

Lamiaa El Fassi

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662-325-0627 (work)

Research Interest

Nuclear and Particle Physics:

- ◆ Dynamics of strongly interacting particles, hadrons, and their elementary constituents, quarks and gluons, via the study of the hadronization and fragmentation processes that probe the dynamics of quark propagation and hadron formation in the cold nuclear matter, and the color transparency phenomenon; that is, the formation and evolution of small size configurations to regular hadrons as well as unraveling the effect of in-medium modifications of the transverse momentum-dependent distributions (TMDs) in nuclei with CLAS12 at Jefferson Lab.
- ◆ Nucleon structure via the study of the antiquark asymmetry and some medium stimulated effects such as the quark energy loss and the “EMC” effect using the unpolarized Drell-Yan (DY) process as well as the study of the sea-quark Sivers functions, the poorly known gluon/Twist-3 TMDs via the measurement of transverse single-spin asymmetries on J/Ψ production using the polarized DY process at Fermi National Lab (Fermilab). Additionally, investigate the tagged as well as the polarized EMC effects at JLab.
- ◆ Monitoring space weather and severe terrestrial storms, mainly in the gulf coast corridor, via the proven open-architecture low-cost cosmic-ray muon detectors, the backbone of the gLOWCOST project.

Employment History

- ◆ August 2020 – Present Associate Professor, Department of Physics and Astronomy, Mississippi State University.
- ◆ May 2019 – Aug. 2020 Assistant Professor, Department of Physics and Astronomy, Mississippi State University.
- ◆ August 2014 – May 2019 Assistant Professor Bridge Position, Mississippi State University Department of Physics and Astronomy and Jefferson Lab.
- ◆ Dec. 2013 – August 2014 Postdoctoral Associate, Experimental Nuclear Physics Group, Department of Physics, Old Dominion Univ. jointly with Jefferson Lab.
Advisor: Prof. Larry B. Weinstein
- ◆ May 2009 – May 2013 Postdoctoral Associate, Experimental Nuclear Physics Group, Department of Physics & Astronomy, Rutgers, The State of New Jersey University.
Advisor: Prof. Ronald Gilman
- ◆ July 2008 – January 2009 Visiting Research Scholar, Experimental Nuclear Physics Group, Department of Physics and Astronomy, Rutgers, The State of New Jersey University.
Advisor: Prof. Ronald Gilman

- ◆ Sept. 2003 – Dec. 2007 Research Assistant, Medium Energy Physics Group,
Physics Division, Argonne National Laboratory.
Ph.D. Advisor: Dr. Kawtar Hafidi

Education

- ◆ June 2008 Ph.D. in Experimental Hadronic Physics,
Mohammed V University, Rabat, Morocco.
- ◆ June 2003 Master in High Energy Physics,
Mohammed V University, Rabat, Morocco.
- ◆ June 1999 Bachelor in Nuclear Physics,
Abdelmalek Essaadi University, Tetouan, Morocco.

Teaching Experience

- ◆ Teaching Graduate-level Seminars & Colloquia; PH-8111, since the fall semester of 2020
- ◆ Taught Graduate-level Mechanics; PH-8213, in the spring 2022 semester
- ◆ Taught Split-level Intermediate Mechanics II; PH-4223/6223, in spring semesters of 2025 - 2023, 2020 - 2021, 2019 - 2018 & 2016.
- ◆ Taught Graduate-level Nuclear Physics; PH-8613, in fall semesters of 2026/4/0 & 2018/4
- ◆ Taught Introductory Calculus-based Physics course; Physics III (PH-2233), in fall semesters of 2019 & 2016
- ◆ Taught Split-level Intermediate Mechanics I; PH-4213/6213, in fall semesters of 2017 & 2015

Experimental Affiliations and Contributions

- ◆ gLOWCOST, 2026 – present:
 - Contributing as a collaborator to the expansion of the gLOWCOST network to the Arabic world, Africa, and Europe. This ambitious project aims to install a (muon) cosmic rays' detector in every world country to build a continuous, ground-based muon network acts as an independent, real-time total-column atmospheric monitor. Additionally, I lead Mississippi hub operations, detector characterization, and the central production and provisioning pipeline—supplying the multi-state collaboration with tested electronics boards and optical scintillator tiles while maintaining close, continuous collaboration across all participating institutions.
- ◆ Jefferson Lab 22 GeV Upgrade, 2022 - present:
 - Contributed as an Organizer, Convener, and Editor of the series of workshops related to the JLab 22 GeV beam energy and luminosity upgrade and its associated White Paper compiled for the Long Range Plan (LRP) charges by the Nuclear Science Advisory Committee (NSAC). My group is also part of to the simulation campaign of several studies such as Color Transparency (CT), Color Propagation (CP) and Hadronization, and Nuclear Deeply Virtual Compton Scattering.
- ◆ CLAS Collaboration, Hall B at Jefferson Lab, 2005 – present:
 - Successfully contributed to the ongoing 12 GeV CLAS (CLAS12) run periods of the “A Low Energy Radial Tracker” (ALERT) experiments as a Run Coordinator and co-spokesperson whose group is interested in 1) studying the tagged EMC effects, and 2)

developing and optimizing artificial intelligence (AI) track reconstruction and particle identification algorithms.

- Led the preparation of my CLAS12 experiments, CT and its run group addition Nuclear TMDs as well as Color Propagation (hadronization and/or fragmentation study). These nuclear-target experiments ran, respectively, in fall of 2023 and spring of 2024 for the first-half of data-taking for the latter. The second-half of CP experiments is tentatively scheduled for 2027.
- Led the first-ever hadronization analysis of Λ^0 hyperons in the current and target fragmentation regions using datasets of the E02-110 & E02-104 electroproduction experiments (EG2 run-group), which was published in [Physical Review Letters](#).
- Participated in the development as well as calibration of the new CLAS12 drift chambers (DC) suites. The primary contribution included developing, optimizing, and maintaining the DC calibration and monitoring suites, debugging the tracking and reconstruction algorithms, training users, and coordinating the calibration process of various run-groups data-sets.
- Developed the data explorer suite to check and monitor the operation and the quality of data recorded on various CLAS12 sub-detectors.
- Participated in the development of a multi-threaded C++/ROOT-based analysis framework for the newly accumulated CLAS12 data-sets.
- Supervised the development of the JAVA-based tool for quality control of DC calibration.
- Participated in the analyses of coherent and incoherent deeply virtual Compton scattering off ^4He using data-sets of the E07-009 & E08-024 electro-production experiments (EG6 run-group). Primary contribution includes calibration of the time-of-light (TOF) and radio frequency (RF) systems, reconstruction of the entire data-sets, monitoring of data-quality, and maintaining the run-group software and databases.
- Assisted an ODU graduate student in the electromagnetic calorimeter (EC) time calibration and energy correction development for his EG6 analysis.
- Participated in the validation and debugging of the nuclear data-mining software that was developed with JAVA+PYTHON (JYTHON) to integrate the formerly processed and reviewed 6 GeV nuclear-target data in a common and user friendly analysis framework.
- Assisted in setting up the simulation chain for the proton analysis of the E03-006 electroproduction experiment (EG4 run-group).
- Fine-tuned the deuterium analysis of the EG4 run-group experiment. My contribution included debugging and validating the run-group's reconstruction software, reconstruction of the entire data-sets, completion of systematic studies using Monte-Carlo simulation, and mentoring my postdoc Dr. Krishna Adhikari in finalizing his thesis analysis focused on studying the helicity-dependent inclusive cross section differences for deuteron at low momentum transfer, using longitudinally polarized electron beams and targets.
- Completed the development and improvement of the track fitter and Kalman filter for the upcoming [BoNuS12](#) ("Barely off-shell Nucleon Structure") experiment.
- EG2 run-group main analyzer. Primary contribution includes monitoring of data-taking,

calibration of TOF, RF, and EC timing, reconstruction of the entire data-sets, extraction of the 5 GeV CT results, and assisting new group members especially (under-) graduate students to become familiar with the run-group software and analysis tools.

- ◆ Hall A Collaboration, Jefferson Lab, 2008 - present:
 - Participated in the commissioning and shielding of the third-arm spectrometer, Bigbite, Gas Cherenkov photomultipliers.
 - Supervised a Rutgers graduate student in one thesis project related to the calibration of ^3He polarized target's cells to determine their wall thickness and target density, using a low intensity laser beam.
- ◆ SeaQuest/E906 Collaboration, Fermilab, 2009 – present:
 - Assisted data-taking and analysis of the unpolarized Drell-Yan (DY) experiment that aimed to study the sea antiquark asymmetry, $\bar{d}/\bar{u}$, and some medium stimulated effects such as the quark energy loss in cold nuclear matter.
 - Co-led the effort of building a new drift chamber for the second run period. Primary contribution includes manually stretching and measuring the tension of all wires, formation of the gas seal windows, mentoring graduate and undergraduate students who participated in this process, and coordinating the work among the collaboration and Fermilab technicians.
 - Led the refurbishment of the inherited set of drift chambers from the predecessor DY experiments, 9 out of 14 tracking chambers used in the E906 spectrometer. This contribution includes commissioning and maintaining the performance of DC, assisting their calibration, and optimizing their high voltage system and electronics readouts.
 - Supervised an other Rutgers graduate student in his summer project and thesis analysis related to the DC repair, calibration, and tracking efficiency studies.
- ◆ SpinQuest/E1039 Collaboration, Fermilab, 2015 – present:
 - Developing, optimizing, and maintaining a graphics processing unit (GPU) multi-threaded framework for online reconstruction to identify and debug any ongoing issues with data-taking in real time.
 - Assisting the maintenance and commissioning of the inherited E906/SeaQuest drift chambers in the SpinQuest spectrometer.
 - Supporting the ongoing efforts to upgrading, operating, and maintaining the SpinQuest cryogenic and polarized solid-state ammonia (NH_3) and deuterated ammonia (ND_3) targets.
 - Preparing for the day-one analysis that aims to probe the poorly known gluon/Twist-3 TMDs using the J/Ψ events produced in the collision of an unpolarized 120 GeV proton beam and transversely polarized, NH_3 and ND_3 , targets.
- ◆ gLOWCOST, GSU Network, 2026:
 - Submitted as a co-PI with two departmental colleagues in partnership with Louisiana State University Shreveport (LSUS) an NSF preproposal entitled “Gulf South Muon Network: Building EPSCoR Capacity for Use-Inspired Monitoring of Space and Terrestrial Weather” which proposes an interjurisdictional research network across Mississippi and Louisiana that transforms low-cost cosmic-ray

muon detectors (gLOWCOST) into an intelligent, calibrated regional monitor for space weather and severe terrestrial storms. Leveraging the proven open-architecture gLOWCOST detector platform, the consortium bridges distributed sensor hardware, edge machine learning, multi-scale atmospheric and air-shower simulations, and workforce development across two neighboring EPSCoR states (*under internal review*).

- ◆ Electron-Ion Collider, BNL/JLab, 2022 – 2026:

- Submitted as a co-PI with two departmental colleagues a DOE EPSCoR proposal entitled “High Precision Studies of Hadron Structure Functions at the Future Electron-Ion Collider” to explore the origins of the nucleon mass and spin by measuring the short-distance structure of free and bound hadrons at higher energies and collider kinematics using the EIC. To this end, we propose developing and characterizing, in partnership with colleagues from Oak-Ridge National Lab, specialized electron-Proton-Ion Collider scintillator-based particle detectors equipped with state-of-the-art electronic readouts that directly supports the longitudinally segmented Forward Hadronic Calorimeter (LFHCal) construction readiness while building long-term detector-instrumentation capacity in Mississippi (*funded*).

- Submitted as a PI with two departmental colleagues a DOE EPSCoR proposal entitled “High-precision Studies of Free and Bound Hadron Structure Functions” to explore the origins of the nucleon mass and spin by measuring the short-distance structure of free and bound hadrons at higher energies and collider kinematics using the EIC. To this end, we propose developing and characterizing, in partnership with colleagues from Oak-Ridge National Lab and Fermilab, specialized electron-Proton-Ion Collider scintillator-based particle detectors equipped with state-of-the-art electronic readouts and data acquisition (DAQ) systems, along with an optimized machine-learning algorithms for their data processing and reduction (*not funded*).

- Submitted with colleagues from Creighton and Iowa State Universities, Universities of Kansas and Kentucky the NSF RII Track-2 FEC: The Electron-Ion Collider EPSCoR Initiative (EIC-EI) to create a consortium of multidisciplinary researchers to develop novel research and technology opportunities for the EIC. This new initiative supports building capacity and infrastructure in the collaborating institutions by a) hiring new tenure-track assistant professors in experimental nuclear physics, b) retaining assistant professors, c) training the next generation of (under-) graduate, students and early-career scientists on state-of-the-art technology, including the latest advances in artificial intelligence, and d) supporting the research of faculty collaborators (*not supported*).

- ◆ BDX Collaboration, Jefferson Lab, 2020 - 2021:

- Submitted in coordination with Lamar University, Canisius, and Occidental colleges the NSF Mid-Scale pre-proposal, which was not invited for the full proposal. My group interest was 1) the simulation of the shielding and overburden for the BDX experimental hall, and 2) the background simulation for the BDX detector package including the electromagnetic calorimeter and veto, their construction, and test.

Professional Organizations and Activities

- ◆ Chair, Program Committee of the 92nd Southeast Section of the American Physical Society (SESAPS) Annual Meeting, 2025
- ◆ Chair-Elect, SESAPS Executive Committee (EC) Chair-line, Jan. 2025 – Dec. 2025
- ◆ Chair, Ph.D. Advisory Committee (PAC) at Miss. State U. (MSState) Department of Physics and Astronomy (P&A), 2024 – 2025
- ◆ Chair, Promotion and Tenure (P&T) Committee at MSState P&A Department, 2024 - 2025
- ◆ Organizer & Judge, Poster and Oral Presentations Undergraduate Students Competition at the 91st SESAPS Annual Meeting, Nov. 2024
- ◆ Ex-officio, SESAPS Regional Beams (Research), Pegram (Teaching), and Slack (Service) Awards Review/Evaluation Committees, Oct. 2024
- ◆ (Co-)Organizer/Convener, “Science at the Luminosity Frontier: Jefferson Lab at 22 GeV” Workshop, INFN-LNF, Frascati, Italy, 2024
- ◆ (Co-)Organizer, Joint "20th International Workshop on Hadron Structure and Spectroscopy" and 5th Workshop on "Correlations in Partonic and Hadronic Interactions" (IWHSS-CPHI-2024), Yervan, Armenia, 2024
- ◆ Member, JLab User Organization Board of Directors Nominating Committee, 2024 – 2025
- ◆ Vice Chair, SESAPS Executive Committee (EC) Chair-line, Jan. 2024 – Dec. 2024
- ◆ Member, Ph.D. Advisory Committee at MSState P&A Department, 2022 – 2025
- ◆ Member, P&T Committee at MSState P&A Department, 2022 - 2025
- ◆ Chair, Search Committee for the MSState JLab-bridge Experimental Nuclear Physics Faculty Position, 2023 - 2024
- ◆ Member, DOE Review Panel for National Labs Medium Energy Research Programs, 2023
- ◆ (Co-)Editor, JLab22 Upgrade Writing Committee for the NSAC LRP, 2022 – present
- ◆ (Co-)Organizer/Convener, “Science at the Luminosity Frontier: Jefferson Lab at 22 GeV” Workshops, 2022 – present
- ◆ Member, APS Topical Group on Hadronic Physics (GHP) Nominating Committee, 2022 – 2023
- ◆ (Co-)Organizer/Convener, ECT* Workshop for “Opportunities with JLab Energy and Luminosity Upgrade”, 2022
- ◆ Member, Program Committee for the 89th SESAPS Annual Meeting, Aug. - Nov. 2022
- ◆ Chair, Nuclear Physics Sessions for the 89th SESAPS Annual Meeting, Nov. 2022
- ◆ Chair, Comprehensive Research-based Examination (CRE) Implementation Committee at MSState P&A Department, 2022
- ◆ Member, SURA (Southeastern Universities Research Association) /JLab Development Committee, 2022 – present
- ◆ Member, Adhoc Preliminary Exams Committee at MSState P&A Department, 2021-2022
- ◆ Member, Organizing Committee for the 2021 APS GHP biennial workshop, 2020 – 2021
- ◆ Chair, Search Committee for MSState Experimental Nuclear Physics Faculty Position, 2021
- ◆ Chair, Virtual/Hybrid Medium Energy Physics Sessions at the 87th/88th SESAPS Annual Meeting, Nov. 2020/2021

- ◆ Member, Program Committee for the GHP sessions at the 2021 APS April meeting, 2020
- ◆ Member, APS Forum on Diversity and Inclusion (FDI), 2020 – present
- ◆ Chair, SESAPS Nominating Committee for new EC Members, 2020 – 2022
- ◆ Organizer/Chair, Fundamental Symmetries Invited Session at the 86th SESAPS Annual Meeting, 2019
- ◆ Member, Recruiting Committee at MSState P&A Department, 2019 – 2021
- ◆ Member, CLAS Coordinating Committee (CCC), 2019 – 2025
- ◆ Chair, CLAS Collaboration Nuclear Physics Working Group (NPWG), 2019 – 2025
- ◆ Chair, Nominating Committee for the NPWG Chair Election, 2019 and 2016
- ◆ Member-at-Large, SESAPS EC, 2019 – 2022
- ◆ Reviewer, German Research Foundation Grant Proposals, 2019 – 2021
- ◆ Reviewer, Department Of Energy Grant Proposals, 2019 – present
- ◆ Reviewer, National Science Foundation Grant Proposals, 2018 – 2022
- ◆ Member, Women Club at Mississippi State University, 2018 – present
- ◆ Representative, Institutional Board for the SpinQuest Collaboration, 2018 – 2026
- ◆ Outreach Director, Jefferson Lab User Organization Board of Directors, 2017 – 2019
- ◆ Member, Ad-hoc Review Committee for thr CLAS Collaboration Nature paper, 2017
- ◆ Chair, Review Committee for two CLAS Collaboration proposals to the Jefferson Lab Program Advisory Committee (PAC), PAC-44/45, 2016/2017
- ◆ Representative, Institutional Board for the EIC Users Group, 2016 – present
- ◆ Member, Electron-Ion Collider Users Group, 2016 – present
- ◆ Secretary, CLAS Speakers Committee (CSC), 2015 – 2019
- ◆ Chair, Colloquium Committee at MSState P&A Department, 2015 – present
- ◆ Chair, Fall 2015 DNP Invited Session, Santa Fe, NM, “The (still) puzzling world of up and down quarks”, October 31st, 2015
- ◆ Member, Colloquium Committee at MSState P&A Department, 2014 – present
- ◆ Representative of NPWG in CSC, 2014 – 2019
- ◆ Member, International Women’s Leadership Association (IWLA), 2015 – present
- ◆ Member, CLAS Collaboration Analysis Review Committees, 2011 – 2018
- ◆ Member, Association of Women in Science (AWIS), 2010 – present
- ◆ Member, SESAPS, Division of Nuclear Physics (DNP), Topical Group on Hadronic Physics (GHP), and Division of Particles & Fields (PDF), - present
- ◆ Member, Fermilab Users Organization Constitution, 2009 – present
- ◆ Member, American Physical Society, 2004 – present
- ◆ Member, Jefferson Lab User Organization, 2003 – present

Honors and Awards

- ◆ Miss. State U. Department of Physics & Astronomy, Robert Lee Cook Excellence in Graduate Teaching Award for my former GS Mohammad A. Zubair, Sept. 2024
- ◆ Jefferson Science Associates (JSA) Sabbatical Leave Support Award, 2023

- ◆ AWIS Member Spotlight, Nov. 2022
- ◆ Miss. State U. Office of Research & Economic Development, College of Arts & Sciences Faculty Research Award, 2021
- ◆ Hall B/Jefferson Lab, “Memorandum Of Understanding for Full Membership of Miss. State U. on the CLAS Collaboration”, 2014 – 2020
- ◆ Jefferson Lab/Miss. State U., “Assistant Professor Bridge Appointment”, 2014 - 2019
- ◆ MSState Student Research Symposium, First Poster Prize for former M.S. GS P. Ekanayaka, 2018
- ◆ CLAS Collaboration, Hall B/Jefferson Lab, “Full Membership”, December 2016
- ◆ International Women’s Leadership Association (IWLA), [Top Female Professional](#), as a recognition of excellence in physics research and education, December 2015
- ◆ Jefferson Lab Thesis Prize Nominee, 2009
- ◆ Argonne National Lab, “Graduate Fellowship”, 2003 – 2008

Research Grants and Travel Awards

- ◆ **U.S. Department Of Energy**, “High Precision Studies of Hadron Structure Functions at the Future Electron-Ion Collider” EPSCoR proposal, **Co-P.I.**, 09/2026 – 08/2030, **\$999,092**
- ◆ **U.S. Department Of Energy**, “Precision Measurements at Medium Energy”, DE-FG02-07ER41528, **Co-P.I.**, 09/2025 – 08/2028, **\$2,198,000**, in which **P.I.** of **\$1,061,940**
- ◆ **U.S. Department Of Energy**, “High-precision Studies of Free and Bound Hadron Structure Functions” EPSCoR proposal (*Not funded*), **P.I.**, with two departmental **Co-P.Is**, 10/2025 – 09/2027, **\$2,998,646**
- ◆ **91st SESAPS Annual Meeting Travel Support**, 2024, **\$325** (for current GS Uditha Weerasinghe)
- ◆ **U.S. Department Of Energy**, “Support of Polarized Solid-state Targets for the Fermilab E1039/SpinQuest Experiment”, DE-FG02-07ER41528 *Supplemental Award*, **P.I.**, 09/2023 – 08/2025, **\$258,000**
- ◆ **JSA/Jefferson Lab**, Sabbatical Leave Support Award, 2023, **\$7,500**
- ◆ **U.S. Department Of Energy**, “Precision Measurements at Medium Energy”, DE-FG02-07ER41528, **Co-P.I.**, 09/2022 – 08/2025, **\$1,882,000**, in which **P.I.** of **\$864,482**
- ◆ **National Science Foundation**, “RII Track-2 FEC: The Electron Ion Collider EPSCoR Initiative (EIC-EI)” (*Not-awarded*), **Co-P.I.**, 10/2022 – 09/2026, **\$6 M**, in which **P.I.** of **\$1,499,813** sub-award through Creighton University
- ◆ **National Science Foundation**, “Mid-scale RI-1: Implementation Plans for the Infrastructure and Superstructure for the Beam-Dump eXperiment (BDX) at Jefferson Lab” (*Not-awarded Pre-proposal*), **Co-P.I.**, 10/2021 – 09/2024, **\$12,954,648**, in which **P.I.** of **\$889,936** sub-award through Lamar University
- ◆ **U.S. Department Of Energy**, “Precision Measurements at Medium Energy”, DE-FG02-07ER41528, **Co-P.I.**, 09/2019 – 08/2022, **\$1,787,000**, in which **P.I.** of **\$714,800**.
- ◆ **Hall B at Jefferson Lab**, “1/2 Postdoctoral Research Associate Position for Dr. Taya Chetry”, **P.I.**, 02/2019 - 08/2019, **\$17,092**

- ◆ **U.S. Department Of Energy**, “Study of Gluon Transverse Momentum Distributions with J/Ψ Production in the E1039 Polarized Drell-Yan Experiment”, DE-FG02-07ER41528, **P.I.**, 09/2018 – 08/2019, **\$125,000**
- ◆ **Hall B at Jefferson Lab**, “1/2 Postdoctoral Research Associate Position for Dr. Krishna Adhikari”, **P.I.**, 01/2017- 05/2017, **\$13,119**
- ◆ **U.S. Department Of Energy**, “Nuclear Dependence of Delta and Lambda Production”, DE-FG02-07ER41528, **P.I.**, 09/2016 – 08/2019, **\$314,000**
- ◆ **ODU Data-mining Research Fund**, travel award for my former postdoc Dr. Krishna Adhikari to attend a workshop in July 2015, **\$1,000**
- ◆ **ODU Data-mining Research Fund**, travel award to support my extended Jefferson Lab visit in Spring 2015, **\$2,000**
- ◆ **ODU Data-mining Research Fund**, travel award for my postdoc Dr. Krishna Adhikari to attend a workshop in August 2014, **\$1,100**
- ◆ **Jefferson Science Associates/Jefferson Lab**, G00000799, “Bridged-appointment Faculty Position”, **Co-P.I.**, 08/2014 – 05/2019, **\$242,724**

Advisory Experience

- ◆ **Postdoctoral Associates:**
 - * Dr. Mariana Tenorio Pita, 2026 - present
 - * Dr. Vaniya Ansari, 2024 - present
 - * Dr. Mathieu Ouillon, 2024 - 2026
 - * Dr. Utsav Shrestha, 2024 - 2026
 - * Dr. Mikhail Yurov, 2022 – 2024
 - * Dr. Eric Fuchey, 2022 – 2023
 - * Dr. Catherine Ayuso, 2020 - 2022
 - * Dr. Taya Chetry, 2019 – 2022
 - * Dr. Hao Jiang, 2018 – 2019
 - * Dr. Md Latiful Kabir, 2017 – 2019
 - * Dr. Krishna Adhikari, 2014 – 2017
- ◆ **Graduate Students (GS):**
 - * Matthew Maynes (2023 - 2025, *Dismissed*)
 - * Uditha Weerasinghe (Ph.D., expected 2030)
 - * Nuwan Chaminda (Thesis M.S., 2022)
 - * Shirsendu Nanda & Pubuduni Ekanayaka (non-Thesis M.S., 2019 & 2018, respectively)

Presentations ([¶]*Invited Talks*)

- ◆ **Conference/Workshop**
 - * [¶]IWHSS-CPHI-2024, Joint 20th International Workshop on Hadron Structure and Spectroscopy Interactions, Sept. 30th, 2024: “Study of Hadronization Dynamics via Electroproduction off Nuclei at Jefferson Lab”
 - * [¶]GHP2023, APS Topical Group on Hadronic Physics Workshop, Apr. 13th, 2023: “Probing Hadronization Dynamics with SIDIS Production off Nuclei”.

- *¹International Workshop on CLAS12 Physics and Future Perspectives at JLab, March 23rd, 2023: “Update on RG-D Status and Run Preparation”.
- *¹Virtual Workshop on “Exploring QCD with Tagged Processes”, Oct. 22nd, 2021: “Chasing QCD Signatures in Nuclei with Lambda Fragmentation Study”.
- *¹Virtual Workshop on The Future of Color Transparency and Hadronization Studies at Jefferson Lab and Beyond, June 7th, 2021: “Chasing QCD Signatures in Nuclei using Color Coherence Phenomena”.
- *¹Next Generation Nuclear Physics with JLab12 and EIC Workshop, February 12th, 2016: “Hadronization with JLab 6/12 GeV”.
- *¹International Workshop on Experimental and Theoretical Topics in CLAS Data Mining, July 27th, 2015: “Data Conversion Progress”.
- *¹11th Conference on the Intersections of Particle and Nuclear Physics (CIPANP 2012), St. Petersburg, Florida, June 2012: “Overview of Color Transparency Measurements”.
- *¹Nuclear Chromo-Dynamic Studies with a Future Electron Ion Collider Workshop, Argonne National Laboratory, Apr 2010: “CT in Rho Production”.
- * Gordon Conference on Photonuclear Reactions, Aug. 2012: “Highlights of the E906/SeaQuest Experiment at Fermilab” (Poster).
- * Gordon Conference on Photonuclear Reactions, Aug. 2012: “Search for the onset of Color Transparency in ρ^0 Electroproduction off Nuclei”.

By Research Group:

- *¹IWHSS-QCD-N'25, Joint International Workshop on Hadron Structure and Spectroscopy (IWHSS 2025) and the QCD Structure of the Nucleon (QCD-N'25), San Sebastián, Spain, Sept. 5th, 2025: “SpinQuest Experiment: highlights and future prospects” *(by current postdoc Dr. V. Ansari)*
- *¹France GDR DI2I General Assembly, Virtual, June 18th, 2025: “AI Tracking for ALERT Hyperbolic Drift Chamber” *(by former postdoc Dr. M. Ouillon)*
- * GHP2025, APS Topical Group on Hadronic Physics Workshop, March 16th, 2025: “SpinQuest J/ψ TSSA Study via Newly-built Polarized Target Assembly at Fermilab” *(by current postdoc Dr. V. Ansari)*
- * GHP2025, APS Topical Group on Hadronic Physics Workshop, March 15th, 2025: “GPU-based online reconstruction for SpinQuest Studies at Fermilab” *(by former postdoc Dr. U. Shrestha)*
- * GHP2025, APS Topical Group on Hadronic Physics Workshop, March 14th, 2025: “Overview of ALERT AI-assisted Track Reconstruction and Particle Identification Project” *(by former postdoc Dr. M. Ouillon)*
- * GHP2025, APS Topical Group on Hadronic Physics Workshop, March 14th, 2025: “Color Transparency Studies via ρ^0 Electroproduction Off Nuclei @ Jefferson Lab” *(by former GS M. Maynes)*
- * GHP2025, APS Topical Group on Hadronic Physics Workshop, March 14th, 2025: “Probing Hadronization Dynamics via Λ SIDIS Production off Nuclei” *(by current GS U. Weerasinghe)*
- *¹INFN-LNF JLab22 Workshop: “Science at the Luminosity Frontier: Jefferson Lab at 22 GeV”, Dec. 12th, 2024: “Study of Tagged Processes with 4He and ALERT at 22 GeV” *(by former postdoc Dr. M. Ouillon)*

- * GHP2023, APS Topical Group on Hadronic Physics Workshop, Apr. 12th, 2023: “Developing an AI Tracking for the CLAS12 ALERT Program” (by former postdoc Dr. M. Yurov)
- * GHP2023, APS Topical Group on Hadronic Physics Workshop, Apr. 12th, 2023: “GPU-based Online Reconstruction for J/ψ TSSA at SpinQuest experiment” (by former postdoc Dr. E. Fuchey)
- * Hybrid “Science at the Luminosity Frontier: Jefferson Lab at 22 GeV” Workshop, Jan. 25th, 2023: “Nuclear DVCS” (by former postdoc Dr. M. Yurov)
- * Virtual 24th SPIN2021 Symposium, Oct. 19th, 2021: “Online Reconstruction on GPU for J/ψ TSSA Study at SpinQuest” (by former postdoc Dr. C. Ayuso)
- * XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS2021), Virtual, Apr. 15th, 2021: “Study of Current and Target Fragmentation using Λ Electroproduction off Nuclei” (by former postdoc Dr. T. Chetry)
- * APS/GHP 2021 Workshop, Virtual, Apr. 14th, 2021: “Hunting Dibaryons: A study of the $\gamma d \rightarrow \pi^+ \pi^- d$ reaction using CLAS” (by former postdoc Dr. T. Chetry)
- * 2021 APS/GHP Workshop, Virtual, Apr. 14th, 2021: “Study of Current and Target Fragmentation using Λ Electroproduction off Nuclei” (by former postdoc Dr. T. Chetry)
- * 2021 APS/GHP Workshop, Virtual, Apr. 14th, 2021: “GPU Online Reconstruction for J/ψ TSSA Study at SpinQuest” (by former postdoc Dr. C. Ayuso)
- * APS/GHP 2019 Workshop, Denver, Colorado, Apr. 10 - 12, 2019: “Study of Λ Hyperon Fragmentation in Current and Target Regions using CLAS” (by former postdoc Dr. T. Chetry)
- * APS/GHP 2019 Workshop, Denver, Colorado, Apr. 10 - 12, 2019: “Fracture Functions from Λ^0 Leptonproduction for Target Remnant Description” (by former ANL postdoc and collaborator Dr. S. Johnston)
- * Jefferson Lab CLAS12 First Experiment Workshop, Newport News, Mar. 6th, 2018: “DC Calibration - status and plans” (by former postdoc Dr. L. Kabir)
- * Jefferson Lab CLAS12 First Experiment Workshop, Newport News, Mar. 28th, 2017: “Drift Chambers Calibration” (by former postdoc Dr. K. Adhikari)
- * Baryons 2016, Tallahassee, FL, May 16th - 20th, 2016: “New results on spin structure functions at very low momentum transfers from Jefferson Lab” (by former postdoc Dr. K. Adhikari)
- * Jefferson Lab CLAS12 First Experiment Workshop, Newport News, Feb. 23rd, 2016: “Drift Chambers” (by my former postdoc Dr. Krishna Adhikari)
- * International Workshop on Experimental and Theoretical Topics in CLAS Data-Mining, July 27th, 2015: “Hadronization of Λ^0 channel: analysis progress” (by former postdoc Dr. K. Adhikari)

◆ Colloquium/Seminar/Meeting

- * 2024 JLUO Annual Meeting, June 11th, 2024: “Probing Hadronization Mechanisms and Diquark Structure via Lambda Electroproduction off Nuclei”.
- * APS 2024 April Meeting, Apr. 6th, 2024: “Probing Hadronization Dynamics and Diquarks Structure via Lambda Production off Nuclei”.

- * [†]MSState Physics & Astronomy Department Colloquium, Jan. 19th, 2024: “Chasing QCD signatures in atomic nuclei: How do we shrink the “rho” meson?”
- * [†]Vtech Physics Department Colloquium, Oct. 27th, 2023: “QCD Signatures Quest: How do we shrink ρ -meson in atomic nuclei?”
- * [†]89th Annual Meeting of the Southeastern Section of the APS (SESAPS), Nov. 4th, 2022: “Exploring Hadronization Mechanisms with SIDIS Production off Nuclei”
- * 2022 APS/DNP Annual Meeting, Oct 30th, 2022: “Study of Color Transparency Phenomenon with Meson Production at Jefferson Lab”
- * [†]University of South Alabama, Physics Department Colloquium, Feb. 10th, 2022: “Chasing QCD Signatures in Nuclei: How did we shrink the rho particle?”
- * Virtual 2021 APS/DNP Annual Meeting, “Chasing QCD Signatures in Nuclei via Color Transparency Study”, Oct 13th, 2021
- * APS/DNP Annual Meeting 2020, Virtual, Oct 31st, 2020: “Chasing QCD Signatures in Nuclei”
- * [†]Jefferson Lab CLAS Collaboration Meeting, Newport News, Nov. 13th, 2019: “RG-D readiness status”
- * [†]Ohio University, Institute of Nuclear and Particle Physics Seminar, Oct. 22nd, 2019: “Highlights of Color Transparency Studies”
- * [†]Mississippi State University, Department of Physics and Astronomy Colloquium, Oct. 7th, 2019: “QCD Signatures in Nuclei: Hadronization and Color Transparency Studies”
- * [†]Jefferson Lab CLAS Collaboration Meeting, Newport News, June 19th, 2019: “RG-D readiness status”
- * [†]Jefferson Lab CLAS Collaboration Meeting, Newport News, Nov. 14th, 2018: “RG-D and RG-E readiness and plans”
- * APS/DNP Annual Meeting 2018, Waikoloa, Hawaii, Oct 25th, 2018: “Highlights of Fragmentation Studies in CLAS”
- * [†]EIC Users Group Meeting, Washington, D.C., July 31st, 2018: “QCD Signature in Nuclei: Hadronization and Color Transparency Studies in CLAS-6/12”
- * [†]Jefferson Lab CLAS Collaboration Meeting, Newport News, Mar. 9th, 2018: “Study of Color Transparency in Exclusive Vector Meson Electroproduction off Nuclei”
- * [†]Fall APS/DNP Meeting, Oct. 28th, 2015: “The Emergence of Hadrons from QCD Color”
- * [†]Mississippi State University, Experimental Nuclear Physics Colloquium, May 5th, 2014: “Measuring Antiquarks in the Proton”
- * [†]Old Dominion University, Experimental Nuclear Physics Seminar, Jun 26th, 2013: “Recent Progress of the E-906/SeaQuest Drell-Yan Experiment at Fermilab”
- * [†]Jefferson Lab Hall-A, Experimental Physics Seminar, Jun 6th, 2013: “Drell-Yan measurements with the E906/SeaQuest Experiment at Fermilab”
- * APS April Meeting, April 2011: “Hadronization Dynamics of Λ^0 Baryon”
- * [†]Rutgers University, Experimental Nuclear Physics Seminar, Oct. 2008: “Search for the Onset of Color Transparency in Rho Electroproduction”
- * [†]Old Dominion University, Experimental Nuclear Physics Seminar, Nov. 2007: “Search for the Onset of Color Transparency @ CLAS Detector”
- * [†]Brookhaven National Laboratory, RHIC Spin Physics Seminar, Nov. 2007: “Search of Color Transparency using CLAS Detector”

- *¹Ohio University, Medium Energy Physics Group Seminar, Nov. 2007: “Search for the Onset of Color Transparency @ CLAS Detector”
- *¹Argonne National Laboratory, Medium Energy Physics Seminar, Dec. 2007: “Search for Color Transparency in ρ^0 Electroproduction”
- *¹Argonne National Laboratory, Student Lunch Seminar, Jan. 2007: “Chasing Color Transparency with Exclusive Vector Meson Electroproduction”
- *¹Argonne National Laboratory, Medium Energy Physics Seminar, Feb. 2007: “Search for Color Transparency using CLAS Detector”
- * Hampton University Graduate School (HUGS), June 2005: “Search for the Onset of Color Transparency @ CLAS: JLab E02-110 Experiment”

By Research Group:

- * ¹2025 Annual Users and Affiliates Meeting: Forward to Discovery through Innovation, July 16th, 2025: “Status Update: SpinQuest” *(by current postdoc Dr. V. Ansari)*
- * New Perspectives 2025, July 15th, 2025: “GPU-based Online Reconstruction for SpinQuest Studies at Fermilab” *(by former postdoc Dr. U. Shrestha)*
- * CLAS Collaboration Meeting, July 10th, 2025: “RG-D CT Studies” *(by former GS M. Maynes)*
- * CLAS Collaboration Meeting, July 10th, 2025: “RG-D Experiments: Status and Analysis Plans” *(by former postdoc Dr. M. Ouillon)*
- * CLAS Collaboration Meeting, July 10th, 2025: “RG-E Lambda Analysis and ALERT AI-assisted PIDs” *(by current GS U. Weerasinghe)*
- * CLAS Collaboration Meeting, July 8th, 2025: “AHDC AI Tracking” *(by former postdoc Dr. M. Ouillon)*
- * 2025 JSA Poster Competition at Jefferson Lab JLUO Annual Meeting, June 23rd, 2025: “Chasing Color Transparency Effects via Vector Meson Electroproduction Off Nuclei” *(by former GS M. Maynes)*
- * 2025 JSA Poster Competition at Jefferson Lab JLUO Annual Meeting, June 23rd, 2025: “Refining Offline Reconstruction and Particle Identification for CLAS12 Experiments” *(by current GS U. Weerasinghe)*
- * ¹Lamar University, Physics Colloquium, June 20th, 2025: “Hadron Spectroscopy and Beyond: Research with CLAS12 at Jefferson Lab” *(by former postdoc Dr. U. Shrestha)*
- * APS Global Physics Summit 2025, Virtual, March 19th, 2025: “Preliminary insights from SpinQuest studies using the polarized target” *(by current postdoc Dr. V. Ansari)*
- * APS Global Physics Summit 2025, Virtual, March 19th, 2025: “Chasing Color Transparency Effects via ρ^0 Electroproduction Off Nuclei” *(by former GS M. Maynes)*
- * APS Global Physics Summit 2025, Virtual, March 19th, 2025: “AI-enhanced Track Finding for Recoil Ions with ALERT and CLAS12 at Jefferson Lab” *(by former postdoc Dr. M. Ouillon)*
- * APS Global Physics Summit 2025, Virtual, March 19th, 2025: “Probing Hadronization Mechanisms with the CLAS12 Lambda Electroproduction off Nuclei” *(by current GS U. Weerasinghe)*
- * CLAS Collaboration Meeting, March 5th, 2025: “RG-D Experiments: Calibration and Analysis Plans” *(by former postdoc Dr. M. Ouillon)*

- * CLAS Collaboration Meeting, March 5th, 2025: “RG-E Lambda Analysis and ALERT AI-assisted PIDs” *(by current GS U. Weerasinghe)*
- * CLAS Collaboration Meeting, March 4th, 2025: “ALERT AI Track Finding” *(by former postdoc Dr. M. Ouillon)*
- * CLAS Collaboration Meeting, Nov. 13th, 2025: “RG-D Experiments: Calibration and Analysis Status” *(by former postdoc Dr. M. Ouillon)*
- * CLAS Collaboration Meeting, Nov. 13th, 2024: “RG-E Lambda Analysis and ALERT AI-assisted Training: Status & Initial Results” *(by current GS U. Weerasinghe)*
- * CLAS Collaboration Meeting, Nov. 12th, 2024: “A(I)LERT AI Track Finding” *(by former postdoc Dr. M. Ouillon)*
- * 91st SESAPS Annual Meeting, Oct. 25th, 2024: “Investigating Hadronization Mechanisms via Lambda SIDIS Production off Nuclei” *(by current GS U. Weerasinghe)*
- * APS DNP Meeting, Oct. 9th, 2024: “Color Transparency Studies via ρ^0 Electroproduction Off Nuclei @ Jefferson Lab” *(by former GS M. Maynes)*
- * APS DNP Meeting, Oct. 9th, 2024: “Hadronization Mechanisms via SIDIS Lambda Electroproduction with CLAS12 at Jefferson Lab” *(by current GS U. Weerasinghe)*
- * APS DNP Meeting, Oct. 8th, 2024: “First Look at SpinQuest Studies with Polarized Targets” *(by current postdoc Dr. V. Ansari)*
- * SpinQuest/E1039 Collaboration Meeting, Virtual, Aug. 9th, 2024: “GPU-based Online Reconstruction at SpinQuest” *(by former postdoc Dr. U. Shrestha)*
- * New Perspectives 2024, July 9th, 2024: “Overview of SpinQuest Polarized Target System” *(by current postdoc Dr. V. Ansari)*
- * CLAS Collaboration Meeting, June 26th, 2024: “Update on RG-D Alignment and CT Analysis” *(by former GS M. Maynes)*
- * CLAS Collaboration Meeting, June 26th, 2024: “First Look at RG-E Lambda Production Channel” *(by current GS U. Weerasinghe)*
- * APS April Meeting, Apr. 5th, 2024: “Study of Color Transparency Phenomenon via Vector Meson Electroproduction Off Nuclei” *(by former GS M. Maynes)*
- * CLAS Collaboration Meeting, March 13th, 2024: “RG-D Alignment and CT Analysis Status” *(by former GS M. Maynes)*
- * CLAS Collaboration Meeting, Nov. 8th, 2023: “RG-D Initial Analysis and Alignment Status” *(by former GS M. Maynes)*
- * APS April Meeting, Virtual, Apr. 26th, 2023: “Exploring AI Techniques for ALERT Tracking” *(by former postdoc Dr. M. Yurov)*
- * APS April Meeting, Virtual, Apr. 26th, 2023: “GPU-based Online Reconstruction for J/ ψ TSSA at SpinQuest experiment” *(by former postdoc Dr. E. Fuchey)*
- * Fermilab SpinQuest Collaboration Meeting, Aug. 19th, 2022: “SpinQuest Slow Controls” *(by former postdoc Dr. M. Yurov)*
- * Hybrid CLAS Collaboration Meeting, June 24th, 2022: “Probing Current and Target Fragmentation Regions via Λ Electroproduction off Nuclei” *(by former postdoc Dr. T. Chetry)*
- * Virtual APS/DNP Annual Meeting, “Study of Λ SIDIS in current and target Fragmentation using CLAS”, Oct 14th, 2021 *(by former postdoc Dr. T. Chetry)*

- * Virtual APS DNP Meeting, Oct. 13th, 2021: “Online Reconstruction on GPU for J/ψ TSSA Study at SpinQuest” *(by former postdoc Dr. Catherine Ayuso)*
- * [†]Virtual 54th Annual Users Meeting, Aug. 3rd, 2021, “Probing Parton Distributions and Nucleon Structure in the SeaQuest and SpinQuest Experiments at Fermilab” *(by former postdoc Dr. C. Ayuso)*
- * APS April Meeting, Virtual, Apr. 20th, 2021: “Study of Current and Target Fragmentation using Λ Electroproduction off Nuclei” *(by former postdoc Dr. T. Chetry)*
- * APS April Meeting, Virtual, Apr. 19th, 2021: “GPU Online Reconstruction for J/ψ TSSA Study at SpinQuest ” *(by former postdoc Dr. C. Ayuso)*
- * Jefferson Lab CLAS Collaboration Meeting, Virtual, Nov. 12th, 2020: “Updates on Lambda Fragmentation Study EG2 datasets” *(by former postdoc Dr. T. Chetry)*
- * Jefferson Lab CLAS Collaboration Meeting, Virtual, Nov. 11th, 2020: “DC Calibrations Studies” *(by former postdoc Dr. T. Chetry)*
- * APS/DNP Annual Meeting, Virtual, Oct. 31st, 2020: “ Λ Fragmentation Study in the Current and Target Regions using CLAS” *(by former postdoc Dr. T. Chetry)*
- * APS/DNP Annual Meeting, Virtual, Oct 30th, 2020: “Online monitoring software at the E1039/SpinQuest experiment” *(by former postdoc Dr. C. Ayuso)*
- * Fall DNP Meeting, Oct. 15th, 2019: “Study of Λ Hyperon Fragmentation in Current and Target Regions using CLAS” *(by former postdoc Dr. T. Chetry)*
- * [†]Mississippi State University, Virtual Colloquia and Seminars Series, August 21st, 2020: “Exploring J/Ψ production at the E906/SeaQuest and E1039/SpinQuest experiments: nuclear effects, Sivers gluon function and improved online monitoring” *(by former postdoc Dr. C. Ayuso)*
- * Jefferson Lab CLAS Collaboration Meeting, Virtual, Apr. 28th, 2020: “Unfolding Λ Hyperon Hadronization using CLAS EG2 data” *(by former postdoc Dr. T. Chetry)*
- * 4th UM-MSU Joint Physics Research Symposium, Mississippi State, March 23rd, 2019: “Color Transparency Study in Vector Meson Electroproduction with CLAS12 at Jefferson Lab” *(by former M.S. GS S. Nanda)*
- * E1039/SpinQuest Fall Collaboration Meeting, November 9th, 2018: “Plans for the E1039 Online Data Reconstruction with GPUs” *(by former postdoc Dr. H. Jiang)*
- * APS/DNP Annual Meeting 2018, Waikoloa, Hawaii, Oct. 25th, 2018: “Study of Forward and Backward Fragmentation Processes in Λ^0 Leptoproduction” *(by former ANL postdoc and collaborator Dr. S. Johnston)*
- * Jefferson Lab CLAS Collaboration Meeting, Newport News, July. 12th, 2018: “Studies of Hadronization from CLAS6 and Readiness for CLAS12” *(by former postdoc Dr. L. Kabir)*
- * Jefferson Lab CLAS Collaboration Meeting, Newport News, July. 11th, 2018: “DC calibration and performances” *(by my former postdoc Dr. Latiful Kabir)*
- * APS April Meeting, Columbus, Ohio, Apr. 16th, 2018: “CLAS12 Drift Chambers Tracking and Calibration” *(Poster by former postdoc Dr. Md L. Kabir).*
- * UM–MSU 2018 Joint Physics Research Symposium, Oxford, Apr. 8th, 2018: “Color Transparency Experiment: Motivation and Setup” *(poster by former MS GS P. Ekanayaka)*
- * 16th Annual Graduate Student Research Symposium, Mississippi State, Feb. 17th, 2018: “Color Transparency Experiment: Motivation and Setup” *(poster by former M.S. GS P. Ekanayaka)*

- * Physics Graduate Student Journal Club Colloquium, Mississippi State, Nov. 17th, 2017: “Color Transparency Experiment: Motivation and Setup”
(by former M.S. GS P. Ekanayaka)
- * Jefferson Lab CLAS Collaboration Meeting, Newport News, Oct. 5th, 2017: “Drift Chamber Tracking for CLAS12” (by former postdoc Dr. L. Kabir)
- * APS April Meeting, Washington, DC, Jan. 28th - 31st, 2017: “New results on spin structure functions at very low momentum transfers from Hall B in Jefferson Lab”
(by former postdoc Dr. K. Adhikari)
- *^lMississippi State University, Experimental Nuclear Physics Colloquium, Aug. 21st, 2014: “Measurement of deuteron's spin structure function g_1 and its moments at low momentum transfers (Q^2)” (by former postdoc Dr. K. Adhikari)

Proposals

- ◆ Jefferson Lab 12-GeV Program, Contact person/Co-spokesperson of approved experiment E12-06-106; “Study of Color Transparency in Exclusive Vector Meson Electroproduction off Nuclei”/E12-06-106A; “Nuclear TMDs in CLAS12”, E12-06-117; “Quark Propagation and Hadron Formation”, and E12-17-012A; “Tagged EMC Measurements on Light Nuclei”

Publication Summary

- ◆ Co-author of **228** papers; **Eight** in Nature, **Two** in Nature Physics, **One** in Nature Communications, **One** in Science, and **54** in Phys. Rev. Letters. See my [full publication list](#)

Citation Summary ([iNSPIRE](#))

- ◆ Total number of only published papers citations: **13,287**, average citations per paper: **58.3**, where **One** paper listed with **500+** citations, **Five** papers listed with **250 - 499** citations, **26** papers listed with **100 - 249** citations, **48** papers with **50 - 99** citations, **98** papers with **10 - 49** citations, and **50** papers with **less than 10** citations, leading to an h_{HEP} **index: 64**