canada)
- 1999-2008:** MiniBooNE (FNAL, USA)
- 1999-2000:** Neutrino Factory (FNAL, USA)

### AWARDS AND HONORS:

- 2016 Breakthrough Prize in Fundamental Physics Laureate
- 2012 Kavli Frontiers of Science Fellow, U.S. National Academy of Sciences
- 2011 U.S. Department of Energy Early Career Award
- 2009 Kavli Frontiers of Science Fellow, U.S. National Academy of Sciences
- 2006 Pappalardo Fellowships Competition Winner, Massachusetts Institute of Technology
- 2005 Selvaggi Scholar Award for Doctoral Candidates, Columbia University
- 2001 Melvyn Month Fellowship for Travel to Snowmass, American Physical Society
- 2000 Employee Performance Recognition Award, Fermi National Accelerator Laboratory

## PROFESSIONAL SERVICE:

SNOLAB Executive Director Search Committee (2021)  
ECFA Detector R&D Roadmap Convener, Liquid Detectors Task Force (2021)  
European Particle Physics Strategy Update, Physics Preparatory Group,  
Dark Sector Scientific Secretary (2019-20)  
McDonald Institute International Scientific Advisory Committee (2019-)  
US DOE Basic Research Needs Study, Noble Liquids Technology Group Co-convener (2019)  
Fermi National Accelerator Laboratory Long Baseline Neutrino Committee (2016-19)  
CERN SPS and PS Experiments (SPSC) Scientific Advisory Committee (2015-18)  
Astroparticle Physics European Coordination (ApPEC) Scientific Advisory Committee (2013-21),  
Deputy Chair (2018-20)  
Director of Research, Department of Physics, Royal Holloway University of London (2017-)  
DMTPC Collaboration Spokesperson (2011-16)  
UK STFC Particle Physics Grants Panel Chair (2016-19)  
SNOLAB 2017-22 Strategic Plan Steering Group (2016)  
STFC Women in Science, Engineering and Technology Focus Group member (2011-15)  
South East Physics Network (SEPNet) Radiation, Detection & Instrumentation Theme  
Steering Committee Member (2011-13)  
RHUL Physics Department JUNO Committee Member (2011-17)  
SNO Physics Interpretation Review Committee Chair (2007-11)  
Qualifying Exam Committee, Dept. of Physics, Massachusetts Institute of Technology (2009-11)  
SNO Low Energy Threshold Analysis Review Committee Member (2006-09)

## MEMBERSHIPS, AFFILIATIONS, OTHER APPOINTMENTS:

### *Journal Editorial Boards*

Editor-in-Chief, Experimental Physics II for *European Physical Journal C* (2021-)  
Associate Editor for *European Physical Journal C* (2014-2020)  
Physics Focus Issue Co-Editor for *Journal of Physics G* (2016)

### *Peer-Review Activities*

Ad-hoc Reviewer for *Physical Review Letters*, *Nature Physics*, *Dark Side of the Universe*,  
*Astronomical Review*, *Astroparticle Physics*, *Journal of Instrumentation*, *Nuclear Instruments  
and Methods in Physics Research*, *European Physical Journal Plus*  
Proceedings Co-Editor, *Conference on the Intersections of Particle and Nuclear Physics* (2012)

### *Grant Reviews and Panels*

NWO WISE Fellowship Programme Assessment Committee (2019)  
UK STFC Particle Physics Grants Panel (2013-19)  
UK STFC Ernest Rutherford Fellowships Panel (2012, 2015)  
International referee for National Research Agency, France; National Science Center, Poland;  
National Science Foundation, U.S.A. (2009-)

### *Other Appointments:*

Visiting Researcher, KEK National Laboratory / University of Kyoto, Tsukuba, Japan (2016)  
Visiting Experimentalist, Kavli Institute for Theoretical Physics, Santa Barbara CA USA (2013)

## TEACHING :

### *Supervision Summary:*

2011– Postdoctoral Fellows: 4 / Postdoctoral researchers: 8 / PhD: 6 / Masters Students: 9  
Department of Physics, Royal Holloway University of London, UK  
2009–15 Postdoctoral researchers: 2 / PhD: 2 / Masters Students: 7  
Department of Physics, Massachusetts Institute of Technology, USA  
2006-present Summer Placement Research Supervisor of 22 students (of whom 40% female, with

PhD completed/in progress in Physics, Nuclear Engineering, Mechanical Engineering, Geophysics at Caltech (3), Imperial College (1/1), Princeton (2), Boston University (1), University of Maryland (1), University of Pennsylvania (1), Max Planck Munich (1), Queens University (1), RHUL (2), University of Texas, Houston (1).

*Lecturing:*

- 2011–21 Course Leader – Mechanics & Special Relativity, Particle Astrophysics, Royal Holloway University of London, Department of Physics, UK
- 2019 CHIPP International Winter Institute, Switzerland, “*Dark Matter Detection*”
- 2014 Gran Sasso Laboratory Summer Institute, Italy, “*Dark Matter Directional Detection*”
- 2009–11 Course Leader – Electricity & Magnetism, Massachusetts Institute of Technology, Department of Physics, USA

**OUTREACH TO THE PUBLIC, SELECTED ACTIVITIES:**

- 2019 *Seeker* Dark Matter Documentary (1.1M views)
- 2018 Cheltenham Science Festival (UK) Panelist
- 2018 Greenwich Planetarium (London) Panelist
- 2017 Artis Planetarium (Amsterdam) Public Lecture
- 2017 Dark Matter Day Royal Astronomical Society talk and panel
- 2017 Dark Matter Day showcase at Parliament (London, UK)
- 2017 *The Conversation* article author, 30k views, syndicated by IFLScience, etc.
- 2016 *Nautilus* Magazine interview subject
- 2016 Contributor, Nomad Press “*Explore Forces in Motion*” Physics for Children Book
- 2016 *The Conversation* podcast interview subject
- 2014 *BBC Stargazing* panelist
- 2014 Ministerial Visits STEM Campaign Launch at the Science Museum, RHUL Delegate
- 2013 IOP Project Juno film participant
- 2011 *World Science Festival*, Dark Matter Salon, panelist
- 2011 RHUL 150th Anniversary Celebration, Dark Matter for the Public film subject
- 2011 Northeast Conference for Undergraduate Women in Physics, invited speaker
- 2009-11 MIT Graduate Women in Physics Group, Faculty Mentor
- 2010 MIT 150 Report on the Status of Women in the Sciences Report, participant
- 2010 Path of Professorship Workshop at MIT, panelist
- 2009 MIT Physics Alumni Magazine article co-author, on dark matter detection
- 2008 *Scientific American* “Science Images: Are You in Here Dark Matter?” subject
- 2008-2010 MIT MSRP summer research minority outreach program mentor and speaker
- 2008 MIT *Tech Talk* newspaper article subject, for neutron detector development
- 2008 “*Nova Science Now: Dark Matter*” television program appearance
- 2007 *Boston Globe* “Meeting of the Minds” newspaper profile subject
- 2007 MIT *Tech Talk* article subject, as one of the AIP Top 10 Science Stories of 2007
- 2003 *Chicago Sun-Times* “30 Under 30” newspaper profile subject
- 2002 *Extension 720 with Milt Rosenberg* “Quarks Unbound” radio program guest
- 2001 APS Meeting Congressional Visiting Committee member, New York delegation
- 2000-01 Young Particle Physicists Outreach to the Public Working Group member
- 1999 *FermiNews* article subject, Fermi National Accelerator Laboratory

## FUNDING PROFILE, SELECTED AWARDS:

- P.I.: “Silicon Detector Development for the Low Background Frontier”, (2021-24), STFC [£868,716]  
Co-I.: “Quantum Enhanced Superfluid Technologies for Dark Matter and Cosmology,” STFC/ EPSRC (2020-24), [£2,104,562]  
P.I.: “PlomBoxear: a Device for Open Source Metrology to Fight Lead Contamination in Drinking Water,” UKRI GCRF Research Translation Award, (2019-21), [£882,086]  
Co-I.: RHUL Centre for Particle Physics, STFC Consolidated Grant (2019-22), [£1,921,005]  
P.I.: “Materia Oscura: Instrumentation Development to Observe the Invisible Universe” UKRI GCRF (2018-20), [£527,000]  
Co-I.: RHUL Centre for Particle Physics, STFC Consolidated Grant (2015-19), [£2,189,972]  
P.I.: “Liquid Argon Detector Calibration R&D for Dark Matter and Neutrino Physics,” STFC (2012-14), [£185,296]  
Co-I.: RHUL Centre for Particle Physics, STFC Consolidated Grant (2012-16), [£1,922,084]  
P.I.: “Fundamental Physics at the Low Background Frontier,” ERC Starting Grant (2011-16) [€1,063,000]  
DMTPC Collaboration (J. Monroe, Co-Investigator), “Spin Dependent Interactions of Dark Matter with DMTPCino,” U.S. National Science Foundation Underground R&D program (2010-13) [\$554,000]  
J. Monroe (P.I.), “Distinguishing Dark Matter Signals from Neutron Backgrounds,” U.S. National Science Foundation Particle and Nuclear Astrophysics program (2009-11) [\$405,000] (change from P.I. to Co-I. status when moved to RHUL)  
J. Monroe (P.I.), “Directional Dark Matter Detection: Characterizing the Backgrounds,” U.S. Department of Energy Early Career Award (2011-16) [\$858,000] (cancelled on move to RHUL)

## SELECTED INVITED PRESENTATIONS AND CONFERENCE PAPERS:

### *International Lectures and Presentations*

- XIX International Conference on Neutrino Physics and Astrophysics, Plenary Speaker (2020)  
*“Dark Matter Detectors for Neutrino Physics”*  
European Strategy for Particle Physics Update, Invited Speaker (2019)  
*“Dark Matter Direct Detection”*  
XVIII International Workshop on Neutrino Telescopes, Invited Plenary (2019)  
*“Neutrino Physics with Future Dark Matter Detectors”*  
JENAS Joint ECFA-ApPEC, NuPECC Symposium, Invited Plenary (2019)  
*“Physics Highlights and Challenges - Astroparticle Physics”*  
Kavli Institute for Theoretical Physics, Santa Barbara, Invited Speaker (2018)  
*“Dark matter detection and detectability: paradigm confirmation or shift?”*  
Stockholm-London-Amsterdam-Paris Meeting (2018)  
*“Dark Matter Detection with Argon”*  
Royal Society Meeting on the Future of Dark Matter (2017)  
*“The Future of Directional Detection”*  
GRAPPA@5, Invited Plenary (2017)  
*“Dark Matter Direct Detection Experiment”*  
XLV Meeting on Fundamental Physics, Invited Plenary (2017)  
*“Dark Matter Direct Detection Experiment”*  
Intl. Symposium on Revealing the Universe with Underground Physics, Invited Plenary (2016)  
*“Dark Matter Direct Detection with the DEAP-3600 Experiment”*  
APPEC European Town Meeting, Invited Plenary (2016)  
*“Dark Matter Strategy in Europe”*  
American Physical Society, Division of Particles and Fields, Invited Plenary (2015)  
*“Dark Matter Direct Detection”*

European Physical Society, Conference on High Energy Physics, Invited Plenary (2015)  
*“Dark Matter Direct Detection”*

University of Washington, Boris A. Jacobsen Memorial Lecture (2015)  
*“New Directions in Dark Matter Detection”*

4th Workshop on Flavor Symmetries and Consequences in Accelerators and Cosmology (2014)  
*“Dark Matter Direct Detection”*

Interplay of Particle and Astroparticle Physics (2014)  
*“Dark Matter Direct Detection with the DEAP3600 Experiment”*

National Academy of Sciences China-U.S. Kavli Frontiers of Science Symposium (2012)  
*“Dark Matter Direct Detection”*

American Physical Society April Meeting, Plenary Speaker (2012)  
*“Searching for the Dark Matter Wind: Directional Dark Matter Detection”*

Dark Matter Silver Jubilee Symposium (2012), *“Directional Detection”*

X Symposium on Sources and Detection of Dark Matter and Dark Energy in the Universe, Plenary Speaker (2012), *“Recent Progress from the DMTPC Dark Matter Experiment”*

Caltech Physics Research Conference (2011)  
*“Directional Detection: Searching for the Dark Matter Wind”*

XII International Conference on Topics in Underground and Astroparticle Physics (2011)  
*“Recent Progress from the MiniCLEAN Dark Matter Experiment”*

XI International Conference on Particles and Nuclei in Collision (2011),  
*“Status and Prospects of the DMTPC Dark Matter Experiment”*

World Science Symposium, New York University, Dark Matter Panelist (2011)

XXIV International Conference on Neutrino Physics and Astrophysics (2010)  
*“Directional Detection for Dark Matter and Neutrino Physics”*

National Academy of Sciences Indo-U.S. Kavli Frontiers of Science Symposium (2009)  
*“Neutrino Physics at the Intensity Frontier”*

XXIII International Conference on Neutrino Physics and Astrophysics, Plenary Speaker (2008)  
*“Neutrino Backgrounds to Dark Matter Searches and Directionality”*

1st International Cygnus Workshop on Directional Detection, Boulby Laboratory (2007)  
*“Neutrino Backgrounds to Dark Matter Searches”*

Aspen Electroweak Conference, Plenary Speaker (2007)  
*“Progress Toward MiniBooNE Oscillation Results”*

Caltech Kellogg Seminar (2007) *“First MiniBooNE Oscillation Results”*

MIT, Laboratory for Nuclear Science Seminar (2007) *“1st MiniBooNE Oscillation Results”*

International Workshop on Neutrino Factories, Super Beams, and Beta Beams (2005)  
*“MiniBooNE  $\nu_\mu$  CC  $\pi^+$ /CCQE Cross Section Ratio”*

International Workshop on Neutrino-Nucleus Interactions in the Few-GeV Region, Plenary Speaker (2004) *“CCQE Cross Section Models in Neutrino Event Generators”*

Fermi National Accelerator Laboratory Annual Users Meeting (2000)  
*“Results of the First Feasibility Study for a Neutrino Factory”*

#### **ORGANISATION OF CONFERENCES, SELECTED:**

17th International Conference on Topics in Astroparticle and Underground Physics, International Scientific Committee (2021)

Light Detection in Noble Elements, International Scientific Committee (2019)

Statistical Methods in Dark Matter Detection, Scientific Program Committee (2019)

International Cosmic Ray Conference, International Scientific Committee (2017)

Institute of Physics HEP and APP Annual Meeting, Organizing Committee Chair (2014)

Kavli Foundation Indo-US Frontiers of Science Symposium, Program Committee (2011)

19th Particles and Nuclei International Conference, Scientific Program Committee (2011)

## SCIENTIFIC TRACK RECORD:

My major scientific achievements to date have been:

- The world's first dark matter limit from a single-phase liquid argon detector. My contributions were to improve particle ID performance using pulse shape discrimination by an order of magnitude, through photon counting algorithm development, design and delivery of the DEAP-3600 detector calibration systems, producing the world-best electron discrimination in any liquid noble detector.
- To pioneer detector technology capable of measuring the dark matter wind, as the P.I. of the DMTPC experiment. I developed hybrid optical and charge time projection chamber readout for directional detection, and led the world-leading directional dark matter result (at publication).
- To demonstrate the potential of direction-sensitive detection at low energy for neutrinos and dark matter. I led the first white paper in the field of directional dark matter detection, developed the phenomenology of the applications of directional detection, culminating in high-impact review papers, and exploration of the applications of this technique for geo-neutrino spectroscopy.
- I led the CERN P-355 test beam experiment in 2018, demonstrating for the first time optical readout of a high pressure time projection chamber (HPTPC) detector for neutrino oscillation near detectors. This work is influential in my field: HPTPC has been selected for the DUNE near detector suite, and is the basis of an AIDAinova work package, led by a postdoctoral researcher in my group.
- The first calculation of solar and atmospheric neutrino backgrounds to dark matter direct detection searches. This work has had wide impact, with "the neutrino bound" setting the goalposts for direct dark matter detection searches, and for the first time highlighting the potential of dark matter detector technology for discovering coherent neutrino scattering.
- The world's most precise measurement of the  $^8\text{B}$  solar neutrino flux (at the time of publication) in the SNO experiment. I led the systematic uncertainty analysis for this measurement.
- The world's first measurement of the neutrino charged current quasi elastic scattering cross section on carbon in the 1 GeV neutrino energy regime. This measurement underpinned the 28 publications from the MiniBooNE experiment. The analysis methods originated in this work were influential in subsequent accelerator-based neutrino experiments.
- To develop the technique of a combined disappearance and appearance search in neutrino oscillations, in MiniBooNE. This approach is now used in most long-baseline neutrino oscillation searches.

### *Publication summary:*

I have 82 peer-reviewed publications, of which 2 are renowned (500+ cites), 9 famous (250-500 cites), 14 very well known (100-249 cites), 12 well-known (50-99 cites). My h-index is 46.

## PEER REVIEWED PUBLICATIONS:

- DEAP-3600 Collaboration (P. Adhikari et al.), “First direct detection constraints on Planck-scale mass dark matter with multiple-scatter signatures using the DEAP-3600 detector,” submitted for publication, arXiv:2108.09405.
- J. McLoughlin, et al., “Characterisation of SiPM Photon Emission in the Dark,” *Sensors* 21 (2021) 17, 5947.
- DEAP-3600 Collaboration (P. Adhikari et al.), “Pulse shape discrimination against low-energy Ar-39 beta decays in liquid argon with 4.5 tonne-years of DEAP-3600 Data,” submitted for publication, arXiv:2103.12202.
- A. Deisting et al., “Commissioning of a High Pressure Time Projection Chamber with Optical Readout,” *Instruments* 5 (2021) 2, 22.
- DarkSide Collaboration (P. Agnes et al.), “Separating Ar-39 from Ar-40 by Cryogenic Distillation with ARIA for Dark Matter Searches,” *Eur. Phys. J. C* 81 (2021) 4, 359.
- DarkSide Collaboration (P. Agnes et al.), “Sensitivity of Future Liquid Argon Dark Matter Search Experiments to Core-Collapse Supernova Neutrinos,” *JCAP* 03 (2021) 043.
- PlomBox Collaboration (A. Aguilar-Arevalo et al.), “Characterization of Germanium Detectors for the First Underground Laboratory in Mexico,” *JINST* 15 (2020) 11, P11014.
- PlomBox Collaboration (A. Aguilar-Arevalo et al.), “Dosimetry and Calorimetry Performance of a Scientific CMOS Camera for Environmental Monitoring,” *Sensors* 20 (2020) 20, 5746.
- DarkSide Collaboration (C. E. Alseth et al.), “SiPM Matrix Readout of Two-Phase Argon Detectors using Electroluminescence in the Visible and NIR Range,” arXiv:2004.02024.
- S. B. Jones et al., “Off-Axis Characterization of the CERN T10 Beam for Low Momentum Proton Measurements with a High Pressure Gas Time Projection Chamber,” *Instruments* 4 (2020) 3, 21.
- SNO Collaboration (B. Aharmim et al.), “Search for HEP Solar Neutrinos and the Diffuse Supernova Neutrino Background Using All Three Phases of the Sudbury Neutrino Observatory,” *Phys. Rev. D* 102 (2020) 6, 062006.
- DEAP-3600 Collaboration (R. Ajaj et al.), “Constraints on Dark Matter=Nucleon Effective Couplings in the Presence of Kinematically Distinct Halo Substructures using the DEAP-3600 Detector,” *Phys. Rev. D* 102 (2020) 8, 082001.
- DEAP-3600 Collaboration (R. Ajaj et al.), “The Liquid Argon Scintillation Pulse Shape in DEAP-3600,” *Eur. J. Phys. C* 80 (2020) 4, 303.
- R. K. Ellis et al., “Physics Briefing Book: Input for the European Strategy for Particle Physics Update 2020,” arXiv:1910.11775.
- SNO Collaboration (B. Aharmim et al.), “Cosmogenic Neutron Production at the Sudbury Neutrino Observatory,” *Phys. Rev. D* 100 (2019) 11, 112005.
- DEAP-3600 Collaboration (R. Ajaj et al.), “Electromagnetic Backgrounds and Potassium-42 Activity in the DEAP-3600 Dark Matter Detector,” *Phys. Rev. D* 100 (2019) 7, 072009.
- SNO Collaboration (B. Aharmim et al.), “Measurement of Neutron Production in Atmospheric Neutrino Interactions at the Sudbury Neutrino Observatory,” *Phys. Rev. D* 99 (2019) 11, 112007.
- M. Akashi-Conquest et al., “Triplet Lifetime in Gaseous Argon,” *Eur. J. Phys. A* 55 (2019) 10, 176.
- DEAP-3600 Collaboration (R. Ajaj et al.), “Search for Dark Matter with a 231-day Exposure of Liquid Argon using DEAP-3600 at SNOLAB,” *Phys. Rev. D* 100 (2019) 2, 022004.
- SNO Collaboration (B. Aharmim et al.), “Constraints on Neutrino Lifetime from the Sudbury Neutrino Observatory,” *Phys. Rev. D* 99 (2019) 3, 032013.
- DEAP-3600 Collaboration (P.-A. Amaudruz et al.), “Design and Construction of the DEAP-3600 Dark Matter Detector,” *Astropart. Phys.* 108 (2019) 1-23.
- SNO Collaboration (B. Aharmim et al.), “Tests of Lorentz Invariance at the Sudbury Neutrino Observatory,” *Phys. Rev. D* 98 (2018) no.11, 112013.

- MiniBooNE Collaboration (A. A. Aguilar-Arevalo et al.), “Significant Excess of Electron-Like Events in the MiniBooNE Short Baseline Neutrino Experiment,” *Phys.Rev.Lett.* 121 (2018) no. 22, 221801.
- M. Leyton, S. Dye, J. Monroe, “Exploring the hidden interior of the Earth with directional neutrino measurements,” *Nature Communications* 8 (2017) 15989.
- C.E. Aalseth et al., “DarkSide-20k: A 20 Tonne Two-Phase LAr TPC for Direct Dark Matter Detection at LNGS,” *Eur.Phys.J.Plus* 133 (2018) 131.
- DEAP-3600 Collaboration (P.-A. Amaudruz et al.), “First results from the DEAP-3600 dark matter search with argon at SNOLAB,” *Phys.Rev.Lett.* 121 (2018) no.7, 071801.
- DEAP Collaboration (P.-A. Amaudruz et al.), “In-situ characterization methods for the Hamamatsu R5912 photomultiplier tubes used in the DEAP-3600 experiment,” *NIM A922* (2019) 373.
- DarkSide Collaboration (C.E. Aalseth et al.), “Cryogenic Characterization of FBK RGB-HD SiPMs,” *JINST* 12 (2017) no.09, P09030.
- Cosmin Deaconu et al., “Measurement of the directional sensitivity of Dark Matter Time Projection Chamber detectors,” *Phys.Rev. D95* (2017) no.12, 122002.
- SNO Collaboration (B. Aharmim et al.), “Search for neutron-antineutron oscillations at the Sudbury Neutrino Observatory,” *Phys.Rev. D96* (2017) no.9, 092005.
- A. Butcher, L. Doria, J. Monroe, F. Retière, B. Smith, J. Walding, “A method for characterizing after-pulsing and dark noise of PMTs and SiPMs,” *Nucl.Instrum.Meth. A875* (2017) 87-91.
- A. Butcher, R. Kirk, J. Monroe, S.M. West, “Can Tonne-Scale Direct Detection Experiments Discover Nuclear Dark Matter?” *JCAP* 1710 (2017) no.10, 035.
- J. Battat, *et al.* “Readout Technologies for Directional Detection,” *Phys.Rept.* 662 (2016) 1-46.
- P. A. Amaudruz *et al.*, “Measurement of the Scintillation Time Spectra and Pulse Shape Discrimination of Low-Energy Beta and Nuclear Recoils in Liquid Argon with DEAP-1” (2016) *Astropart. Phys.* 85 (2016) 1-23.
- F. Mayet, A. Green, J. Battat, J. Billard, N. Borzognia, G. Gelmini, P. Gondolo, B. Kavanagh, S. Lee, D. Loomba, J. Monroe, B. Morgan, C. O’Hare, A. Peter, N. Phan, S. Vahsen, “A Review of the Discovery Reach of Directional Detection,” *Physics Reports* 627 (2016) 1-49.
- Hyper-K Collaboration, “Physics Potential of a Long Baseline Neutrino Oscillation Experiment using a J-PARC Neutrino Beam and Hyper-Kamiokande,” *PTEP* 2015 (2015) 053C02.
- R. Abruzzio, B. Buck, S. Jaditz, J. Kelsey, J. Monroe, K. Palladino, “Design of the MiniCLEAN Dark Matter Search Veto Detector Subsystem,” *NIM A* 781 (2015) 78.
- M. Akashi-Ronquest, *et al.*, “Improving Photoelectron Counting and Particle Identification in Scintillation Detectors with Bayesian Techniques,” *Astropart. Phys.* 65 (2014) 40.
- P. Grothaus, M. Fairbairn, J. Monroe, “Directional Detection Beyond the Neutrino Bound,” *Phys. Rev. D* 90 (2014) 055018.
- B. Aharmim *et al.*, “A Search for Astrophysical Burst Signals at the Sudbury Neutrino Observatory,” *Astropart. Phys.* 55 (2014) 1-7.
- J. B. R. Battat *et al.*, “The Dark Matter Time Projection Chamber 4Shooter Directional Dark matter Detector: Calibration in a Surface Laboratory,” *Nucl. Instrum. Meth. A755* (2014) 6-19.
- B. Aharmim *et al.*, “Measurement of the  $\nu_e$  and Total 8B Solar Neutrino Fluxes with the Sudbury Neutrino Observatory Phase-III Data Set,” *Phys. Rev. C* 87 015502 (2013).
- A. A. Aguilar-Arevalo *et al.*, “Test of Lorentz and CPT violation with Short Baseline Neutrino Oscillation Excesses,” *Phys. Lett. B718* (2013) 1303.
- B. Aharmim *et al.*, “Combined Analysis of all Three Phases of Solar Neutrino Data from the Sudbury Neutrino Observatory,” *Phys. Rev. C88* (2013) 025501.
- K. B. M. Mahn *et al.*, “Dual baseline search for muon neutrino disappearance at  $0.5 \text{ eV}^2 < \Delta m^2 < 40 \text{ eV}^2$ ,” *Phys. Rev. D85* (2012) 032007.
- J. P. Lopez *et al.*, “Background Rejection in the DMTPC Dark Matter Search Using Charge Signals,” *NIM A696* (2012) 121-128.



- B. Beltran *et al.*, “Full Simulation of the Sudbury Neutrino Observatory proportional counters,” *New J. Phys.* 13 073006 (2011).
- B. Aharmim *et al.*, “Low Multiplicity Burst Search at the Sudbury Neutrino Observatory,” *Astrophys. J.* 728 (2011) 83.
- B. Aharmim *et al.*, “Combined Analysis of all Three Phases of Solar Neutrino Data from the Sudbury Neutrino Observatory,” *New J. Phys.* 13 (2011) 073006.
- S. Ahlen *et al.*, “First Dark Matter Search Results from a Surface Run of the 10-L DMTPC Directional Dark Matter Detector,” *Phys. Lett.* B695 (2011).
- A. A. Aguilar-Arevalo *et al.*, “Measurement of Neutrino-Induced Charged-Current Charged Pion Production Cross Sections on Mineral Oil at  $E_{\nu} \sim 1$  GeV” *Phys. Rev.* D83 (2011) 052007
- A. Aguilar-Arevalo *et al.*, “First Measurement of the Muon Neutrino Charged Current Quasi-Elastic Double Differential Cross Section,” *Phys. Rev.* D81:092005 (2010).
- A. A. Aguilar-Arevalo *et al.*, “Measurement of Neutrino-Induced Charged-Current Neutral Pion Production Cross Sections on Mineral Oil at  $E_{\nu} \sim 1$  GeV,” *Phys. Rev.* D82 (2010) 092005.
- A. A. Aguilar-Arevalo *et al.*, “Measurement of Neutrino Neutral Current Cross Sections on Mineral Oil at  $E_{\nu} \sim 1$  GeV,” *Phys. Rev.* D82 (2010) 092005.
- S. Ahlen *et al.*, “The Case for a Directional Dark Matter Detection and the Status of Current Experimental Efforts,” *Int. J. Mod. Phys.* A25:1-51 (2010).
- B. Aharmim *et al.*, “Low Energy Threshold Analysis of the Phase I and Phase II Data Sets of the Sudbury Neutrino Observatory,” *Phys. Rev.* C81:055504 (2010).
- T. Caldwell *et al.*, “Transport Properties of Electrons in CF<sub>4</sub>,” arXiv:0905.2549 (2009), submitted to *Nucl. Instrum. Meth. A*.
- A. Roccaro *et al.*, “A Background-Free Direction-Sensitive Neutron Detector,” *NIM A* 608:305-309 (2009).
- A. A. Aguilar-Arevalo *et al.*, “Measurement of the  $\nu(\mu)$  Charged Current  $\pi^+$  to Quasi-Elastic Cross Section Ratio on Mineral Oil in an 8 GeV Neutrino Beam,” *Phys. Rev. Lett.* 103:081801 (2009).
- A. A. Aguilar-Arevalo *et al.*, “A Search for Muon Neutrino and Anti-neutrino Disappearance in MiniBooNE,” *Phys. Rev. Lett.* 103:061802 (2009).
- B. Aharmim *et al.*, “Measurement of the Cosmic Ray and Neutrino-Induced Muon Flux at the Sudbury Neutrino Observatory” *Phys. Rev.* D80:012001 (2009).
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