# Curriculum Vitae (short-form)

## Personal Details


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| Name | Dr. Andrew James Ruehe Puckett |
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## Education

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| Ph.D., Physics | Massachusetts Institute of Technology. Awarded 2010-02-17. GPA 4.9/5.0 |
| | Thesis: *Recoil Polarization Measurements of the Proton Electromagnetic Form Factor Ratio to High Momentum Transfer*. Accepted 2009-10-13. Link |
| | Advisor: William Bertozzi, Professor of Physics. |
| B. S., Physics | University of Virginia, 2004, *with Highest Distinction*. GPA 3.86/4.0 |

## Professional Experience

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| 08/2019-Present | Associate Professor, Physics Department, University of Connecticut, Storrs, CT. |
| 08/2013-08-2019 | Assistant Professor, Physics Department. University of Connecticut, Storrs, CT. |
| 01/2012-08/2013 | Staff Scientist, Hall B Group. Thomas Jefferson National Accelerator Facility (Jefferson Lab). Newport News, VA |
| 10/2009-12/2011 | Director's Postdoctoral Fellow, P-25 Group. Los Alamos National Laboratory, Los Alamos, NM |

## Publications

Last updated: 3/2025 Publication List. 110 papers published in peer-reviewed journals (entire career). $h$-index 44.

## Honors/Awards/Funding

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| 2023-2026 | Three-year renewal for $867,000 from the Department of Energy, Office of Science, Office of Nuclear Physics. Title: "Three-dimensional Structure of the Nucleon" |
| 2020-2023 | New three-year grant for $795,000 from the Department of Energy, Office of Science, Office of Nuclear Physics. Title: "Three-dimensional Structure of the Nucleon" |
| 2021 | Sabbatical Salary support, Jefferson Lab (non-competitive award). 50% academic year salary and fringe benefits from Jefferson Lab to facilitate a full-year sabbatical at JLab during calendar year 2021, during which the first two SBS experiments in Hall A were installed and successfully completed. |
| 2015-2020 | US Department of Energy Office of Science Early Career Award: |

- Five-year research grant totaling $750,000.
- One of 50 proposals selected for funding from about 620 applications in the 2015 competition.

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| 2013-2018 | Bridge appointment, Thomas Jefferson National Accelerator Facility (Jefferson Lab or JLab). Bridge appointment with JLab supporting half of my academic-year salary and reducing my teaching load for five years. |
| 2009 | Southeastern Universities Research Association (SURA)/Jefferson Science Associates (JSA) Thesis Prize (Best Ph.D. thesis completed on research carried out at Jefferson Lab during 2009). |
| 2009-2011 | Director's Postdoctoral Fellowship, Los Alamos National Laboratory (accepted). |
| 2009 | Director's Postdoctoral Fellowship, Argonne National Laboratory (offered). |
| 2006-2008 | SURA/JSA Graduate Fellowship. Fellowship support for half the stipend of my graduate research assistantship. |
| 2006 | First prize, SURA annual graduate student poster competition. |
| 2004-2005 | Presidential Graduate Fellowship, MIT. Full stipend support with no teaching requirement and no required commitment to a specific research group for selected first-year graduate students in physics. |
| 2004 | James W. Elkins Award, University of Virginia (most outstanding graduating physics major). |
| 2004 | Phi Beta Kappa, University of Virginia. |
| 2000-2004 | Echols Scholar, University of Virginia |

## Research Experience/Achievements (since Ph.D.)

08/2013-Present University of Connecticut

- Total of $2.4 million in sole-PI, competitive extramural funding since 2015 (average $220k/year), mainly from US Department of Energy.
- Completion (as of May 2024) of five SBS experiments: E12-09-019, E12-09-016, E12-20-010, E12-17-004, and E12-20-008. Data currently under analysis.
- Spokesperson and contact person of approved experiment E12-24-010 to add another, high-precision measurement to the upcoming E12-07-109. **Scheduled 2025**
- Spokesperson of approved experiment E12-09-018 studying neutron transverse spin structure in Hall A
- Spokesperson of approved experiment E12-07-109 measuring polarization transfer in high-$Q^2$ elastic electron-proton scattering. **Scheduled 2025**.
- Spokesperson and contact person of approved (and completed) experiment E12-20-008 that will measure polarization transfer in wide-angle charged pion photoproduction $\vec{\gamma}n \to \pi^- \vec{p}$.
- Spokesperson of approved (and completed) experiment E12-17-004.
- Ring Imaging Cherenkov (RICH) detector preparation for Hall A experiments.
- Leader of simulation, software, and analysis working group within the SBS collaboration. Major software projects developed/led include:

  **SBS-offline** Library for the specialized event reconstruction and online and offline data analysis software needed by the SBS experiments in Hall A, based on the Podd framework (standard analysis software for Hall A).

  **g4sbs** GEANT4-based Monte Carlo simulation package for the SBS family of experiments in Hall A.

**SBSGEM_standalone** Standalone ROOT-based code for the analysis of GEM data: cluster-finding, hit reconstruction, track-finding, software alignment, analysis of spatial resolution, detection and track-finding efficiency, gain, etc.

- Data analysis and publication of physics results from Jefferson Lab experiments.
- Advising of Ph.D. and Masters' thesis students in UConn physics department. Three Ph.D. students graduated, two current advisees
  - Dr. Richard F. Obrecht, graduated 2019 (thesis here). Now Data Scientist/Machine Learning Engineer at Johns Hopkins Applied Physics Lab.
  - Sebastian Seeds, 2018-2024 (Thesis defended July 19, 2024). *Now Staff Scientist 2 at Los Alamos National Lab, in the ISR division.*
  - Provakar Datta, 2018-2024 (Thesis defensed Sept. 18, 2024). *Now Postdoctoral Research Fellow at Lawrence Berkeley National Lab*
  - Nikolas (Kip) Hunt, 2022-2028 (expected).
  - Sarah Tucker, 2023-2029 (expected).
- Postdoctoral mentoring, 2016-present.
  - Dr. Eric Fuchey, 2016-2022. Now at the College of William and Mary
  - Dr. Rupesh Dotel, 2022-2023. Currently in medical physics.
  - Dr. Provakar Datta, October-December, 2024. Now at LBNL (see above)
  - Dr. Anuruddha Rathnayake, 2024-
- Development of new experiment proposals.
- Supervision of undergraduate research thesis and independent study projects.

01/2012-08/2013 Jefferson Lab, Hall B Group

- Research, development, simulation, design, construction and testing of the High Threshold Cherenkov Counter (HTCC) for the CLAS12 spectrometer in Hall B. The HTCC detects Cherenkov radiation emitted by charged particles moving faster than the speed of light in the $CO_2$ gas volume of the detector. This detector is used to identify scattered electrons with momenta up to 5 GeV/c.
- Membership and active participation in the physics program of the CLAS collaboration.
- Data analysis and publication of results from Jefferson Lab experiments.
- Quality control, including ultrasonic void detection and laser profile measurements, of soldering process performed on superconducting Rutherford cable by external contractor for the CLAS12 Torus and solenoid magnets.

10/2009-12/2011 Los Alamos National Laboratory, P-25 Group (Director's Postdoctoral Fellowship).

- Analysis, simulation and preparation of publications from completed Jefferson Lab experiment E06-010: the neutron transversity experiment. This experiment, which collected data in 2008-2009, measured the target single spin asymmetries and the beam-target double-spin asymmetries in charged pion electro-production in semi-inclusive deep-inelastic electron scattering (SIDIS) on a transversely polarized Helium-3 target, shedding light on the transverse spin and orbital angular momentum distributions of quarks in the neutron.
- Development of experiment proposals for the JLab 12 GeV Upgrade, including E12-09-018, of which I am a spokesperson, which was approved for 64 beam-days with an "A-" scientific rating by the Jefferson Lab Program Advisory Committee (PAC) at its 38th meeting in August 2011.

- Data analysis and final publication of several experiments related to the proton form factors, including E04-108 (the subject of my Ph.D. thesis), E04-019, and E99-007

## Professional Organizations/Service Work

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| 2013-Present | American Association of University Professors (AAUP), National and UConn chapter member. |
| 2005-Present | American Physical Society (APS)<br>• Division of Nuclear Physics (DNP)<br>– DNP program committee, at-large member (2025-present)<br>• Topical Group on Hadronic Physics (GHP) |
| 2024-present | UConn physics department course and curriculum committee |
| 2024-present | UConn physics: Future of the department committee |
| 2024-present | UConn physics: Undergraduate affairs committee |
| 2024-present | UConn physics: Particles and Nuclear Physics Seminar Organization |
| 2023-2024 | Nuclear physics faculty search committee chair |
| 2021-2023 | Jefferson Lab Users' Organization Board of Directors, at-large member |
| 2019-2021 | Chair, SBS Collaboration Coordinating Committee |
| 2017-2019 | Hall A Collaboration Coordinating Committee, Secretary |
| 2014-2020 | E12-09-018 experiment representative in SBS Coordinating Committee |
| 2020-present | E12-07-109 experiment representative in SBS Coordinating Committee |
| 2016-2024 | UConn physics department colloquium chair |
| 2020-2024 | UConn physics department graduate admissions committee |
| 2020-2024 | UConn physics department annual alumni newsletter organization (with support of physics admin staff). |
| 2019 | NSF panel reviewer |
| 2015-present | Peer reviewer for several NSF and DOE grant proposals per year |
| 2015-present | Frequent referee for peer reviewed journal publications in nuclear/particle physics, including Physical Review, Physics Letters, European Physical Journal and others. |

## Courses Taught (catalog descriptions here)

PHYS 3201 Electricity and Magnetism I

- Fall semester, 2025
- Spring semester, 2024

PHYS 3402 Quantum Mechanics II

- Spring semester, 2022

PHYS 3101 Mechanics I

- Spring semester, 2025
- Fall semester, 2023
- Spring semester, 2020

PHYS 1600Q Introduction to Modern Physics

- Fall semester, 2018
- Fall semester, 2017

PHYS 2501W Advanced Undergraduate Laboratory

- Spring semester, 2026
- Spring semester, 2025
- Spring semester, 2023
- Fall semester, 2022
- Fall semester, 2020
- Fall semester, 2019
- Fall semester, 2018
- Fall semester, 2014
- Fall semester, 2013

PHYS 1010Q Elements of Physics.

- Fall semester, 2016
- Fall semester, 2015

March 5, 2025