CHRISTINE A. AIDALA
Curriculum vitae as of July 2025

Physics Department, University of Michigan
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Research interests: High-energy experimental nuclear physics; nucleon structure; hadronization; parton dynamics in QCD; QED/QCD analogs; mathematical foundations of physics.

EDUCATION:
Columbia University Ph.D. program, Physics, 2002-05. M.A. 2004. M.Phil. 2005. Ph.D. 2005.
University of Chicago Ph.D. program, Physics, 1999-2000. Medical leave starting March 2000.
Yale University 1995-99. B.S. in Physics, B.S. in Music 1999.

RESEARCH POSITIONS HELD:
September 2020-present. **Professor of Physics, University of Michigan**.

March-June 2020. **Visiting Professor, Short-Term, University of Milan, Italy**.

September-November 2019. **Fulbright U.S. Scholar, University of Pavia, Italy**.

September 2016-August 2020. **Associate Professor of Physics, University of Michigan**.

September 2012-August 2016. **Assistant Professor of Physics, University of Michigan**.

January-July 2012. **Scientist 2, Los Alamos National Laboratory**.

January 2009-December 2011. **Frederick Reines Distinguished Postdoctoral Fellow, Los Alamos National Laboratory**, PHENIX and E906/SeaQuest.

January 2006-December 2008. **Postdoctoral Research Associate, UMass Amherst**, PHENIX.

September 2002-December 2005. **Graduate Research Assistant, Columbia University**, PHENIX. Thesis advisor: B.A. Cole.

September 2001-August 2002. **Physics Associate, Brookhaven National Laboratory**, PHENIX.

RESEARCH FUNDING:
External funding:
John Templeton Foundation. *Why classical probability and classical information theory are incompatible with quantum mechanics and quantum contextuality*, Sep 1, 2023-Aug 31, 2026. Project Lead (PI). $210,874

National Science Foundation. *Studying quantum chromodynamics at LHCb*, Jul 1, 2020-Jun 30, 2026. Sole PI. $736,406 (2023-26). $697,969 (2020-23).

Department of Energy Office of Nuclear Physics. *Partonic transverse momentum effects in PHENIX and beyond*, Apr 15, 2015-Apr 14, 2027. Sole PI. $2,202,000

National Science Foundation. *AccelNet-Design: Inter-American Network of Networks on Quantum Chromodynamics Challenges*, Sep 1, 2021-Aug 31, 2024. Co-PI. U-M share: $38,556

American Physical Society Women in Physics Group Grant. *Creating an Advocacy Lending Library for the University of Michigan Physics Department.* Mar 2023-Oct 2023. Co-PI. $1,000

Department of Energy subcontract through Brookhaven National Lab. *Silicon photomultiplier testing for sPHENIX.* Mar 2019-Mar 2020. Sole PI. $7,948

National Science Foundation. *CAREER: Valence and Sea Quark Dynamics at Fermilab*, July 1, 2015-June 30, 2021. Change of scope authorization for work on LHCb at CERN, Oct 2017. Sole PI. $738,082

2015 Sloan Research Fellowship. Sole PI. $50,000

Internal U. of Michigan funding:
MCubed Program. *From physical assumptions to thermodynamics and statistical mechanics.* Nov 2018-May 2021. In collaboration with David J. Baker (Philosophy), Gabriele Carcassi (Physics), Kai Sun (Physics). $60,000

Associate Professor Support Fund. *Studying proton structure and quantum chromodynamics at the LHCb experiment.* Jul 2018-Jun 2020. Sole PI. $100,000

MCubed Program. *From physical principles to Hamiltonian and Lagrangian dynamics.* Nov 2015-Apr 2018. In collaboration with David J. Baker (Philosophy), Lydia Bieri (Mathematics), Gabriele Carcassi (Physics). $15,000

2015 Michigan Memorial Phoenix Project. *Development of a prototype liquefied noble gas detector to measure 200 keV to 10 MeV neutrons.* Sole PI. $25,000

2014 Elizabeth Caroline Crosby Faculty Grant. Sole PI. $20,000

2013 Transforming Learning for Third Century QuickWins. *Student experiments in biomedical physics: A journey to inner space.* Co-PI with Fred Becchetti, Thomas Schwarz, and Ramon Torres-Isea.

AWARDS AND RECOGNITION:
Rackham Distinguished Graduate Mentor Award, U. of Michigan, 2025.

Partnerships for Access, Community, and Excellence (PACE) Fellowship, U. of Michigan, 2024. For faculty mentors who have demonstrated commitment to graduate program climate and student success.

Fellow, American Physical Society, Division of Nuclear Physics, 2023. *"For a series of impressive experiments aimed at elucidating the flavor and spin structure of the proton in terms of the quarks and gluons of QCD, conducted at high-energy facilities in both the USA and Europe."*

Nominee, U. of Michigan Advising Council Outstanding Advisor Award, for graduate and undergraduate research advising, 2021-22.

U. of Michigan John Dewey Award, for long-term commitment to the education of undergraduate students, 2020.

Presidential Early Career Award for Scientists and Engineers (PECASE) from President Donald Trump, 2015 nominee through the National Science Foundation, 2019.

Fulbright U.S. Scholar Award 2019-20, to perform research at U. of Pavia, Italy.

Nominee, Alexander M. Cruickshank Award, Board of Trustees, Gordon Research Conferences, 2019, 2014.

U. of Michigan Imes and Moore Mentorship Award, for exceptional contributions toward recruiting and mentoring graduate students in the sciences from disadvantaged and non-traditional backgrounds, 2019.

Nominee, U. of Michigan Golden Apple Teaching Award, selected by consideration of student nominations from across the entire university, 2019.

Kavli Fellow, 2016.

Sloan Research Fellowship, 2015.

National Science Foundation CAREER Award, 2015.

Willie Hobbs Moore: Aspire, Advance, Achieve Award, for outstanding service as a mentor to the U-M Society of Women in Physics, University of Michigan, 2014.

Essayist for *Blazing the Trail: Essays by Leading Women in Science*. E. Ideal and R. Meharchand, eds. CreateSpace Independent Publishing, 2013.

Distinguished Women Physicists Lecture Series colloquium speaker, U. of Connecticut, 2012.

Invited Fellow, 50th anniversary celebration of the International School on Subnuclear Physics, Erice, Italy, June–July 2011. Organized by G. 't Hooft and A. Zichichi.

Sambamurti Memorial Lectureship, BNL, 2008. *"For her contributions to the RHIC Spin Program, notably her leadership in the measurement of the transverse spin structure of the proton using pions."*

Vernon Hughes Travel Fellowship, 2004.

Luise Meyer-Schutzmeister Award, Association for Women in Science, 2004.

GAANN Fellowship, U.S. Department of Education, through University of Chicago, 1999.

Scholarship Recipient, Long Island Chapter of the **American Nuclear Society**, 1999.

Nominee for **Barry M. Goldwater Scholarship**, Yale University, 1998.

TEACHING AND MENTORSHIP EXPERIENCE:
Teaching at U. of Michigan:
Physics 240: **General Physics II: Electricity & Magnetism (Studio section)**, W24, F24, W25, F25.
Physics 406: **Thermal and Statistical Physics**, F20, W21, F21, F22, F23.
Physics 457: **Particle Physics and Cosmology**, W22.
Physics 288/489: **The Physics of Music**, W15, W16, W17, W19.
Physics 391: **Introduction to Modern Physics Laboratory**, W18.
Physics 401: **Intermediate Mechanics**, F16, F17, F18.
Physics 405: **Intermediate Electricity and Magnetism**, F14, F15.
Physics 351: **Mathematical Methods of Theoretical Physics I**, F12, W13, F13.

The Physics of Music, U. of Milan, Italy Mar 2020. 10-hour course for Physics Master's students.

Lecturer, U. of Milan, Italy, *QCD and Baryon Polarization.* Six hours of lectures aimed at doctoral students in theoretical and experimental high-energy physics.

Lecturer, U. of Muenster "Strong and Weak Interactions" Research Training Group Retreat, *Nucleon Structure and the Electron-Ion Collider*, Koerbecke, Germany, Sep 2018. Three hours of lectures aimed at graduate students in theoretical and experimental nuclear, particle, and astroparticle physics.

Lecturer, 26th International Conf. on Ultrarelativistic Heavy Ion Collisions (Quark Matter) Student Day, *The Electron-Ion Collider: A New Tool for Studying QCD.* Chicago, IL, Feb 2017.

Lecturer, 31st Hampton University Graduate Studies (HUGS) Program at Jefferson Lab, *Transverse-Momentum-Dependent Parton Distributions and Color Entanglement.* Jefferson Lab, June 2016. Six hours of lectures aimed at graduate students in hadronic physics.

Guest Lecturer, U. of Kansas, Graduate Nuclear Physics, March 2015.

Lecturer, European Graduate School on Complex Systems of Hadrons and Nuclei (HANUC), *The Structure of the Nucleon.* Turin, Italy, March 2009. Three hours of lectures aimed at graduate

students in hadronic physics.

Teaching and mentoring development activities:
University of Southern California Motivation and Education Research Group (USC MERG) - Certificate in Engaging and Empowering Teaching Methods - 2025.
U-M Center for Research on Learning and Teaching (CRLT) Seminar - You Don't Belong Here: The Stories our Systems Tell (and Why We Have to Disrupt Them) - Oct 2021.
U-M CRLT Seminar - Designing and Facilitating Group Work in Blended/Online Courses – Oct 2020.
National Center for Faculty Development & Diversity Webinar – Developing Anti-Oppressive Communities: Supporting Black Students and Mentees – Aug 2020.
U-M CRLT Workshop, CUTS: Responding to Student Climate Concerns, Feb 2019.
U-M MORE Workshop on Grad Student Mentoring, Feb 2018.
U-M Rackham Diversity Ally Workshop, including crisis intervention training, Jun 2017.
University Musical Society Mellon Faculty Institute on Arts Academic Integration, 2015–2017.
Inclusive Teaching at Michigan Series: Leveraging Group Work and Teams in STEM Courses to Enhance Student Learning, May 2016.
Inclusive Teaching at Michigan Series: A Thousand Cuts: Responding to Student Climate Concerns, May 2016.
American Association of Physics Teachers New Faculty Workshop, Jun 2015.
U-M Provost's Seminar on Teaching: Flipping the Classroom, May 2013.
U-M LSA Teaching Academy, Aug 2012.

Postdoctoral supervisees:

- Dillon S. Fitzgerald, 2024-present
- Sookhyun Lee, 2019-22
- Joseph D. Osborn, 2018-19
- Michael Skoby, 2016-18
- Vincent Andrieux, 2015
- Vera R. Loggins, 2014-15
- Joshua G. Rubin, 2012-15

Student advising and thesis committee membership:

- Ph.D. advisor, Tobias Thrien, May 2025-present
- Ph.D. advisor, Esteban F. Molina Cárdenas, May 2024-present
- Ph.D. advisor, Manuel Ramírez García, May 2023-present
- Ph.D. advisor, Devon A. Loomis, Sep 2021-present
- Ph.D. advisor, Desmond M. Shangase, May 2019-present
- Ph.D. advisor, Ibrahim Chahrour, Jan 2022-April 2025.
- Ph.D. advisor, Dylan Manna, Jan 2024-Jun 2024 (nontraditional student)
- Ph.D. advisor, Cynthia Nuñez, May 2019-Jun 2024

- Ph.D. advisor, Dillon S. Fitzgerald, May 2019-Dec 2023
- Ph.D. co-advisor, Jenia Rousseva (Applied and Interdisc. Mathematics), Oct 2019-Jul 2022
- Ph.D. advisor, Kara R. Mattioli, Feb 2018-Apr 2022
- Ph.D. advisor, Jordan D. Roth, Jan 2018-Dec 2021 (deceased)
- Ph.D. advisor, Nicole A. Lewis, May 2016-Aug 2020
- Ph.D. advisor, Catherine Ayuso, Jan 2015-Apr 2020
- Ph.D. advisor, Joseph D. Osborn, May 2014-Jun 2018
- Ph.D. advisor, Bryan J. Ramson, May 2013-Dec 2017
- Ph.D. co-advisor, Michael Febbraro, May 2013-Aug 2014
- Master's advisor, Enrique A. Gamez, Jan 2018-Aug 2019
- Master's advisor, William M. Dean, May 2017-Aug 2018
- Undergraduate research advisor for (* indicates honors/senior thesis student) Junde (Jacky) Song, Ruide Xu*, Mingyang (Shaun) Gu, Cheng Chiu, Sasha Bacon, Xiaolin (Lynn) Rong, José Marco (Marcos) Arias*, Sharif Velasquez, Saja Gherri, Abigail Feyrer*, Evan W. Croft, Ryan Cosper*, Joseph M. Ryan*, Christopher Platte, Jacob Repucci, Varshney Rangan, Julia Marchese, Nicole Kuchta, Al Kucich, Liam Blanchard, Luc Le Pottier*, Yuxi Xie, Anna Cooleybeck, Nathan Monahan, Micah Johnson*, Waleed El Rawi, Nikhil Shankar, Erik Loyd, Hayden Hansen, Yanyu (Jessen) Jia, Ruby Araj, Nicholas W. Kamp, Emily C. Camras, Ezra D. Lesser*, R. Tyler Read, Isaac Mooney, McKenzie Barber, Robert Cernak, Matthew Wood, Emily Cizmas, Aaron S. White*, Catherine M. Culkin, U. of Michigan; Nana Ozaki, MJ Khan, Yijin (Jessie) Guo, Jem Guhit, Ashley Cavanagh, Puyang Ma, Mt. Holyoke College; Athira K V, IISER Pune, India; Meghan E. Tanner, Lock Haven U.
- Research advisor for high school students Devayani Pradhan, Benjamin Kovacs, Swapnil Akunuri, Shantanu Deshmukh
- Dissertation committee - I. Mendoza, J. Guhit, M. Yuan, N. Kyriacou, F. Hills, L. Simpson, R. Saskowski, N. Wuerfel, P. Arvind Atmasiddha, S. Zhang, C. Hendrus, C.R. Barnes, R. Fitzpatrick, A.S. White, A. Tewsley-Booth, D. Morton, S. Su, H. Liu, W. Guo, H.C. Cheng, M. Bales (Physics); M. Scott (Applied Physics); M.J. Greenfield (Math); C. Graham, N. Giha, O. Searfus, K. Beyer, D. Shy, M. Monterial, M. Paff, A. Trahan (Nuclear Engineering); Q. Qian (Electrical and Computer Engineering); S. Yu (Organ Performance); J. Ren, J. Cho, J.H. Gwak (Piano Performance), U. of Michigan; I. Mooney, J. Pan, Wayne State U.; T. Engelmore, Columbia U.
- Prospectus committee - T. Baer, C. Jansohn, B. Bogart, C. Little, M. Yuan, L. Barrowes, J. Guhit, L. Simpson, N. Wuerfel, R. Fitzpatrick, C.R. Barnes, C. Hendrus, F. Hills, D. Morton, A. Tewsley-Booth, S. Su, Z. Qu (Physics), O. Searfus, K. Beyer, N. Giha, D. Shy (Nuclear Engineering), L. Yourston (Biophysics), U. of Michigan; G. Kaur, Wayne State U.
- Sponsor for A. Datta as an Academic Affiliate, 2024-present
- Sponsor for D. Manna as a Visiting Scholar and Academic Affiliate, 2016-23
- Sponsor for T. Bhattacharyya as a Visiting Scholar, U. of Cape Town, Feb-Apr 2018

- Sponsor for R.J. Belmont, Vanderbilt U., as a Visiting Scholar at U. of Michigan to complete thesis, 2012
- Supervision of A. Datta, UMass Amherst, throughout thesis analyses, Sep 2007-Feb 2012
- Supervision of R. Han, Peking U., in completion of thesis analysis, May-Dec 2007

EDUCATIONAL AND PUBLIC OUTREACH AND PRESENTATIONS:
FIRST Robotics Mentor, 2024-25, for Team 1076, PiHi Samurai of Pioneer High School, Ann Arbor, MI.

Outreach on energy to high school students, Mar + Nov 2024 (sole presenter). In-person lecture + demos related to energy, on U-M campus with ∼80 high school students from Macomb Mathematics Science Technology Center.

Slauson Middle School Physics Demo Day, 2025 (co-lead), 2024 (co-lead), 2023 (lead), 2022, 2021 (lead), 2019, 2018, 2017, 2016, 2015, 2014, 2013. In-person demos with all 8th grade classes (online 2021, 2022), ∼250 students per year.

Public lecture: Advanced Studies Gateway talk, Facility for Rare Isotope Beams at Michigan State University, Dec 2023. *Seven Misconceptions in the Foundations of Physics.* `https://youtu.be/Tspocqlb5HA`.

Public lecture: U. of Michigan Saturday Morning Physics series, Oct 2021. *The Physics of Music.* `https://youtu.be/7Fpf_3YK02k`.

Scientific Sense podcast guest, May 2021. Gill Eapen, host. Discussed quantum chromodynamics and the presence of antimatter within the proton. `https://anchor.fm/scientificsense/episodes/Prof--Christine-Aidala--Professor-of-Physics-at-the-University-of-Michigan-evu4sd`

STEMTober Natural Sciences talk, Oct 2020. One-hour live online presentation for middle and high school students, organized by STEM Enrichment Youth. *Peering Into the Proton.*
`https://youtu.be/hdqMu9TAOmg`.

STEM World Convention talk, Aug 2020. Half-hour live online presentation for middle and high school students, organized by STEM Enrichment Youth. *Peering Into the Proton.*
`https://youtu.be/qOFUBYdq_pI`.

Yale Reunions public talk, May 2019. *Smashing Protons for a Living.*
`https://youtu.be/UrsyOzerbGY`

Public lecture: U. of Michigan Saturday Morning Physics series, Feb 2017. *The Antiups and Antidowns of Life: Studying Antiquarks in Hydrogen and Carbon.* `https://youtu.be/52xl0-8MPoM`

Volunteer, U-M Females Excelling More in Math, Engineering, and the Sciences Capstone Event, 2017, 2014. Performed demonstrations for 4th-6th grade students who came to campus.

Magnetism demonstrations, Lawton Elementary School, 2015. Worked with 3rd grade students in their classroom. Initiated, planned, and led activities.

Physics of sound demonstrations, Lawton Elementary School, 2014, 2015. Worked with all 2nd grade classes during their music hour. Initiated, planned, and led activities. Invited one undergrad assistant interested in science education each year.

U-M Society for Women in Physics Girl Scout Physics Day, 2013, 2014. Girl Scouts in 5th-8th grade came to campus for hands-on demonstrations.

Public lecture: U. of Michigan Saturday Morning Physics series, Mar 2013. *Peering Into the Proton.* `https://www.youtube.com/watch?v=iLNches_G6M`

INVITED CONFERENCE AND WORKSHOP PRESENTATIONS:
Seminars and colloquia listed separately below.
For a complete listing of all presentations, please see `http://www-personal.umich.edu/~caidala/index.html`.

16th Conference on Electromagnetic Interactions with Nucleons and Nuclei, Paphos, Cyprus, Oct-Nov 2025. *Experimental Perspective on Electromagnetic Hadron Physics.* (Opening plenary).

QCD at LHC, Stony Brook U., Sep 2025. *Hadronization in QCD: From Color to Confinement.* (Plenary).

Mexican Physical Society Division of Particles and Fields, Pachuca, Hidalgo, Mexico, May 2025. *Hadronization in QCD: From Color to Confinement.* (Plenary).

Future Opportunities at an Electron-Ion Collider XI, Florida International U., Feb 2025. *The Electron-Ion Collider: Tackling QCD from the Inside (of Nucleons and Nuclei) Out* (Opening plenary).

Inter-American Network of Networks for QCD Summit 2024 - The Future of QCD: Empowering New Talents and Building Global Networks, Washington, D.C., Jun 2024. *U.S. Perspectives on Long Range Plans.*

Workshop on New Particle and Nuclear Physics Developing in the Electron-Ion Collider, University of Tokyo, Japan, May 2024 (remote speaker). *Transverse-Momentum-Dependent Factorization, Color Flow, and Entanglement in QCD.*

31st International Workshop on Deep-Inelastic Scattering (DIS2024), Grenoble, France, Apr 2024. *The next QCD frontiers with the Electron-Ion Collider.* (Closing plenary)

International School and Workshop on Probing Hadron Structure at the Electron-Ion Collider, International Centre for Theoretical Sciences, Bangalore, India, Feb 2024. *Studying the Longitudinal Spin Structure of the Proton at the Electron-Ion Collider.*

APS Conference for Undergraduate Women in Physics, U. of Michigan, Jan 2024. *Probing*

the Proton: Entangled Personal and Particle Paths. (Plenary)

25th International Symposium on Spin Physics (SPIN2023), Duke U., Sep 2023. *Jets for spin physics: An experimental perspective.* (Plenary)

Inaugural Conference for the Illinois Center for Advanced Studies of the Universe, U. of Illinois Urbana-Champaign, May 2022. *How experimental requirements shape the mathematics of the laws of physics.*

Simons Center Workshop - Flowing into the Future: Particle Jets in Quantum Field Theory and Phenomenology, Stony Brook U., Mar 2022. *Studying parton showers and hadronization in jets at LHCb.*

Institute for Nuclear Theory Workshop on Fragmentation Functions, online (U. of Washington), Nov 2021. *Hadron-in-jet fragmentation functions: Experimental review.*

14th Conference on Electromagnetic Interactions with Nucleons and Nuclei, online (Paphos, Cyprus), Nov 2021. *Experimental Review of Nucleon Spin Measurements.*

Sardinian Workshop on Spin, hybrid (Cagliari, Italy), Sep 2021. *TMD Studies at the LHC: Overview of results.*

20th Zimanyi School Winter Workshop, online (Budapest, Hungary), Dec 2020. *The Electron-Ion Collider: A new tool for studying QCD.*

Jets for 3D Imaging at the Electron-Ion Collider Workshop, online (Berkeley, CA), Nov 2020. *Jets as jackknives: The hadronization tool.*

Workshop on Correlations in Partonic and Hadronic Interactions, CERN, Feb 2020. *Advancing hadronization: From inclusive production to multiparticle correlations.*

QCD with EIC, IIT Bombay, India, Jan 2020. *Setting the stage for hadronization studies at the Electron-Ion Collider.*

19th Zimanyi School Winter Workshop, Budapest, Hungary, Dec 2019. *The Electron-Ion Collider: A new tool for studying QCD.*

Workshop on Resummation, Evolution, Factorization (REF2019), Pavia, Italy, Nov 2019. *The Electron-Ion Collider: A facility to bring the era of quantitative QCD to maturity.*

Santa Fe Jets and Heavy Flavor Workshop, UCLA, Jan 2019. *New Heavy Flavor Results in Heavy Ion Collisions from LHCb.*

Inaugural Symposium of the Center for Frontiers in Nuclear Science, Stony Brook U., Nov 2018. *EIC User Group and the Findings of the National Academy of Science Review of the EIC.*

Probing Nucleons and Nuclei in High-Energy Collisions, Institute for Nuclear Theory, U. of Washington, Oct 2018. *Searching for TMD-factorization breaking in $p+p$ and p+A collisions:Color*

interactions in QCD.

Electron-Ion Collider User Group Meeting, Catholic U. of America, Jul 2018. *Studying the Nucleon Sea at the EIC.*

Society of Physics Students Zone 7 Meeting, U. of Michigan, Jan 2018. *Probing the Proton: Entangled Personal and Particle Paths.*

12th Conference on Electromagnetic Interactions with Nucleons and Nuclei, Paphos, Cyprus, Oct-Nov 2017. *Status and Plans for the Electron-Ion Collider.* (Plenary)

APS Division of Nuclear Physics Fall Meeting, Pittsburgh, PA, Oct 2017. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.* (Plenary)

Kavli Frontiers of Science Symposium, National Academy of Sciences, Irvine, CA, Oct 2016. *Peering Into the Proton: Proton Substructure and Internal Dynamics.*

Gordon Conference on Photonuclear Reactions, Holderness, NH, Aug 2016. *SeaQuest: Probing Protons and Nuclei with Dileptons.*

APS Conference for Undergraduate Women in Physics, Newport News, VA, Jan 2016. *Probing the Proton: Entangled Personal and Particle Paths.*

ECT* Workshop: From 1-D Fragmentation to 3-D Correlated Fragmentation, Trento, Italy, October 2015. *The Future of Hadronization: Thoughts from an Experimentalist.*

APS Division of Particles and Fields Meeting, Ann Arbor, MI, August 2015. *Advancing the Era of Quantitative QCD: Experiment.* (Plenary)

Conference on the Intersections of Particle and Nuclear Physics, Vail, CO, May 2015. *The Relativistic Heavy Ion Collider and Large Hadron Collider: Pushing Forward the Era of Quantitative QCD.* (Plenary)

International Workshop on Structure and Spectroscopy, Suzdal, Russia, May 2015. *Recent Results and Future Plans for Studying Proton Structure at Fermilab.*

APS Conference for Undergraduate Women in Physics, Ann Arbor, MI, Jan 2015. *Probing the Proton: Entangled Personal and Particle Paths.*

4th International Workshop on Nucleon Structure at Large Bjorken-x, Frascati, Italy, November 2014. *Nucleon Structure Physics at the Relativistic Heavy Ion Collider.*

APS Division of Nuclear Physics Fall Meeting, Waikoloa, HI, October 2014. *Accelerator Studies for Polarized Protons at the Fermilab Main Injector.*

Gordon Conference on Photonuclear Reactions, Holderness, NH, August 2014. *Parton Correlations In and Across Nucleons.*

4th International Workshop on Transverse Polarization Phenomena in Hard Processes (Transversity 2014), Chia, Italy, June 2014. *Transversity 2014 Closing Remarks: Moving Forward in the Era of Quantitative QCD.* (Workshop closing talk)

APS Division of Nuclear Physics Fall Meeting, RHIC Users Forum, Newport News, VA, October 2013. *Advancing QCD at RHIC by Studying the Partonic Bound States of Everyday Matter.*

APS Division of Nuclear Physics Fall Meeting, Newport Beach, CA, October 2012. *Entering the Electronic Age at RHIC: eRHIC.*

APS Division of Nuclear Physics Fall Meeting, East Lansing, MI, October 2011. *The Electron-Ion Collider: Tackling QCD from the Inside (of Nucleons and Nuclei) Out.*

Quarks, Hadrons, and LHC, Mumbai, India, August 2011. *Transverse-Momentum-Dependent Distributions and Transverse Spin Phenomena at RHIC.*

Gluons and the Quark Sea at High Energies: Workshop to develop the physics case of a high-energy Electron-Ion Collider, INT, U. of Washington, September-November 2010. *Probing QCD in Hadrons Through Transverse-Momentum-Dependent Distributions at RHIC–Or–Why Use Messy p+p Collisions to Study What's Happening Inside the Nucleon?*

Electromagnetic Interactions with Nucleons and Nuclei (EINN 2009) Workshop on Partonic Transverse Momentum Distributions, Milos, Greece, September-October 2009. *Single-Spin Asymmetries and Transverse-Momentum-Dependent Distributions at RHIC.*

18th International Symposium on Spin Physics (SPIN2008), Charlottesville, VA, October 2008. *Spin in Hadron Reactions.* (Plenary)

Gordon Conference on Photonuclear Reactions, Tilton, NH, August 2008. *Transverse Spin Physics at RHIC.*

2nd International Workshop on Transverse Polarization Phenomena in Hard Processes (Transversity 2008), Ferrara, Italy, May 2008. *Transversity and Transverse-Momentum-Dependent Distribution Measurements from PHENIX and BRAHMS.*

24th Winter Workshop on Nuclear Dynamics, South Padre Island, TX, April 2008. *Peering into Hadronic Matter: The Electron-Ion Collider.*

International Workshop on Structure and Spectroscopy, Freiburg, Germany, March 2007. *Recent Spin Physics Results from RHIC.*

Spin Structure of the Nucleon Workshop, Nashville, TN, October 2006. *Recent Spin Physics Results from PHENIX.*

International Workshop on Transversity: New Developments in Nucleon Spin Structure, ECT*, Trento, Italy, June 2004. *Single Transverse Spin Asymmetries at RHIC.*

SEMINARS AND COLLOQUIA:

Applied and Interdisciplinary Mathematics Student Seminar: U. of Michigan, Feb 2025. *Towards a Consistent Mathematical Foundation for All Physical Theories.* With Gabriele Carcassi.

Nuclear Physics Seminar: Catholic U. of America, Mar 2024. *Studying Hadronization at LHCb.*

Colloquium: Vanderbilt U., Feb 2024. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Physics Grad Student Symposium opening seminar by faculty, U. of Michigan, Jun 2023. *The Assumptions of Physics project.*

LHCb "Tuesday Meeting" Invited Topical Presentation, May 2023. *The Assumptions of Physics project.*

Center for Frontiers in Nuclear Science Seminar: Stony Brook U., Apr 2023. *Studying Hadronization at LHCb.*

Nuclear Physics Seminar: UIUC, Mar 2023. *The Next Decade of Cold QCD at Hadronic Facilities: Setting the Stage for the Electron-Ion Collider.*

Colloquium: Indiana U., Oct 2022. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Colloquium: U. of Nebraska Lincoln, May 2022. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Nuclear Theory Seminar: U. of Maryland, Oct 2021. *Studying Hadronization at LHCb.*

Applied and Interdisciplinary Mathematics Student Seminar: U. of Michigan, Sep 2021. *Assumptions of Physics: Project Overview.*

Elementary Particle Physics Seminar: U. of Warwick, UK, May 2021. *The Hazy Sea of QCD.*

Applied Physics Seminar: U. of Michigan, Mar 2021. *From Hadrons to Hidden Assumptions.*

Colloquium: Mississippi State U., Jan 2021. *The Electron-Ion Collider: Tackling Quantum Chromodynamics from the Inside (of Protons and Nuclei) Out.*

Seminar: U. of Pavia, Italy, Feb 2020. *Studying Hadronization at LHCb.*

Colloquium: U. of Pavia, Italy, Jan 2020. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Colloquium: Karlsruhe Institute of Technology, Germany, Oct 2019. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Colloquium: U. of Michigan, Sep 2019. *From Hadrons to Hidden Assumptions: My Recent Work in Quantum Chromodynamics and Foundations of Physics.*

HEP Seminar: Argonne National Lab, Apr 2019. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Seminar: Fermilab Equity, Diversity, and Inclusion series, Feb 2019. *A Journey In (and Out) of Physics.*

Seminar: U. of Michigan, Feb 2019. *Uncovering the Assumptions of Physics.*

Seminar: Yale, Mar 2018. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

CENPA Seminar: U. of Washington, Feb 2018. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Colloquium: Michigan State U., Jan 2018. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Nuclear and Particle Physics Colloquium: MIT, Nov 2016. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Seminar: UCLA, Oct 2016. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Colloquium: U. of Michigan, Oct 2015. *Frontiers in Quantum Chromodynamics.*

Colloquia: U. of Kansas, William & Mary, Mar, Jan 2015. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Seminar: Jefferson Lab, Jan 2015. *Spin-Momentum Correlations, Aharonov-Bohm, and Color Entanglement in Quantum Chromodynamics.*

Seminar: Penn State U., Jan 2015. *Measuring Polarization Effects in Proton-Proton and Muon-Nucleon Scattering.*

Seminar: Southern Methodist U., Dec 2014. *Investigating Proton Structure at the Relativistic Heavy Ion Collider.*

Seminar: Ohio U., Jan 2014. *Investigating Proton Structure at the Relativistic Heavy Ion Collider.*

Colloquium: U. of Notre Dame, Jan 2014. *From Quarks and Gluons to the World Around Us: Advancing Quantum Chromodynamics by Probing Nucleon Structure.*

Seminar: "University of D0," Fermilab, Mar 2013. *Investigating Proton Structure at the Relativistic Heavy Ion Collider.*

Seminar: Wayne State U., Jan 2013. *Investigating Proton Structure at the Relativistic Heavy Ion Collider.*

Colloquium: Triangle Nuclear Theory series, Duke U., Feb 2012. *The Electron-Ion Collider: Tackling QCD from the Inside (of Nucleons and Nuclei) Out.*

Colloquium: UConn, Jan 2012. *From Quarks and Gluons to the World Around Us: Understanding Quantum Chromodynamics by Exploring Nucleon Structure.*

Seminars: Los Alamos National Lab, Rutgers U., Sep - Oct 2011. *The PHENIX Decadal Plan: Crafting the Future of the Relativistic Heavy Ion Collider.*

Seminar: Stony Brook U., Feb 2011. *From Quarks and Gluons to the World Around Us: Advancing into the Era of Quantitative QCD via Investigation of Nucleon Structure.*

Seminars: DESY-Hamburg, DESY-Zeuthen, Germany, Oct 2010. *Investigating the Spin Structure of the Proton at the Relativistic Heavy Ion Collider.*

Seminar: Istituto Nazionale di Fisica Nucleare (INFN), Ferrara, Italy, Jun 2010. *Investigating the Spin Structure of the Proton at RHIC: Recent Results.*

Colloquium, Catholic U. of America, Dec 2009. *Getting Protons to Study Themselves: Investigating Proton Structure at the Relativistic Heavy Ion Collider.*

Seminar: Los Alamos National Lab, Oct 2009. *The Electron-Ion Collider: Tackling QCD from the Inside (of Nucleons and Nuclei) Out.*

Seminar: Jefferson Lab, May 2009. *Investigating the Spin Structure of the Proton at RHIC.*

Seminars: Los Alamos National Lab, Columbia U., Jan - Feb 2009. *Frontiers in Nucleon Structure.*

Seminars: Michigan State U., U. of Kentucky, Kent State U., 2008. *The Emerging QCD Frontier: The Electron-Ion Collider.*

Seminar: INFN Torino, Italy, Jun 2008. *Recent Spin Physics Results from RHIC.*

Seminar: INFN Pavia, Italy, Jun 2008. *Recent Results from the PHENIX Experiment at RHIC.*

Colloquium: Old Dominion U., Sep 2007. *A Novel Shakedown of the Proton Spin Breakdown: How the Field Has Become Wider with a Polarized Proton Collider.*

Seminars: UMass Amherst, INFN Cagliari, Italy, 2006. *Recent Spin Physics Results from PHENIX.*

Seminar: Mt. Holyoke College, 2006. *The Whole Story Behind a Half: The Quest to Understand the Proton's Spin.*

Seminars: Indiana University Cyclotron Facility, Los Alamos National Lab, Lawrence Berkeley National Lab, 2005. *Studying the Transverse Spin Structure of the Proton at PHENIX.*

Seminars: CERN, Switzerland; Laboratori Nazionali di Frascati, Italy; INFN Torino, Italy; INFN Ferrara, Italy, 2004. *Recent Spin Results from PHENIX.*

Outreach seminars promoting physics graduate study: **Bryn Mawr, Mt. Holyoke, Smith, Vassar, Barnard, Wellesley, and Amherst Colleges**, 2003-04. Sponsored by Columbia University.

Colloquium: Vassar College, Dec 2003. *Flying High with PHENIX: Surveying the Landscape for Quark-Gluon Plasma and the Secrets of the Proton's Spin.*

NATIONAL AND PROFESSIONAL SOCIETY SERVICE AND EXPERIENCE:
Committee of Visitors, U.S. Nuclear Science Advisory Committee, 2024-present. Charged with reviewing the management processes of the Department of Energy Office of Science's Office of Nuclear Physics Facilities & Project Management Division.

U.S. Nuclear Science Advisory Committee, 2023-present. Members are special Government employees advising the Department of Energy and National Science Foundation.

Chair, Facilities Subcommittee, U.S. Nuclear Science Advisory Committee, 2023-24.

Member, APS Topical Group on Hadronic Physics Fellowship Committee, 2024.

Long-Range Plan Writing Committee, U.S. Nuclear Science Advisory Committee, 2022-23.

APS Division of Nuclear Physics Ally, 2021-present. The Allies program aims to help reduce harassment at DNP meetings and provides an avenue for those affected to have the issues addressed in a timely manner. Required 1.5 hrs virtual and 5 hrs in-person training.

Elected Member, Executive Committee of the American Physical Society (APS) Division of Nuclear Physics, 2021-23.

Nominating Committee, APS Division of Nuclear Physics, 2019-20.

U.S. National Academy of Sciences U.S.-Based Electron-Ion Collider Science Assessment Committee, 2016-18.

Program Committee, American Physical Soc. (APS) Division of Nuclear Physics, 2017-18.

M. Hildred Blewett Fellowship Selection Committee, APS, 2017.

Nominating Committee, APS Topical Group on Hadronic Physics, 2016.

Elected Member, Executive Committee of the APS Topical Group on Hadronic Physics, 2014-15.

Member, APS Topical Group on Hadronic Physics Dissertation Award Committee, 2014.

Elected member, National User Facility Organization (NUFO) Steering Committee, 2011-

14. (Now the Society for Science at User Research Facilities (SSURF)).

CONFERENCE, WORKSHOP, AND SCHOOL ORGANIZATION:
Co-Chair, Assumptions of Physics Summer School 2024 + 2025, virtual, Jun 25-27, 2025; Jun 25-27, 2024.

Organizing Committee Co-Chair, EIC Latin America 2025, Pachuca, Hidalgo, Mexico, May 19-20, 2025.

Organizing Committee, 8th International Conference on the Initial Stages in High-Energy Nuclear Collisions, Taipei, Taiwan, Sep 8-12, 2025.

Co-organizer, Assumptions of Physics Summer School, Jun 25-27, 2024.

Co-Organizer, Inter-American Network of Networks for QCD Summit 2024 - The Future of QCD: Empowering New Talents and Building Global Networks, Washington, D.C., Jun 13-14, 2024.

Local Organizing Committee, APS Conference for Undergraduate Women in Physics, Ann Arbor, MI, Jan 19-21, 2024.

International Advisory Committee, 11th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions, Aschaffenburg, Germany, Mar 27-31, 2023.

International Advisory Committee, Transversity 2022, Pavia, Italy, May 23-27, 2022.

Co-organizer, Flowing into the Future: Particle Jets in Quantum Field Theory and Phenomenology, Simons Center for Geometry and Physics, Stony Brook, Mar 21-25, 2022.

Co-organizer, Center for Frontiers in Nuclear Science Workshop: RHIC Science Program Informative Toward EIC in the Coming Years, online, May 24-27, 2021.

International Advisory Committee, 6th International Conference on the Initial Stages in High-Energy Nuclear Collisions, online (Rehovot, Israel), Jan 10-15, 2021.

International Advisory Committee, Electron-Ion Collider User Group Meeting, online (Florida International U.), Jul 15-17, 2020.

International Advisory Committee, QCD at EIC, IIT Bombay, India, Jan 4-7, 2020.

International Advisory Committee, 5th International Conference on the Initial Stages in High-Energy Nuclear Collisions, Columbia U., Jun 24-28, 2019.

Program Committee, 23rd International Symposium on Spin Physics, Ferrara, Italy, Sep 10-14, 2018.

Scientific Advisory Committee, Electron-Ion Collider User Group Meeting, Catholic U. of Amer-

ica, Jul 30-Aug 2, 2018.

International Advisory Committee, 27th International Conf. on Ultrarelativistic Heavy Ion Collisions (Quark Matter), Venice, Italy, May 13-19, 2018.

Co-organizer, Institute for Nuclear Theory Workshop on The Flavor Structure of the Nucleon Sea, Seattle, WA, Oct 2-13, 2017.

Scientific Advisory Committee, Electron-Ion Collider User Group Meeting, Trieste, Italy, Jul 18-22, 2017.

International Advisory Committee, 26th International Conf. on Ultrarelativistic Heavy Ion Collisions (Quark Matter), Chicago, IL, Feb 5-11, 2017.

Local Program Committee, 22nd International Symposium on Spin Physics, Urbana-Champaign, IL, Sep 25-30, 2016.

Scientific Committee, Electron-Ion Collider User Group Meeting, Berkeley, CA, Jan 6-9, 2016.

Local Organizing Committee, APS Division of Particles and Fields Meeting, Ann Arbor, MI, Aug 3-7, 2015.

Organizing Committee, 2015 Workshop of the APS Topical Group on Hadronic Physics, Baltimore, MD, Apr 8-10, 2015.

Local Organizing Committee, APS Conference for Undergraduate Women in Physics, Ann Arbor, MI, Jan 16-18, 2015.

Chair, Workshop on Opportunities for Polarized Physics at Fermilab, May 20-22, 2013.

International Organizing Committee, 3rd Workshop on the QCD Structure of the Nucleon (QCD-N'12), Bilbao, Spain, Oct 22-26, 2012.

Program Committee, 19th Particles and Nuclei International Conference (PANIC 2011) and Co-organizer for session on Quarks and Gluons in Hadrons, MIT, Jul 24-29, 2011.

Co-organizer, Workshop on Transverse-Momentum-Dependent Distributions, ECT*, Trento, Italy, Jun 21-25, 2010.

Principal organizer, Symposium on Educational and Public Outreach, sponsored by the RHIC-AGS Users' Executive Comm. and the National User Facility Organization, BNL, Jun 9, 2010.

Co-convenor, Spin Physics Working Group, 18th International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2010), Florence, Italy, Apr 17-23, 2010.

Co-organizer, Workshop on Transverse Spin Physics, RHIC-AGS Users' Mtg, BNL, Jun 2009.

Principal organizer, 4th PHENIX Spinfest School on QCD Physics, BNL, Aug 2008.

Co-organizer, 2nd PHENIX Spinfest School on QCD Physics, BNL, Aug 2006.

Principal organizer, Workshop on the Helicity Structure of the Nucleon, RHIC-AGS Users' Meeting, BNL, Jun 2006.

Co-organizer, Workshop on Proton Spin Physics, RHIC-AGS Users' Meeting, BNL, Jun 2005.

COLLABORATION AND RESEARCH COMMUNITY SERVICE:
Journal article reviewer for Physical Review Letters, Physical Review C and D, Nature, European Physical Journal C, Physics Letters B, Nuclear Physics A and B, Nuclear Instruments and Methods A, Scientific Reports, Foundations of Physics.

Proposal and research reviewer for U.S. Department of Energy - Nuclear Physics and HEP, U.S. National Science Foundation, Fulbright Commission, Royal Society (UK), National Science Centre (NCN, Poland), Ministry for Education, University, and Research (MIUR, Italy), National Agency for the Evaluation of Universities and Research Institutes (ANVUR, Italy), Natural Sciences and Engineering Research Council (Canada), Los Alamos National Lab.

U. of Michigan representative, ePIC Collaboration Council, 2022-present.

U. of Michigan representative, sPHENIX Institutional Board, 2015-present.

U. of Michigan representative, PHENIX Institutional Board, 2012-present.

Level-3 Manager, sPHENIX Calorimeter Electronics: Optical Sensors. Silicon photomultiplier quality assurance, 2016-23.

Academic Program Review Committee. U. of Nebraska, Lincoln Dept. of Physics and Astronomy, 2022.

Research Product Reviewer for Physical Sciences (Nuclear and Particle Physics), National Agency for the Evaluation of Universities and Research, Italy, 2021.

Elected Institutional Board Chair, Electron-Ion Collider User Group, Oct 2016-Feb 2021. Also ex-officio member of EIC User Group Steering Committee.

Member, BNL Associate Lab Director for Nuclear and Particle Physics Search Committee, Aug 2020-Jan 2021.

Co-convenor, sPHENIX Cold QCD Topical Group, Aug 2016-Dec 2020.

Member, LHCb Speakers' Bureau, Apr 2018-Jun 2020.

Member, sPHENIX Spokesperson Nomination and Election Committee, Fall 2018.

Member, Electron-Ion Collider User Group Charter Writing Committee, 2016.

Member, Relativistic Heavy Ion Collider Cold QCD Plan Writing Committee, 2015-16.

Member, sPHENIX Collaboration Bylaws Committee, 2015.

Member, PHENIX Collaboration Spokesperson Nominating Committee, 2015.

Elected member, PHENIX Executive Council, 2011-2016. The EC is responsible for establishing scientific priorities for the experiment, with members selected for their "scientific judgment, technical expertise, and commitment to the experiment."

Member, Relativistic Heavy Ion Collider Thesis Award Committee, 2014, 2011.

Elected member, RHIC-AGS Users' Executive Committee, June 2009-June 2012.

Moderator, Panel discussion: The Future of RHIC Upgrades, RHIC Users Open Forum Meeting, Meeting of the APS Division of Nuclear Physics, October 2011.

Member, PHENIX Decadal Plan Writing Committee, March-September 2010.

Member, PHENIX Speakers Bureau, April 2009-February 2010.

Member, PHENIX Forward Calorimeter Upgrade Internal Review Comm., Jan-Feb 2009.

Co-convenor, PHENIX Spin Physics Working Group, January 2007-April 2009. Oversaw and coordinated all analysis activities within Working Group; approved scientific results for public release by the collaboration.

Member, PHENIX Spokesperson Selection Task Force, May-July 2006.

Elected Student/Postdoc Representative, RHIC-AGS Users' Executive Comm., 2004-05.

SERVICE WITHIN THE UNIVERSITY OF MICHIGAN:
Member, Physics Dept. Saturday Morning Physics Committee, 2025-26.

Chair, Physics Dept. Faculty Awards Committee, 2025-26.

Chair, Physics Dept. Graduate Mentor Committee, 2024-26.

Member, Promotion Review Panel, Prof. Liuyan Zhao, 2025-26.

Junior Faculty Mentor, Prof. Camille Avestruz, 2024-26.

Internal Reviewer, NSF Quantum Leap Challenge Institute preproposal, 2025.

College of Literature, Science, and Arts Alternate Divisional Executive Committee Member to fill in for promotion cases with multiple recusals, 2025.

Chair, Third-Year Review Committee, Prof. Camille Avestruz, 2024-25.

Member, Promotion Review Panel, Prof. Joshua Spitz, 2024-25.

Member, Physics Dept. Faculty Awards Committee, 2023-25.

Chair, Promotion Review Panel, Prof. Thomas Schwarz, 2023-24.

College of Literature, Science, and Arts Executive Committee, 2022-23.

Faculty advisor, Community of Physicists for Inclusion and Equity (CoPhIE), formerly the Society for Women in Physics (SWIP), 2022-23, 2012-16.

Chair, Tenure Review Panel, Prof. Marcelle Soares-Santos, 2022-23.

Physics Dept. Hiring Committee, 2021-22.

Physics Dept. Colloquium Committee Chair, 2020-22.

Member, Physics Dept. Graduate Mentor Committee, 2020-22.

Third-Year Review Committee, Prof. Marcelle Soares-Santos, 2021-22.

ADVANCE Launch Committee Member, for Prof. Marcelle Soares-Santos, 2020-21.

ADVANCE Advisory Board for the College of Literature, Science, and Arts, 2017-2021.

Rackham Predoctoral Fellowship Selection Committee, 2019-21.

Packard Fellowship for Science & Engineering Reviewer, Office of Research, 2021.

Physics Dept. Graduate Admissions Committee, 2020-21.

Mentor for participants, NextProf Science Workshop, aimed at future faculty from diverse backgrounds, 2020, 2019, 2016.

Reviewer, Data Science for Music proposals, Michigan Institute for Data Science (MIDAS), 2018.

Senate Advisory Committee on University Affairs (SACUA) Nominating Comm., 2018.

Physics Dept. Executive Committee, 2017-19.

Faculty Senate Assembly, elected rep. for College of Literature, Science, and Arts, 2015-18.

Physics Dept. Diversity, Equity, and Inclusion Committee, 2016-18. **Co-Chair** 2017-18.

Physics Dept. Rackham Graduate School Diversity Ally, 2016-18.

Physics Dept. HEP/Astro/Nuclear Seminar organizer, 2012-17. **Chair** 2013-14, 2015-17.

Physics Dept. Graduate Admissions Committee, 2016-17.

Member, U. of Michigan Willie Hobbs Moore Award Selection Committee, 2015.

Member, Physics Dept. Undergrad Curriculum and Concerns Committee, 2012-15.

OTHER SERVICE AND EXPERIENCE:
Nuclear Science Long Range Plan Capitol Hill visit, Nov 2023. Met with staff members for Michigan Senators Peters and Stabenow and Representative Dingell to discuss the newly released Long Range Plan for Nuclear Science.

Nuclear Physics Day on Capitol Hill, Apr 2025, Apr 2022 (virtual), Apr 2021 (virtual), Apr 2018, May 2013. Met with staff members for Michigan Senators Levin (2013), Peters (2018, 2021, 2022) and Stabenow and Representative Dingell to discuss funding for nuclear physics research.

Electron-Ion Collider Capitol Hill visit, Dec 2018. Met with staff members from eight Congressional offices to inform them about the proposed Electron-Ion Collider.

Earned Value Management System training, Jun 2017. Two full days of training in using EVMS for scientific project management, Brookhaven National Lab.

Panelist, Panel discussion: Undergraduate research, APS Conference for Undergraduate Women in Physics, Wayne State University, Jan 2017.

Moderator, Panel discussion: Women In Physics Career Panel, APS Conference for Undergraduate Women in Physics, Ann Arbor, MI, Jan 2015.

Member, BNL Work-Life Balance Committee, April 2010-June 2012.

CHRISTINE A. AIDALA
PUBLICATION LIST AS OF JULY 2025

BOOK:

1. ***Assumptions of Physics***. G. Carcassi, C.A. Aidala. Michigan Publishing, 2021, (2nd ed. 2023), ISBN 978-1-60785-706-7.

PAPERS SUBMITTED FOR PUBLICATION:

1. **Eta fragmentation functions revisited**. C.A. Aidala, D.A. Loomis, Ramiro T. Martinez, R. Sassot, M. Stratmann. arxiv:2507.04887

2. **Cross sections of eta mesons in p+p collisions at forward rapidity at sqrt(s)=500 GeV and central rapidity at sqrt(s)=510 GeV**. N.J. Abdulameer et al. (PHENIX Collaboration). arxiv:2507.04896 *Analysis led by Aidala group grad student Devon A. Loomis, with contributions from undergrad Cheng Chiu.*

3. **First measurement of b-jet mass with and without grooming**. R. Aaij et al. (LHCb Collaboration). arxiv:2505.11955 *Analysis led by Aidala mentee Ezra Lesser (CERN Fellow). Aidala group grad student Ibrahim Chahrour also an analysis proponent.*

4. **Measurement of the Lund jet plane for light- and beauty-quark jets**. R. Aaij et al. (LHCb Collaboration). arxiv:2505.23530 *Analysis led by Aidala group grad student Ibrahim Chahrour.*

5. **Classical mechanics as the high-entropy limit of quantum mechanics**. G. Carcassi, M. Landini, C.A. Aidala. arXiv:2411.00972.

6. **Measurement of the $\psi(2S)$ to J/ψ cross-section ratio as a function of centrality in PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV**. R. Aaij et al. (LHCb Collaboration). Accepted by JHEP. arXiv:2411.05669. *Review Committee Chair.*

PUBLICATIONS IN PEER-REVIEWED JOURNALS:
Papers not associated with a project or on behalf of a full experimental collaboration:

1. **Aligning the Thomson scattering and charge exchange recombination diagnostics using neutral beam emission at DIII-D**. A. Feyrer, S.R. Haskey, C. Chrystal, C.A. Aidala. Rev. Sci. Instrum. 95:043509, 2024.

2. **The science case for an intermediate energy advanced and novel accelerator linear collider demonstration facility**, S.S. Bulanov et al. J. Inst. 19:T01010, 2024.

3. **Ntuple Wizard: an application to access large-scale open data from LHCb**. C.A. Aidala, C. Burr, M. Cattaneo, D.S. Fitzgerald, A. Morris, S. Neubert, D. Tropmann. Comput. Soft. Big Sci. 7:6, 2023. *Led by Aidala group grad student Dillon S. Fitzgerald.*

4. **Precision studies of QCD in the low-energy domain of the EIC**, V.D. Burkert, L. Elouadrhiri, et al. Prog. Part. Nucl. Phys. 131:104032, 2023.

5. **ATHENA detector proposal: A Totally Hermetic Electron-Nucleus Apparatus proposed for IP6 at the Electron-Ion Collider**. J. Adam et al. (ATHENA Collaboration). J. Inst. 17:P10019, 2022.

6. **QCD factorization and quantum mechanics**. C.A. Aidala and T.C. Rogers. Phil. Trans. Roy. Soc. A380:20210058, 2021. (Invited submission)

7. **Design and beam test results for the 2D projected sPHENIX electromagnetic calorimeter prototype**. C.A. Aidala et al. IEEE Trans. Nucl. Sci. 68:173, 2021.

8. **Pion and kaon structure at the Electron-Ion Collider**. A.C. Aguilar et al. Eur. Phys. J. A55:190, 2019.

9. **Design and Beam Test Results for the sPHENIX Electromagnetic and Hadronic Calorimeter Prototypes**. C.A. Aidala et al. IEEE Trans. Nucl. Sci. 65:2901, 2018.

10. **Four-twist helix snake to maintain polarization in multi-GeV proton rings**. F. Antoulinakis et al. Phys. Rev. Accel. Beams, 20:091003, 2017.

11. **Limits on transverse-momentum-dependent evolution from semi-inclusive deep-inelastic scattering at moderate Q**. C.A. Aidala, B. Field, L.P. Gamberg, and T.C. Rogers. Phys. Rev. D89:094002, 2014.

12. **The PHENIX Forward Silicon Vertex Detector**. C. Aidala et al. Nucl. Instrum. Meth. A755:44, 2014.

13. **The spin structure of the nucleon**. C.A. Aidala, S.D. Bass, D. Hasch, and G.K. Mallot. Rev. Mod. Phys. 85:655, 2013. (Invited submission)

14. **Global analysis of fragmentation functions for eta mesons**. C.A. Aidala, F. Ellinghaus, R. Sassot, J.P. Seele, and M. Stratmann. Phys. Rev. D83:034002, 2011.

15. **Towards an understanding of nucleon spin structure: from hard to soft scales**. S.D. Bass and C.A. Aidala. Int. J. Mod. Phys. A21:4407-4424, 2006.

16. **A hadron-blind detector for PHENIX**. C. Aidala et al. Nucl. Instrum. Meth. A502:200-204, 2003.

Papers for the Assumptions of Physics project:
`https://assumptionsofphysics.org/`

1. **The unphysicality of Hilbert spaces**. G. Carcassi, F. Calderón, C.A. Aidala. Quantum Studies: Mathematics and Foundations 12:13, 2025.

2. **Non-additive measures for quantum probability?**. G. Carcassi and C.A. Aidala. In M.-J. Lesot, S. Vieira, M. Reformat, F. Batista, J.P. Carvalho, B. Bouchon-Meunier, R.R. Yager (eds.). Proceedings of the Short Papers of the 20th International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU2024). July 2024, Lisbon, Portugal, p. 3–7. (Peer-reviewed proceedings)

3. **A no-go theorem for ψ-ontic models? Yes! Response to criticisms**. G. Carcassi, A. Oldofredi, C.A. Aidala. Foundations of Physics 55:5, 2025.

4. **How quantum mechanics requires non-additive measures**. G. Carcassi and C.A. Aidala. Entropy 25:1670, 2024.

5. **On the reality of the quantum state once again: A no-go theorem for ψ-ontic models**. G. Carcassi, A. Oldofredi, C.A. Aidala. Foundations of Physics 54:14, 2024.

6. **Geometric and physical interpretation of the action principle**. G. Carcassi and C.A. Aidala. Scientific Reports 13:12138, 2023.

7. **Hamiltonian privilege**. J. Hunt, G. Carcassi, C.A. Aidala. Erkenntnis 90:443, 2025. (Published Jun 2023)

8. **On the common logical structure of classical and quantum mechanics**. A. Oldofredi, G. Carcassi, C.A. Aidala. Erkenntnis 89:1507, 2024. (Published Jul 2022)

9. **Reverse Physics: From Laws to Physical Assumptions**. G. Carcassi, C.A. Aidala. Foundations of Physics 52:40, 2022.

10. **Four postulates of quantum mechanics are three**. G. Carcassi, L. Maccone, C.A. Aidala. Phys. Rev. Lett. 126:110402, 2021.

11. **Variability as a better characterization of Shannon entropy**. G. Carcassi, C.A. Aidala, J. Barbour. European J. of Physics 42:045102, 2021.

12. **Hamiltonian mechanics is conservation of information entropy**. G. Carcassi, C.A. Aidala. Studies in the History and Philosophy of Science Part B: Studies in History and Philosophy of Modern Physics 71:60, 2020.

13. **Space-time structure may be topological and not geometrical**. G. Carcassi, C.A. Aidala. Physica Scripta 95:084003, 2020.

14. **The fundamental connections between classical Hamiltonian mechanics, quantum mechanics and information entropy**. G. Carcassi, C.A. Aidala. Int. J. of Quantum Information 18:1941025, 2020.

15. **Topology and experimental distinguishability**. C.A. Aidala, G. Carcassi, M.J. Greenfield. Top. Proc. 54:271, 2019.

16. **From physical assumptions to classical and quantum Hamiltonian and Lagrangian particle mechanics**. G. Carcassi, C.A. Aidala, D.J. Baker, L. Bieri. J. Phys. Commun. 2:045026, 2018.

SeaQuest Collaboration papers:

In this moderately sized 17-institution collaboration, Aidala and her group played key roles in developing the Beam Cherenkov Counter as well as serving as the cryotarget experts from 2013-16. In addition, they contributed to the spectrometer construction, the development of hardware triggers, track reconstruction software, and more than 5,000 hours of operations support.

1. **Measurement of J/ψ and $\psi(2S)$ production in $p+p$ and $p+d$ interactions at 120 GeV**. C.H. Leung et al. (SeaQuest Collaboration). Phys. Lett. B858:139032, 2024.

2. **Estimation of combinatoric background in SeaQuest using an event-mixing method**. S.F. Pate et al. (SeaQuest Collaboration). J. Inst. 18:P10032, 2023.

3. **Measurement of flavor asymmetry of light-quark sea in the proton with Drell-Yan dimuon production in $p + p$ and $p + d$ collisions at 120 GeV**. J. Dove et al. Phys. Rev. C108:035202, 2023.

4. **The asymmetry of antimatter in the proton**. J. Dove et al. Nature 590:561, 2021.

5. **The SeaQuest Spectrometer at Fermilab**. C.A. Aidala et al. Nucl. Instrum. Meth. A930:49-63, 2019.

LHCb Collaboration papers to which a significant contribution was made:
(Coauthor of 313 additional published LHCb papers)

1. **Measurement of forward charged hadron flow harmonics in peripheral PbPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV**. R. Aaij et al. Phys. Rev. C109:054908, 2024. *Review Committee Chair.*

2. **Measurement of the prompt D^0 nuclear modification factor in pPb collisions at $\sqrt{s_{NN}} = 8.16$ TeV**. R. Aaij et al. Phys. Rev. Lett. 131:102301, 2023. *Review Committee Chair.*

3. **Multidifferential study of identified charged hadron distributions in Z-tagged jets in proton-proton collisions at $\sqrt{s} = 13$ TeV**. R. Aaij et al. Phys. Rev. D108:L031103, 2023. *Work of Aidala group postdoc Sookhyun Lee.*

4. **First measurement of the $Z \to \mu^+\mu^-$ angular coefficients in the forward region of pp collisions at $\sqrt{s} = 13$ TeV**. R. Aaij et al. Phys. Rev. Lett. 129:091801, 2022. *Aidala was an analysis proponent involved in the low-p_T part of the analysis, where the A_2 coefficient is sensitive to the Boer-Mulders transverse-momentum-dependent PDF, and wrote the relevant sections of the paper.*

5. **Identification of charm jets at LHCb**. R. Aaij et al. J. Inst. 17:P02028, 2022. *Working Group reviewer.*

6. **Measurement of charged hadron production in Z-tagged jets in proton-proton collisions at $\sqrt{s} = 8$ TeV**. R. Aaij et al. Phys. Rev. Lett. 123:232001, 2019. *Work of Aidala group postdoc Joseph D. Osborn.*

PHENIX Collaboration papers to which a significant contribution was made:
(Coauthor of 189 additional published PHENIX papers)

1. **Transverse single-spin asymmetry of midrapidity π^0 and η mesons in p+Au and p+Al collisions at $\sqrt{s_{NN}} = 200$ GeV**. N.J. Abdulameer et al. Phys. Rev. D107:112004, 2023. *Work of Aidala group grad student Dillon S. Fitzgerald.*

2. **Improving constraints on gluon spin-momentum correlations in transversely polarized protons via midrapidity open-heavy-flavor electrons in $p^\uparrow + p$ collisions at $\sqrt{s} = 200$ GeV**. U.A. Acharya et al. Phys. Rev. D107:052012, 2023. *Work of Aidala group grad student Dillon S. Fitzgerald.*

3. **Transverse-single-spin asymmetries of charged pions at midrapidity in transversely polarized $p + p$ collisions at $\sqrt{s} = 200$ GeV**. U.A. Acharya et al. Phys. Rev. D105:032004, 2022. *Internal Review Committee Chair.*

4. **Transverse single spin asymmetries of forward neutrons in $p+p$, p+Al and p+Au collisions at $\sqrt{s_{NN}} = 200$ GeV as a function of transverse and longitudinal momenta**. U.A. Acharya et al. Phys. Rev. D105:032004, 2022. *Internal Review Committee Chair.*

5. **Probing gluon spin-momentum correlations in transversely polarized protons through midrapidity isolated direct photons in $p+p$ collisions at $\sqrt{s} = 200$ GeV**. U.A. Acharya et al. Phys. Rev. Lett. 127:162001, 2021. *Work of Aidala group grad student Nicole A. Lewis.*

6. **Transverse single-spin asymmetries of midrapidity π^0 and η mesons in $p+p$ collisions at $\sqrt{s} = 200$ GeV**. U.A. Acharya et al. Phys. Rev. D103:052009, 2021. *Work of Aidala group grad student Nicole A. Lewis.*

7. **Polarization and cross section of midrapidity J/ψ production in $p+p$ collisions at $\sqrt{s} = 510$ GeV**. U. Acharya et al. Phys. Rev. D102:072008, 2020. *Work co-led by Aidala group postdoc Sookhyun Lee.*

8. **Nonperturbative-transverse-momentum broadening in dihadron angular correlations in $\sqrt{s_{NN}} = 200$ GeV proton-nucleus collisions**. C. Aidala et al. Phys. Rev. C99:044912, 2019. *Work of Aidala group grad student Joseph D. Osborn.*

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