

Curriculum Vita: Steven J. Pollock (Last updated Jan 2026)

Full Professor with Tenure

Department of Physics, University of Colorado, Boulder, UCB 390, Boulder CO

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ORCID ID: 0000-0002-2462-8164

Education:

Undergrad: Massachusetts Institute of Technology, B. Sc. in Physics (1978-'82)

Graduate: Stanford University, M.S. in Physics (1982-1984)

Graduate: Stanford University, Ph.D. in Physics (1984-1987)

Ph. D. Thesis: "Electroweak Interactions in the Nuclear Domain" (Advisor J.D. Walecka)

Academic Positions:

Full Professor with Tenure, Dep't of Physics, CU Boulder (Aug 2009 - present)

Associate Professor with Tenure, Dep't of Physics, CU Boulder (Aug 2000-July 2009)

Assistant Professor, Dep't of Physics, CU Boulder (Aug 1993-Aug 2000)

Senior Scientist, NIKHEF-K (National Institute for Nuclear and High Energy Physics),
Amsterdam Netherlands (Jan 1993-Aug 1993)

Postdoctoral Fellow, Institute for Nuclear Theory, Seattle WA (1990-1992)

Postdoctoral Fellow, NIKHEF-K, Amsterdam Netherlands (1988-1990)

Honors:

Cornelius Bennhold Memorial Lecture (GWU), 2024

American Physical Society Excellence in Education Award (shared, 2019)

Invited Professor, University of Hokkaido, 2 months (summer 2017)

American Physical Society Fellow, 2015

University of Colorado Robert L. Stearns Award, 2015

Carnegie/CASE US Professor of the Year 2013

Center for STEM learning fellow 2013.

Award of Excellence as an Outstanding Teacher for Technology in Teaching. 2013

APS Outstanding Referee, 2013

PERC Proceedings Paper award Finalist, 2012 (twice), and 2010

CU Chancellor's Award for Excellence in STEM Education, Innovation, and Research, 2009

CU President's Teaching Scholar award, 2008

CU Sigma Pi Sigma Favorite Physics Professors, 2013, 2012, 2009, 2007, 2005

CU Sigma Pi Sigma, Outstanding Physics Professor, 2012, 2006

CU "Best Should Teach" gold award, Aug 2006.

Marinus Smith Award (CU Parents Assoc) Mar 2006

Boulder Residence Life Academic Teaching Award, 2006, 2004

Co-recipient: CU Boulder President's Faculty Excellence Award for Advancing Teaching and Learning through Technology 2004

Pew-Carnegie Teaching Scholar Award, 2001-2002

Boulder Faculty Assembly Teaching Excellence Award, CU Boulder, 1998

Invited participant, Nat'l Academy of Sciences Symposium on Frontiers of Science, 1994

Alfred P. Sloan Research Fellowship, 1994

Junior Faculty Development Award, CU Boulder, 1994

NSF/NATO Postdoctoral Fellow, 1993

Creative work:

"The Art of Teaching" (P. Allitt, Teaching Company, 2009, one of 6 featured teachers)

"The Great Ideas of Classical Physics" (Teaching Company, 2006)

"Particle Physics for Non-scientists: A tour of the Microcosmos" (Teaching Company, 2002)

"Thinkwell Physics I" (S. Pollock, Thinkwell, 2001)

Grants: (Bold are still active as of Spring 2026)

- **Co-PI (w. K. Perkins), NSF IUSE #2439569 "Scaling Engagement and Learning in Quantum Science with PhET Interactive Simulations", \$1,500,000. Awarded 10/2025-09/2029**
- **Co-PI (w. T. Ito), NSF IUSE 2111067 "The Influence of Student Characteristics on Responses to Academic Feedback", \$599,190. Awarded 04/2021**
- Co-PI (w. B. Wilcox), NSF Integrative Activities in Physics 2012147 "Collaborative Research: Connecting Spins-1st Quantum Instruction to Quantum Information Science", \$482,039. 08/'20-08/'25
- Co-PI NSF DUE 1340083 "Streamline to Mastery Phase II: Teacher-Led Professional Partnerships" Awarded 08/15/2013 \$1,200,400 V. Otero (PI) 2013-2022
- PI on NSF-DUE-1626280 "Collaborative Research: Research as a base to develop adaptable curricula bridging instructional paradigms in Quantum Mechanics", \$345,744 (2016 – 2021) .
- PI on NSF- DUE-1023028, "Developing research-based Tutorials in Upper-division Electricity and Magnetism", \$530, 906 (2010-2014)
- CoPI (w. V. Otero) on NSF DUE-1340083 "Streamline to Mastery Phys II: Teacher-Led Professional Partnerships", \$1,800,000 (2013-2017)
- CoPI (w. T. Ito) on NSF HRD-1251590 "Broadening Women's Participation in STEM: The Critical Role of Belonging", \$1,030,439 (2013-2015)
- Co PI (w. V. Otero) on NSF DUE-0833258, "STEM Colorado/Noyce Teacher Scholarship Program" \$500,000 (2008-2012)
- Co PI (w. K. Perkins) on NSF DUE-0737118 "Using a Research-based Approach to Reform Upper-division Quantum I and E&M I", \$150,000 (2008-2009)
- Co PI (w. V. Otero) on NSF ESI TPC -0554616 "Learning Assistant Model of Teacher Education in Science and Technology") \$1.53M (2006-2009)
- Co PI (w. N. Finkelstein) on APS PhysTec grant (~\$100,000/yr) (2004-2008)
- Co PI (w. N. Finkelstein) on NSF DUE-0410744 "Implementing Tutorials Sustainably: Restructuring Undergrad. Recitations and Labs in Intro. Physics" \$179,587 (2004-06)
- Co Pi (w. N. Finkelstein) CU LEAP program, "Preparing Graduate Students and Postdoctoral Researcher Professionally." Total award ~\$8000 (25% Graduate RA) 1/1/04-6/1/04.
- NSF support (observer status) 2003 Fermi School on Physics Education Research
- CO PI on US Department of Energy, Award DE-FG03-93ER-40774, "Theoretical Nuclear Physics" (Continuous awards from 1993-2005)

Declined Grant submissions:

- Co PI on NSF-2200407 "Empowerment Through Responsive Partnerships" 2022 (\$2,998,020)
- Co PI on NSF-2100094 "The Mechanisms of Belonging: How Does Belonging Affect..." 2021 (\$1,255,955)
- Co PI on NSF-2103126 "Empowerment Through Responsive Partnerships" 2021 (\$2,998,020)
- Co PI on NSF-2000931 "Gender Differences in Response to Academic Feedback and..." 2020 (\$1,128,564)
- Co PI on NSF-2010129 "Empowering Teachers through Responsive Partnerships..." 2020 (\$2,999,894)
- Co PI on NSF-2000809 "The Mechanisms of Belonging How does Belonging Affect..." 2020 (\$1,291,246)
- Co PI on NSF-1950176 "Moving Efforts of Noyce to Operational Resources (MENTOR)" 2020 (\$2,999,595)
- Co PI on NSF-1920738 "Gender Differences in Response to Academic Feedback and ..." 2019 (\$1,113,419)
- Co PI on NSF-1760323 "Gender Differences in Academic Feedback and their Contribution..." 2018 (\$927,977)
- Co PI on NSF-1661035 "Gender Differences in Academic Feedback and their Contribution..." 2017 (\$1,025,444)
- Co PI on NSF-1432655 "Broadening Participation in STEM through Inductive Reasoning" 2014 (\$1,327,458)
- Co PI on NSF-1348862 "Broadening Participation in Science: Engaging English Language Learnings..." 2013 (\$1,499,217)

- Co PI on NSF-1324397 “SBP: Broadening Women’s Participation in STEM: The ...” 2013 (\$917,854)
- Co PI on NSF-1316742 “Crosscutting themes in science and humanity: Engaging underrepresented...” 2013 (\$2,590,681)
- Co PI on NSF-1222813 “Challenging Traditional Assumptions of High School Science Through...” 2012 (\$2,307,367)
- Co PI on NSF-1005820 “Factors that impact the gender gap in College...” 2010 (\$397,552)
- Co PI on NSF-0936764 “GSE/RES: Investigating factors that impact the gender gaps...” 2009 (\$398,869)
- Co PI on NSF-0827960 “Collaborative Research: :GSE/RES: Understanding the Gender Gap in...” 2008 (\$419,477)
- Co PI on NSF-0618737 “Teaching to Learn Physics: A Model Course for...” 2006 (\$432,949)
- Co PI on NSF-0634084 “Beyond Content: Understanding the impact of, and impact...” 2006 (\$598,369)
- Co PI on NSF-0525528 “The impact of Students’ beliefs about science on...” 2005 (\$731,679)
- Co PI on NSF-0512815 “A widely useful survey for assessing important student...” 2005 (\$350,078)
- Co PI on NSF-0440376 “Transforming Undergraduate Science Education...” 2004 (\$1,798,044)
- Co PI on NSF-0431620 “Research on Structuring Teaching and educational Practices (STEPS)...” 2004 (\$1,494,742)

Synergistic activities and research directions:

Member, Physics Education Research group. Implementing, investigating and developing curricular and pedagogical reforms and assessments in upper-division physics courses with the Science Education Initiative. Investigating impacts of established reforms in large lecture introductory courses, including use of "Tutorials in introductory physics", with graduate TA training, and use of undergraduate Learning Assistants. Participant in Pew/Carnegie teaching scholars program, and Colorado President's teaching scholar program. Colorado physics liaison to PhysTEC (physics teacher's education coalition). Active participant in the American Association of Physics Teachers and the International Society for the Scholarship of Teaching and Learning, CU Graduate Teacher Program, and CU Faculty Teaching Excellence Program.

Thesis advisor and postgraduate scholar advisor

Postdoctoral associates: Qing Ryan (PER), Charles Bailey (PER), Marcos D Caballero (PER), Rachel Pepper (PER), Stephanie Chasteen (PER), Steven Goldhaber (PER), Velco Dmitrasinovic (nuclear), Frank Lee (nuclear), Horst Mueller (nuclear)

Graduate Students (research assistants): Giaco Cosiglia (PhD, PER) Bethany Wilcox (PhD, PER), Lauren Kost (PhD, PER), Marc Welliver (PhD, nuclear), Chris Keller (Masters, PER),

Coadviser/committee member for Benjamin Spike (PhD, PER), Chandra Turpen (PhD, PER), Noah Podolefsky (PhD, PER), Pat Kohl (PhD, PER), J. Meyer (PhD, PER), Michael Freeman (current), Jonan Rohi-Plueger (current). M. Griston (current)

Refereed journal articles in the field of physics education research.

“Introductory quantum information science coursework at US institutions: content coverage”, J. Meyer, G. Passante, S. Pollock, B. Wilcox, *EPJ Quantum Technology* 11 (1) ARTN 16 (Dec 2024)
<https://doi.org/10.1140/epjqt/s40507-024-00226-0>

“How media hype affects our physics teaching: A case study on quantum computing,” J. Meyer, G. Passante, S. Pollock, B. Wilcox, *The Physics Teacher* 61, pp. 339-342 (2023)
<https://doi.org/10.1119/5.0117671>

“Intuition in Quantum Mechanics: Student perspectives in upper-division quantum mechanics.”, G. Corsiglia, S. Pollock, and G. Passante, *Phys. Rev. Phys. Educ. Res.* **19**, 010109 (2023),
<https://doi.org/10.1103/PhysRevPhysEducRes.19.010109>

“Adaptable research-based materials for teaching quantum mechanics,” S. Pollock, G. Passante, H. Sadaghiani, *American Journal of Physics* **91**, 40 (2023); <https://doi.org/10.1119/5.0109124>

“Today’s interdisciplinary quantum information classroom: Themes from a survey of quantum information science instructors”, J. C. Meyer, G. Passante, S. Pollock, B. Wilcox, *Phys. Rev. Phys. Educ. Res.* **18**, 010150 (2022),
<https://link.aps.org/doi/10.1103/PhysRevPhysEducRes.18.010150>

“From Cartesian coordinates to Hilbert space: Supporting student understanding of basis in quantum mechanics”, B. Schermerhorn, G. Corsiglia, H. Sadaghiani, G. Passante, S. Pollock, *Phys. Rev. Phys. Educ. Res.* **18**, 010145 (2022),
<https://link.aps.org/doi/10.1103/PhysRevPhysEducRes.18.010145>

“Exploring student ideas on change of basis in quantum mechanics”, G. Corsiglia, B. Schermerhorn, H. Sadaghiani, A. Villasenor, S. Pollock, G. Passante, *Phys. Rev. Phys. Educ. Res.* **18**, 010144 (2022),
<https://link.aps.org/doi/10.1103/PhysRevPhysEducRes.18.010144>

"Impact of problem context on students' concept definition of an expectation value", B. Schermerhorn, H. Sadaghiani, A. Mansour, S. Pollock, G. Passante, *Phys. Rev. ST Phys. Educ. Res.* **17** 020141 (2021),
<https://doi.org/10.1103/PhysRevPhysEducRes.17.020141>

"A Deeper look at Question Categories, Concepts and Context Covered: Modified Module Analysis of a Quantum Mechanics Concept Assessment", J. Wells, H. Sadaghiani, B. Schermerhorn, G. Passante, S. Pollock, *Phys. Rev. ST Phys. Educ. Res.* **17** 020113 (2021), <https://doi.org/10.1103/PhysRevPhysEducRes.17.020113>

"Online administration of research-based assessments", B. Van Dusen et al., Refereed Guest Editorial for *American Journal of Physics* **89**, 7 (2021); <https://doi.org/10.1119/10.0002888>

"Retention of conceptual learning after an interactive introductory mechanics course", B. Wilcox, S. Pollock, and D. Bolton, *Phys. Rev. ST Phys. Educ. Res.* **16** 010140 (2020), <https://doi.org/10.1103/PhysRevPhysEducRes.16.010140>

“Investigating students’ behavior and performance in online conceptual assessment”, B. Wilcox and S. Pollock, *Phys. Rev. ST Phys. Educ. Res.* **15**, 020145 (2019), <https://doi.org/10.1103/PhysRevPhysEducRes.15.020145>

“Time evolution in quantum systems: a closer look at student understanding”, Gina Passante, Benjamin Schermerhorn, Steven Pollock, and Homeyra Sadaghiani, *Eur. J. Phys.* **41** 015705. <https://doi.org/10.1088/1361-6404/ab58bf>

“Exploring student preferences when calculating expectation values using a computational features framework”, Benjamin Schermerhorn, Gina Passante, Homeyra Sadaghiani, and SJP, *Phys. Rev. ST Phys. Educ. Res.* **15**, 020144 (2019), <https://doi.org/10.1103/PhysRevPhysEducRes.15.020144>

“Demographic gaps or preparation gaps?: The large impact of incoming preparation on performance of students in introductory physics”, Shima Salehi, Eric Burkholder, G. Peter Lepage, SJP, and Carl Wieman. *Phys. Rev. ST Phys. Educ. Res.* **15**, 020114 (2019) (*Editor’s Suggestion*) <https://doi.org/10.1103/PhysRevPhysEducRes.15.020114>

“Student difficulties with boundary conditions in the context of electromagnetic waves”, Q. Ryan, B. Wilcox, SJP, *Phys. Rev. ST Phys. Educ. Res.* **14**, 020126 (2018), <https://doi.org/10.1103/PhysRevPhysEducRes.14.020126>

“Conceptual assessment tool for advanced undergraduate electrodynamics”, C. Baily, Q. Ryan, C. Asolfi, SJP, *Phys. Rev. ST Phys. Educ. Res.* **13**, 020113 (2017), <https://doi.org/10.1103/PhysRevPhysEducRes.13.020113>

“Assessing learning outcomes in middle-division classical mechanics”, M. Caballero, L. Doughty, A. Turnbull, R. Pepper, SJP, *Phys. Rev. ST Phys. Educ. Res.* **13**, 010118 (2017), <https://doi.org/10.1103/PhysRevPhysEducRes.13.010118>

“Fitting in or opting out: A review of key social-psychological factors influencing a sense of belonging for women in physics”, K. L. Lewis, J. Stout, SJP, N. Finkelstein, T. Ito, *Phys. Rev. ST Phys. Educ. Res.* **12**, 020110 (2016), <https://doi.org/10.1103/PhysRevPhysEducRes.12.020110>

“Upper-division student difficulties with separation of variables”, B. R. Wilcox and S. J. Pollock, *Phys. Rev. ST Phys. Educ. Res.* **11**, 020131 (2015) (*Editor’s Suggestion*), <https://doi.org/10.1103/PhysRevSTPER.11.020131>

“Validation and analysis of the coupled multiple response Colorado upper-division electrostatics diagnostic”, B. R. Wilcox and S. J. Pollock, *Phys. Rev. ST Phys. Educ. Res.* **11**, 020130 (2015), <https://doi.org/10.1103/PhysRevSTPER.11.020130>

“Educational transformation in upper-division physics: The Science Education Initiative model, outcomes, and lessons learned”, S. V. Chasteen, B.R. Wilcox, M. D. Caballero, K. K. Perkins, SJP, C. E. Wieman, *Phys. Rev. ST Phys. Educ. Res.* **11**, 020110 (2015) (PER focused collection), <https://doi.org/10.1103/PhysRevSTPER.11.020110>

“Development and uses of upper-division conceptual assessments”, B. Wilcox, M. Caballero, C. Baily, H. Sadaghiani, S. Chasteen, Q. Ryan, S. Pollock, *Phys. Rev. ST Physics Ed. Research* **11**, 020115 (2015) (PER focused collection), <https://doi.org/10.1103/PhysRevSTPER.11.020115>

“Quantum Mechanics concept assessment: Development and validation study”, H. R. Sadaghiani and S.J. Pollock, *Phys. Rev. ST Physics Ed. Research* **11**, 010110 (2015), <https://doi.org/10.1103/PhysRevSTPER.11.010110>

“Upper-division student difficulties with the Dirac Delta function”, B. R. Wilcox and S.J. Pollock, *Phys. Rev. ST Physics Ed. Research* **11**, 010108 (2015), <https://doi.org/10.1103/PhysRevSTPER.11.010108>

“Unpacking Students' Use of Mathematics in Upper-division Physics: Where do we go from here?” , M. Caballero, B. Wilcox, L. Doughty, S. Pollock, *Eur. J. Phys.* **36** 065004 (2015), <https://doi.org/10.1088/0143-0807/36/6/065004>

“Coupled multiple-response versus free-response conceptual assessment: An example from upper-division physics”, B. R. Wilcox and S. Pollock, *Phys. Rev. ST Physics Ed. Research* **10**, 020124 (2014) <https://link.aps.org/doi/10.1103/PhysRevSTPER.10.020124>

“Interactive engagement in Upper-Division Physics”, Steven J. Pollock, *VCHN Change: The Magazine of Higher Learning*, **46**. 34. DOI. 10.1080/00091383.2014.905425. (2014)

“A Model for Incorporating Computation Without Changing the Course: An example from middle-division classical mechanics”, M.D. Caballero and S.J. Pollock, *American Journal of Physics* **82**, p. 231 (2014)

“Analytic Framework for Students’ Use of Mathematics in Upper-Division Physics”, B. R. Wilcox, M.D. Cabellero, D. A. Rehn, and S.J. Pollock, *PhysRev: ST Phys Ed. Rsrch* **9**, 020119 (2013) <https://link.aps.org/doi/10.1103/PhysRevSTPER.9.020119>

“Thinking like a physicist: A multi-semester case study of junior-level electricity and magnetism”, S. V. Chasteen, S. J. Pollock, R. E. Pepper, and K. K. Perkins, *American Journal of Physics* **80**#10, p. 923 (2012)

“Transforming the junior level: Outcomes from instruction and research in E&M”, S. V. Chasteen, S. J. Pollock, R. E. Pepper, and K. K. Perkins, *PhysRev: ST Phys Ed. Rsrch* **8**, 020107 (2012) <https://link.aps.org/doi/10.1103/PhysRevSTPER.8.020107>

“Colorado Upper-Division Electrostatics diagnostic: A conceptual assessment for the junior level”, S. V. Chasteen, S. J. Pollock, R. E. Pepper, and K. K. Perkins, *PhysRev: ST Phys Ed. Rsrch* **8**, 020108 (2012) <https://link.aps.org/doi/10.1103/PhysRevSTPER.8.020108>

"Observations on Student Difficulties with Mathematics in Upper-Division Electricity and Magnetism", R. Pepper, S. V. Chasteen, S.J. Pollock, K. K. Perkins, *Phys. Rev. ST Physics Ed. Research* **8**, 010111 (2012)
<https://link.aps.org/doi/10.1103/PhysRevSTPER.8.010111>

"A Thoughtful Approach to Instruction: Course Transformation for the Rest of Us", S. V. Chasteen, K.K. Perkins, S. J. Pollock, C.E., Wieman, *J. College Sci. Teach.* 40#4, p. 24 (2011)

"Reducing the Gender Achievement Gap in College Science: A Classroom Study of Values Affirmation", A. Miyake, L. E. Kost-Smith, N. D. Finkelstein, S. J. Pollock, G. L. Cohen & T. A. Ito, *Science* **26**, 1234-1237 (2010)

"A Physics department's role in preparing physics teachers: The Colorado Learning Assistant Model", V. Otero, S. Pollock, N. Finkelstein, *American Journal of Physics* **78** (11) 1218 (2010)

"Gender disparities in second-semester college physics: The incremental effects of a 'smog of bias'", L.E. Kost-Smith, S.J. Pollock, & N.D. Finkelstein, *PhysRev: ST Phys Ed. Rsrch* **6** (2), 020112 (2010)
<https://link.aps.org/doi/10.1103/PhysRevSTPER.6.020112>

"A Longitudinal study of student conceptual understanding in Electricity and Magnetism", S. Pollock, *Phys. Rev. ST Physics Ed. Research* **5**, 020110 (2009) <https://link.aps.org/doi/10.1103/PhysRevSTPER.5.020110>

"Characterizing the gender gap in introductory physics", L. Kost, S. Pollock, N. Finkelstein, *Phys. Rev. ST Physics Ed. Research* **5**, 010101 (2009) <https://link.aps.org/doi/10.1103/PhysRevSTPER.5.010101>

"Sustaining educational reforms in introductory physics", Steven J. Pollock and Noah D. Finkelstein, *Physical Review ST-PER* **4**, 010110 (2008) <https://link.aps.org/doi/10.1103/PhysRevSTPER.4.010110>

"Reducing the gender gap in the physics classroom: How sufficient is interactive engagement?", S. Pollock, N. Finkelstein, L. Kost, *Physical Review ST-PER* **3**, 010107 (2007)
<https://link.aps.org/doi/10.1103/PhysRevSTPER.3.010107>

"Who Is Responsible for Preparing Science Teachers?" Valerie Otero, Noah Finkelstein, Richard McCray, and Steven Pollock, *Science* **28** July 2006: 445-446.

"Replicating and Understanding Successful Innovations: Implementing Tutorials in Introductory Physics", N. Finkelstein, S. Pollock, *Phys. Rev. ST PER* **1**, 010101 (2005).
<https://link.aps.org/doi/10.1103/PhysRevSTPER.1.010101>

"Understanding Student Disengagement in Peer-Instruction Classroom", S. Pollock, *Nuovo Cimente: Proceedings of the 2003 Fermi School on PER*, ed. E.F. Redish and M. Vicentini, IOS press 2004, pp. 635-649

Refereed articles in conference proceedings and newsletters in the field of physics education research, (Note: *Physics Education Research Conference proceedings (PERC)* serve as a central refereed publication venue in the research field of PER).

"Effectiveness of an online homework tutorial about changing basis in quantum mechanics", G. Corsiglia, S. J. Pollock and B. R. Wilcox, 2022 Physics Education Research Conference Proceedings pp 118-123doi: [10.1119/perc.2022.pr.Corsiglia](https://doi.org/10.1119/perc.2022.pr.Corsiglia)

"Modified color frames for analyzing group interactions during an online quantum tutorial", B. Cervantes, G. Passante, G. Corsiglia, S. Pollock, 2022 Physics Education Research Conference Proceedings pp 88-93, doi: [10.1119/perc.2022.pr.Cervantes](https://doi.org/10.1119/perc.2022.pr.Cervantes)

"Investigating student interpretations of the differences between classical and quantum computers", J.C. Meyer, G. Passante, S. J. Pollock, B.R. Wilcox, 2022 Physics Education Research Conference Proceedings, pp 317-322 doi: [10.1119/perc.2022.pr.Meyer](https://doi.org/10.1119/perc.2022.pr.Meyer)

"An overview of Quantum Information Science Courses at US Institutions", Bianca Cervantes, Gina Passante, Bethany R. Wilcox, and Steven J. Pollock, 2021 Physics Education Research Conference Proceedings, doi: [10.1119/perc.2021.pr.Cervantes](https://doi.org/10.1119/perc.2021.pr.Cervantes)

" Investigating students' strategies for interpreting quantum states in an upper-division quantum computing course", Josephine Meyer, Gina Passante, Steven J. Pollock, Michael Vignal, and Bethany R. Wilcox, 2021 Physics Education Research Conference Proceedings, doi: [10.1119/perc.2021.pr.Meyer](https://doi.org/10.1119/perc.2021.pr.Meyer)

Contributed section to "A Guide to Effective Practices for Physics Programs (EP3)", Ed S. McKagan et al, APS College Park. Published 2021: <https://ep3guide.org/about/contributors-and-reviewers>

"Characterizing and monitoring student discomfort in upper-division quantum mechanics", G. Corsiglia, B. Schermerhorn, G. Passante, H. Sadaghiani, S. Pollock, 2020 Physics Education Research Conference Proceedings, doi: [10.1119/perc.2020.pr.corsiglia](https://doi.org/10.1119/perc.2020.pr.corsiglia)

"Exploratory factor analysis of the QMCA.". A. Quaal, G. Passante, S. Pollock, H. Sadaghiani, 2020 Physics Education Research Conference Proceedings, doi: [10.1119/perc.2020.pr.Quaal](https://doi.org/10.1119/perc.2020.pr.Quaal)

"Exploring and supporting physics students' understanding of basis and projection", B. Schermerhorn, H. Sadaghiani, G. Corsiglia, G. Passante, S. Pollock, RUME XXIII Research in Undergraduate Mathematics Education, February 27, 2020 - February 29, 2020).Ed.Karunakaran S; Reed Z; Higgins A, Boston, MA: SIGMAA, 2020.935-941. (Published online 2020) <http://sigmaa.maa.org/rume/RUME23.pdf>

"Student perceptions of math-physics interactions throughout spins-first quantum mechanics", Benjamin P. Schermerhorn, Armando Villasenor, Darwin Del Agunos, Homeyra R. Sadaghiani, Gina Passante, and SJP, 2019 Physics Education Research Conference Proceedings, doi:[10.1119/perc.2019.pr.Schermerhorn](https://doi.org/10.1119/perc.2019.pr.Schermerhorn)

"Student behavior and test security in online conceptual assessment", Bethany R. Wilcox and SJP, 2019 Physics Education Research Conference Proceedings, doi:[10.1119/perc.2019.pr.Wilcox](https://doi.org/10.1119/perc.2019.pr.Wilcox)

"Designing, validating, and contrasting closely related conceptual quantum mechanics questions for spin states and spatial wavefunctions", SJP, H. Sadaghiani, A. Quaal, G. Passante, 2018 PERC, Wash. DC, Aug 2018, ed. by A. Traxler, Y. Cao, S. Wolf, doi: [10.1119/perc.2018.pr.Pollock](https://doi.org/10.1119/perc.2018.pr.Pollock)

"Student sense-making and interpretation of quantum mechanical expectation values", H. Sadaghiani, G. Passante, SJP, 2018 PERC, Wash.DC, Aug 2018, ed. by A. Traxler, Y. Cao, S. Wolf, doi:[10.1119/perc.2018.pr.Sadaghiani](https://doi.org/10.1119/perc.2018.pr.Sadaghiani)

"Students' choices when solving expectation value problems", G. Passante, H. Sadaghiani, SJP, 2018 PERC, Washington DC, Aug 2018, ed. by A. Traxler, Y. Cao, and S. Wolf, doi:[10.1119/perc.2018.pr.Passante](https://doi.org/10.1119/perc.2018.pr.Passante)

"Multiple-Response Assessment for Upper-division Electrodynamics", C. Ryan, C. Baily, SJP, 2016 PERC. Sacramento CA, July 2016, pp.284-287, www.compadre.org/per/items/detail.cfm?ID=14249

"Upper-Division Students' Use of Separation of Variables", S. J. Pollock, B. R. Wilcox, 2015 PERC. College Park MD, July 2015, pp. 259-262, www.compadre.org/per/perc/conference.cfm?Y=2015

"Student Difficulties with Boundary Conditions in Electrodynamics", Q. X. Ryan, S. J. Pollock, B. R. Wilcox, 2015 PERC, College Park MD, July 2015 pp. 283-286 www.compadre.org/per/perc/conference.cfm?Y=2015

"Validation of a Conceptual Assessment Tool in E&M II", Qing X. Ryan, Cecilia Astolfi, Charles Baily, and S. J. Pollock, 2014 PERC Proceedings, Minneapolis MS, July 2014, pp. 231-234

"Student difficulties with the Dirac Delta function", Bethany R. Wilcox and S. J. Pollock, 2014 PERC Proceedings, Minneapolis MS, July 2014, pp. 271-274

"Developing Tutorials for Advanced Physics Students: Processes and Lessons Learned", C. Baily, M. Dubson, S.J. Pollock, 2013 PERC Proceedings, Portland OR, Aug 2013, p. 61, doi:[10.1119/perc.2013.pr.003](https://doi.org/10.1119/perc.2013.pr.003)

"Assessing Student Learning in Middle-Division Classical Mechanics/Math Methods", M. D. Caballero, S.J. Pollock, 2013 PERC Proceedings, Portland OR, Aug 2013, p. 81 doi:[10.1119/perc.2013.pr.008](https://doi.org/10.1119/perc.2013.pr.008)

"Converting an open-ended assessment for upper-division quantum physics to multiple-choice format", H. Sadaghiani, J. Miller, D. Rehn, S.J. Pollock, 2013 PERC Proceedings, Portland OR, Aug 2013, p. 319
doi:10.1119/perc.2013.pr.066

"Multiple-Choice Assessment for Upper-division Electricity and Magnetism", B. Wilcox, S.J. Pollock, 2013 PERC Proceedings, Portland OR, Aug 2013, p. 65 doi:10.1119/perc.2013.pr.079

"How a gender gap in belonging contributes to the gender gap in physics participation, J. G. Stout, T. A. Ito, N. D. Finkelstein, S. J. Pollock, AIP Conf. Proc. **1513**, 402 (2013), 2012 PERC Proceedings, Philadelphia PA, Aug 2012

"Research-based course materials and assessments for upper-division electrodynamics (E&M II)", C. Baily, M. Dubson, S. J. Pollock, AIP Conf. Proc. **1513**, 54(2013), 2012 PERC Proceedings, Philadelphia PA, Aug 2012

"Impacts of curricular change: Implications from 8 years of data in introductory physics", S. J. Pollock and N. Finkelstein, AIP Conf. Proc. **1513**, 310 (2013), 2012 PERC Proceedings, Philadelphia PA, Aug 2012

"ACER: A framework on the use of mathematics in upper-division physics", M. D. Caballero, B. R. Wilcox, R. Pepper, S. J. Pollock, AIP Conf. Proc. **1513**, 90 (2013), 2012 PERC Proceedings, Philadelphia PA, Aug 2012

"Upper-division student understanding of Coulomb's law: Difficulties with continuous charge distributions", B. R. Wilcox, M. D. Caballero, R. Pepper, S. J. Pollock, AIP Conf. Proc. **1513**, 418 (2013), 2012 PERC Proceedings, Philadelphia PA, Aug 2012

"Multiple Roles of Assessment in Upper-Division Course Reforms", S. J. Pollock, R. Pepper, S. V. Chasteen, K. K. Perkins, AIP Conf Proc. **1413**, 307-310 (2012) PERC Proceedings, Omaha NB, Aug 2011

"Issues and progress in transforming a middle-division Classical Mechanics/Math Methods course", S. J. Pollock, R. Pepper, A. D. Marino, AIP Conf Proc. **1413**, 303-306(2012) PERC Proceedings, Omaha NB, Aug 2011

"Facilitating faculty conversations: Development of consensus learning goals and assessment measures", R. Pepper, S. V., Chasteen, S. J Pollock, K.K. Perkins, AIP Conf Proc. **1413**, 291-294 (2012) PERC Proceedings, Omaha NB, Aug 2011

"Replicating a Self-Affirmation Intervention to Address Gender Differences: Successes and Challenges", L. Kost-Smith, S. J. Pollock, N. Finkelstein, G. Cohen, T. Ito, A. Miyake, AIP Conf Proc. **1413**, 231-234 (2012) PERC Proceedings, Omaha NB, Aug 2011

"But Does It Last? Sustaining a Research-Based Curriculum in Upper-Division Electricity and Magnetism." S.V. Chasteen, R. E. Pepper, S. J. Pollock and K.K. Perkins, <http://www.per-central.org/perc/2010/Detail.cfm?id=3560>
AIP Conf Proc. **1413**, 139-142 (2012) PERC Proceedings, Omaha NB, Aug 2011

"Gender Differences in Physics 1: The Impact of a Self-Affirmation Intervention" L. E. Kost-Smith, Steven J. Pollock, Noah D. Finkelstein, Geoffrey L. Cohen, Tiffany A. Ito & Akira Miyake, PERC Proceedings 2010, AIP Press 1289, p. 197

"Our Best Juniors Still Struggle with Gauss' Law." R. E. Pepper, S. V. Chasteen, S. J. Pollock, and K. K. Perkins, PERC Proceedings 2010, AIP Press, 1289, p. 245

"The Use of Concept Tests and Peer Instruction in Upper-Division Physics". S. J. Pollock, S. V. Chasteen, K. K. Perkins, M. Dubson, PERC Proceedings 2010, AIP Press, 1289, p. 261

"Unpacking Gender Differences In Students' Perceived Experiences in Introductory Physics", L. Kost, S. Pollock, N. Finkelstein, AIP Conf Proc. **1179**, 177-180, Physics Education Research Conference proceedings, Ann Arbor, MI, Aug 09, p. 177

"Tapping into Juniors Understanding of E&M: The Colorado Upper-Division Electrostatics (CUE) Diagnostic", S. Chasteen and S. Pollock, Physics Education Research Conference proceedings, Ann Arbor, MI, Aug 09, p. 109

"Faculty Disagreement about the Teaching of Quantum Mechanics", M. Dubson, S. Goldhaber, S. Pollock, and K. Perkins, Physics Education Research Conference proceedings, Ann Arbor, MI, Aug 09, p. 137

"Towards Understanding Classroom Culture: Students' Perceptions of Tutorials", C. Turpen, N. Finkelstein, and S. Pollock, *Physics Education Research Conference proceedings*, Ann Arbor, MI, Aug 09, p. 285

"Transforming Upper-Division Quantum Mechanics: Learning Goals and Assessment", S. Goldhaber, S. Pollock, M. Dubson, P. Beale, K. Perkins, *Physics Education Research Conference proc.*, Ann Arbor, MI, Aug 09, p. 145

"A Research-Based Approach to Assessing Student Learning Issues in Upper-Division Electricity & Magnetism", S. Chasteen and S. Pollock, *Physics Education Research Conference proceedings*, Ann Arbor, MI, Aug 09, p. 7

"Longer term impacts of transformed courses on student conceptual understanding of E&M", S. Pollock and S. Chasteen, *Physics Education Research Conference proceedings*, Ann Arbor, MI, Aug 09, p. 237

"A comparison of two researched-based conceptual surveys: CSEM and BEMA", S. Pollock, *Physics Education Research Conference*, Edmonton, Ontario Canada, Aug 08, AIP Conf. Proc. 1064, p. 171

"The Persistence of the Gender Gap in Introductory Physics", L. Kost, S. Pollock, N. Finkelstein, *Physics Education Research Conference proceedings*, Edmonton, Ontario Canada, Aug 08 AIP Conf. Proc. 1064, p. 139

"Transforming Upper-Division Electricity and Magnetism", S. Chasteen, S. Pollock, *Physics Education Research Conference Proceedings*, Edmonton, Ont Canada, Aug 08, AIP Conf. Proc. 1064, p. 91

"A Longitudinal Study of the Impact of Curriculum on Conceptual Understanding in E&M", S. Pollock, *Physics Education Research Conference proceedings*, Greensboro NC, Aug 07, AIP Conf Proc 951 p. 172

"Investigating the Source of the Gender Gap in Introductory Physics", L. Kost, S. Pollock, and N. Finkelstein, *Physics Education Research Conference proceedings*, Greensboro NC, Aug 07, AIP Conf Proc 951 p. 136

"Research-based practices for effective clicker use", C. Keller, N. Finkelstein, K. Perkins, S. Pollock, C. Turpen, M. Dubson, *Physics Education Research Conference proceedings*, Greensboro NC, Aug 07, AIP Conf Proc 951, p. 124

"Teaching to Learn: The Colorado Learning Assistant program's impact on learning content", N. Finkelstein, Valerie Otero, and Steven J. Pollock, *APS Forum on Education Spring 2007 Newsletter*

"Sustaining Change: Instructor Effects in Transformed Large Lecture Courses", S. Pollock, N. Finkelstein, *Physics Education Research Conference proceedings*, Syracuse NY, Aug 06. AIP Conf Proc 883, p. 109

"Assessing the effectiveness of a computer simulation in Introductory undergraduate Environments", C. Keller, N. Finkelstein, K. Perkins, S. Pollock. *Physics Education Research Conference proceedings*, Syracuse, NY, Aug 06. AIP Conf Proc 883 p. 109

"Transferring Transformations: Learning Gains, Student Attitudes, and the Impacts of Multiple Instructors in Large Lecture Courses", S. Pollock, *Physics Education Research Conference proceedings*, Salt Lake City UT, August 05. AIP Press. Melville NY, 818 (2006), p. 141.

"Evaluating a model of research-based practices for teacher preparation in a physics department: Colorado PhysTEC", N. Finkelstein, C. Turpen, S. Pollock, M. Dubson, S. Iona, C. Keller, and V. Otero. *Physics Education Research Conference proceedings*, Salt Lake City UT, August 05. AIP Conf Proc 818, p. 3

"Assessing the Effectiveness of a Computer Simulation in Conjunction with Tutorials in Introductory Physics in Undergraduate Physics Recitations", C. Keller, N. Finkelstein, K. Perkins, S. Pollock, PERC proceedings, Salt Lake City, UT, Aug 2005, AIP Conf Proc 818 p. 109

"CU Physics Education: Recruiting and Preparing Future Physics Teachers", N. Finkelstein et al., *APS Forum on Education Spring 2005 Newsletter*.

"Correlating Student Beliefs With Student Learning Using the CLASS", K. Perkins et al., PERC proceedings, Sacramento CA, 2004. AIP Conf Proc 790, p. 61

"Increasing Student Engagement in Large Classes: A Departmental Case Study", Steve Pollock and Kathy Perkins.

APS Forum on Education Spring 2004 Newsletter,

"No single cause: learning gains, student attitudes, and the impacts of multiple effective reforms in a large lecture course", S. Pollock, PERC proceedings, Sacramento CA Aug 04.

Invited talks in physics education research

- 2024, S. Pollock: "A Student-Centered, Spins-First Approach to Undergraduate Quantum Mechanics Instruction", Invited talk at the 2024 AAPT conference (Boston, MA July 2024)
- 2024, S. Pollock: "PER in upper-division Physics courses", George Washington University Bennhold lecture, (Washington DC, Mar 2024)
- 2023, S. Pollock: "Success Stories in Education Reform: Systematic Reform at CU Boulder", PERC 2023 parallel session (Sacramento, CA July 2023)
- 2023, S. Pollock: "Tutorials in upper-division physics: Colorado perspectives", Symposium honoring the Legacy of Lillian McDermott. (Jan 2023, Seattle WA)
- 2019, Valerie Otero and S. Pollock: "The Learning Assistant Model for Building Equitable Learning Environments", APS April Meeting 2019 Denver, CO
- 2017, S. Pollock, "Understanding Educational reforms", Keynote Speaker, International Symposium on Transformation in STEM teaching, Kanazawa University, Japan
- 2016, S. Pollock, "Development and Uses of Upper-division Conceptual Assessments", Invited AAPT Winter meeting talk, New Orleans LA.
- 2015, S. Pollock, "The art and science of teaching", Invited AAPT talk, July 2015, College Park MD
- 2015, S. Pollock, "Change in Higher Education: Improving Undergraduate STEM Teaching", Invited speaker (one of 3 in Plenary panel), SMTI 2015 National Conference, New Orleans LA, June 2015
- 2015, S. Pollock, "Learning about Learning", Plenary Talk for President's Teaching Scholars session, May 2015, Anschutz Campus, CU
- 2014, S. Pollock, "Understanding Educational Reforms: Impacts of Physics Education Research", Invited Keynote for the University of Oklahoma Teaching Scholar's Initiative, Oct 2014, Norman OK.
- 2014, S. Pollock, "Impacts of Physics Education Research", Invited Keynote for the Learning and Teaching with Technology Conference (COLTT), Aug 2014. Boulder Colorado
- 2014, S. Pollock, "A research-validated approach to transforming upper-division E&M: Issues and Measures", Invited talk for AAPT summer conference, Minneapolis MS, July 2014
- 2014, S. Pollock, "Research-based course transformations in upper-division E&M", Invited talk for the Workshop on the Status of the Upper-Division Physics Curriculum, Corvallis OR Jun 2014
- 2013, S. Pollock, "A research-based approach to upper-division course reforms", APS 4-corners invited talk, Denver CO, Oct 19 2013
- 2013, S. Pollock "The Role of Data", National PhysTEC workshop on Learning Assistants, Boulder CO, Oct 2013
- 2013, S. Pollock, "Research-validated approach to upper-division physics", Plenary talk, FFER conference, Bar Harbor, Jun 2013
- 2013, S. Pollock, "Research-validated approach to upper-division physics", Invited talk, APS Chairs Conference, May 2013 Washington DC
- 2013, S. Pollock, "Using a research-based approach to reform upper-division courses", Invited talk, APS April meeting, Denver CO (Apr 14 2013)
- 2013, S. Pollock "Helping Students acquire functional knowledge in upper-level physics courses", Physics Education Research Conference summer meeting, Portland OR, July 2013 Poster Symposium
- 2012, S. Pollock, "The Role of Data", National PhysTEC workshop on Learning Assistants, Boulder CO, Nov 2012
- 2011, S. Pollock, "Multiple Roles of Assessment in Upper-Division Physics Course Reforms", Session on "Formative and Summative Assessment in Upper-Level Physics", Physics Education Research Conference summer meeting, Omaha Nebraska, Aug 2011
- 2011, S. Pollock, "A research based approach to transforming upper-division E&M", (J8.00002) American Physical Society March Meeting, Dallas TX Mar 22, 2011
- 2011, S. Pollock, "Transforming Upper Level Physics Classes", Scientia Conference, Houston TX, Feb 11 2011
- 2010, S. Pollock, "Research based transformations in upper division E&M", Upper Division PER Conference, Wabash, IN Aug 6, 2010
- 2010, S. Pollock, plenary talk, "Taking a Scientific Approach to Science Teaching", COSMOS in the classroom, Astronomical society of the Pacific, 8/2/2010, Boulder CO

- 2010, S. Pollock, "Upper-division activities that foster thinking like a physicist", Physics Education Research Conference summer meeting, session 2C: "Upper-division activities", Portland OR, July 2010
- 2010, S. Pollock, "The Colorado LA Model: Impacts and Outcomes", American Association of Physics Teachers summer meeting, session "Research on Teaching Assistants and LAs", Portland OR, July 2010
- 2010, S. Pollock, invited panel speaker, "An Outsider's Perspectives on Paradigms", American Association of Physics Teachers, session ED: "Interactive Guide to Paradigms in Physics", Portland OR, July 2010
- 2010, presented by R. Pepper, "Upper-division E&M: Students' ideas and difficulties", American Association of Physics Teachers summer meeting, session IC03, Portland OR, July 2010
- 2010, S. Pollock, "The Colorado LA model", American Physical Society Department Chair's conference, Washington DC, Jun 2, 2010
- 2010, S. Pollock, "A research based approach to transforming upper division E&M", joint American Association of Physics Teachers/APS winter meeting, Session CI04, Washington DC, Feb 2010
- 2009, S. Pollock, Noah Finkelstein, K. Perkins, M. Dubson, S. Goldhaber, C. Turpen, "When Top Down Meets Bottom Up: Supporting Educational Transformation in a Physics Department", (SESSION: Successful Strategies for Dissemination and Implementation of PER-Based Materials and Research Findings Beyond the Traditional PER Faculty) DH02, AAPT, Ann Arbor MI, July 2009 (S. Pollock, Presenting)
- 2009, S. Pollock, "A Research-Based Approach to Assessing Student Learning Issues in Upper-Division Electricity & Magnetism," targeted poster talk, Physics Education Research Conference, Ann Arbor MI, July 2009
- 2009, S. Pollock, "Sustaining Educational Innovations: Evidence and Approaches at CU Boulder", APS Denver meeting, Forum on Education session R13, May 2009. (Note: Abstract published in APS Forum on education summer '09 Newsletter, <http://www.aps.org/units/fed/newsletters/summer2009/upload/sum09news.pdf>)
- 2009, S. Chasteen (presenting), K. Perkins, M. Dubson, S. Pollock, "Clicker-use in Upper Division Physics", AAPT 2009 winter meeting (Chicago, Feb 2009)
- 2008, S. Pollock, L. Kost, N. Finkelstein, "Does PER-based instruction help underrepresented groups succeed, and how can it do so better?", Invited session, *Physics Education Research Conference*, Edmonton, Ontario Canada, Aug 2008
- 2008, S. Pollock, "Preparing Undergrads to Teach (Well): The Colorado Learning Assistant Model". Invited talk, American Physical Society meeting St. Louis, Mo., Apr 15 '08 Session X4
- 2006, S. Pollock, "Replicating Physics Education Reforms: How (and why) to keep a good thing going.", Invited Talk for American Physical Society meeting, Dallas, Tx, Apr '06
- 2006, S. Pollock and N. Finkelstein (presenter), "Sustainable and Scalable Reforms in Physics Education: Research Studies from Colorado PhysTEC". Invited Talk for American Physical Society, Baltimore MD, March '06.
- 2004, S. Pollock, "Building on a Base: Applying Physics Education Research to Physics Teaching", Invited featured presentation: International Scholarship of Teaching and Learning Conference, Bloomington (Oct '04)
- 2002, S. Pollock, "The Carnegie Scholars Program and the Scholarship of Teaching and Learning: Examples From the Disciplines", Invited Talk, 22nd Annual Lilly Conference on College Teaching"

Talks, seminars, colloquia, and professional workshop presentations in physics education research *(including only those on which I was lead presenter. I am co-author on many more talks, largely through presentations of my graduate students and postdocs)*

- 2025, S. Pollock "Advancing Quantum Information Education: Research-Based Tutorials and Assessment Tools.", Talk at the 2025 AAPT conference (Washington, DC July 2025) Session B05-3
- 2024, S. Pollock "Adaptable curricular exercises to support teaching undergraduate quantum information", QSEEC at the IEEE International conference on Quantum Computing, Montreal (Oct 2024)
- 2024, S. Pollock, G. Passante, B. Wilcox "Student-centered activities on basic principles of quantum computing: a guide for instructors", QSEEC06 Tutorial at the IEEE International Conf. on Quantum Computing, Montreal (Oct 2024)
- 2024, S. Pollock "Transforming upper-division Physics courses", U. Copenhagen colloquium (Apr 2024)
- 2024, S. Pollock "The Learning Assistant Model: Supporting Interactive Pedagogy with Undergraduate Assistance", U. Copenhagen Dep't of Science Education seminar (Apr 2024)
- 2024, S. Pollock, "Research on transforming upper-division Physics courses", Dublin City University Physics department colloquium (Apr 2024)

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- 2023, S. Pollock and G. Passante, "Flexible Online resources for Teaching Quantum Mechanics", AAPT meeting 2023 (Sacramento, July 15-19) poster H803
 - 2023, S. Pollock, J. Meyer (presenting), G. Passante, B. Wilcox "Toward a validated assessment of Quantum Information Science Concepts", AAPT meeting 2023 (Sacramento, July 15-19) E11-02
 - 2023, S. Pollock, G. Passante (presenting), H. Sadaghiani, B. Wilcox "Why Teach Quantum Computing Topics in Quantum Mechanics", AAPT meeting 2023 (Sacramento, July 15-19) F11-01
 - 2023, S. Pollock (presenting), G. Passante, H. Sadaghiani, B. Wilcox "Curricular Materials to Introduce Quantum Computing examples in QM courses", AAPT meeting 2023 (Sacramento, July 15-19) F11-02
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- 2022, S. Pollock and G. Passante (presenting), "Active learning in Quantum Mechanics: Before, during and after lecture", APS meeting April 2022.
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- 2021, S. Pollock Invited Departmental Colloquium, "Transforming upper-division physics courses.", IUPUI, March 2021.
 - 2021, S. Pollock Invited Departmental Colloquium, "Transforming upper-division physics courses.", Georgia Southern University March 2021.
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- 2020, S. Pollock Invited Departmental Colloquium, "A research-validated approach to transforming upper-division physics courses.", ETH Zurich, December 2020.
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- 2019, S. Pollock (moderator): "Representing student reasoning about math in physics", Physics Education Research Conference, July 24 2019, Provo UTAH
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- 2018, S. Pollock: "Transforming upper-division physics courses", Physics dep't colloquium, USAFA, Aug 18
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- 2017, S. Pollock: While on sabbatical, I gave **seventeen** invited colloquia across the US: Oregon State University, Rutgers, Michigan State, UNC Chapel Hill, North Carolina State, Old Dominion, U. Arizona, U. Wisconsin, Stanford, Texas Tech University, Cal Poly Pomona, Cal State Fullerton, Washington University, and CSU Fort Collins. In Japan: Hokkaido University, Hiroshima University, and Sendai University (throughout 2017)
 - 2017, S. Pollock: I gave 4 STEM workshops on "Writing Questions and Sparking Peer Instruction": Cal Poly Pomona, Cal State University Fullerton, Washington State U., and Hokkaido University, summer&fall 2017
 - 2017, S. Pollock: STEM Faculty development course, University of Hokkaido, Sapporo. 6 weeks, summer 2017
 - 2017, S. Pollock: "Learning Assistants in Physics Tutorials", presentation at International Learning Assistant Conference, CU Boulder, Nov. 2017
 - 2017, S. Pollock: "Assessing upper-division conceptual understanding", PER seminar, Texas Tech University, Sept. 2017
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- 2016, S. Pollock, "Supporting a Learning Assistant Program", TRESTLE faculty development online forum, July 2016
 - 2016, S. Pollock, "Postdoc Hiring Practices", PERTG online forum following AAPT/PERC meeting, Aug 2016
 - 2016, S. Pollock, "Multiple-choice Assessments for Upper-division Electrodynamics", 2016 AAPT conference, Sacramento CA, July 2016
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- 2015, S. Pollock, "Methods and Materials in upper-division Physics", Workshop for 2015 AAPT conference, College Park MD, July 2015

- 2015, S. Pollock, "Professional Skills for Graduate Students", co-presented panel at PERCOGS session, for 2015 AAPT conference, College Park MD, July 2015
 - 2015, S. Pollock "Faculty Learning Communities", online webcast presentation for participants in the New Faculty Workshop, Feb 2015
 - 2015, S. Pollock, Keynote for Spring Faculty Conference for AIMS Community College, Greeley CO, Feb 2015
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- 2014, S. Pollock, "Interactive Engagement in the Upper-division: Methods and Materials from CU-Boulder", Workshop for 2014 AAPT conference, Minneapolis MN, July 2014
 - 2014, S. Pollock, "A research-validated approach to transforming upper-division physics courses", University of Oklahoma Physics Department, Oct 2014
 - 2014, S. Pollock, "A research-validated approach to transforming upper-division physics courses", Central Florida University Physics Department, Mar 2014
 - 2014, S. Pollock, "A research-validated approach to transforming upper-division physics courses", Tufts University Physics Department, Feb 2014
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- 2013, S. Pollock, "A research-validated approach to upper-division Physics", Colloquium, University of Washington, Nov 2013
 - 2013, S. Pollock, "Learning Assistant sessions", National PhysTEC workshop on Learning Assistants, Boulder CO, Oct 2013
 - 2013, S. Pollock, "Interactive Engagement in the Upper-division: Methods and Materials from CU-Boulder", Workshop for 2013 AAPT conference, Portland OR July 2013
 - 2013, S. Pollock, "A research-validated approach to transforming upper-division Physics", Colloquium, Iowa State University, Mar 2013
 - 2013, S. Pollock, "A research-validated approach to transforming upper-division Physics", Colloquium, University of Illinois at Urbana-Champaign, Feb 2013
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- 2012, S. Pollock, "Learning Assistant sessions", National PhysTEC workshop on Learning Assistants, Boulder CO, Nov 2012
 - 2012, S. Pollock, "Research based transformations in upper-division E&M", Departmental Colloquium, Purdue University, March 2012
 - 2012, S. Pollock, "PER in the upper-division", PER seminar, Purdue University, March 2012
 - 2012, S. Pollock, "Using Clickers in the Classroom", Webinar/workshop for Berkeley Physics Faculty
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- 2011, S. Pollock, "A research-based Approach to teaching upper-division E&M", Departmental Colloquium, University of Maryland, Nov 2011
 - 2011, S. Pollock, "The Role of Educational Data", and "Learning Assistant sessions", National PhysTEC workshop on Learning Assistants, Boulder CO, Nov 2011
 - 2011, S. Pollock, "Making the Case", Workshop at 2011 PhysTEC Annual Conference, Austin TX, May 2011.
 - 2011, S. Pollock with V. Otero, "Introduction to the Colorado LA Program", Workshop at 2011 PhysTEC Annual Conference, Austin TX, May 2011.
 - 2011, S. Pollock, "Clickers and Course Transformation in the upper-division", Afternoon workshop for Scientia Conference, Houston TX, Feb 11 2011
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- 2010, S. Pollock, S. Chasteen, M. Dubson, P. Beale, K. Perkins, "New ways of teaching junior E&M - Description and results", poster, AAPT summer meeting, Portland OR, 2010
- 2010, S. Pollock, "The Role of Data", and "Running LA sessions", National PhysTEC workshop on Learning Assistants, Boulder CO, Oct 2010
- 2010, S. Pollock, V. Otero, V. Ananda, S. Stachurski, "Introduction to the Colorado LA program", workshop at the annual PhysTEC conference, Washington DC, Feb 2010
- 2010, S. Pollock, V. Otero, "Implementing the Colorado LA program at other Universities", workshop at the annual PhysTEC conference, Washington DC, Feb 2010
- 2010, S. Pollock, K. Perkins, C. Turpen, "Using Clickers in Upper-Division Physics Courses: What do Students Think?", poster, PST2B-8, Joint AAPT/APS winter meeting, Washington DC, Feb 2010

- 2010, S. Pollock, "A research-based approach to transforming upper-division E&M", colloquium for the APS (astronomy) department, CU Boulder, Jan 2010
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- 2009, S. Pollock, "Longer term impacts of transformed courses on student conceptual understanding of E&M", poster PST1E-07, AAPT meeting, Michigan, 2009
 - 2009, S. Pollock, M. Dubson, E. Kinney, P. Beale, K. Perkins, "Transforming Upper-Division Electricity & Magnetism Upper Division", poster, PST2F-10, AAPT meeting, Michigan, 2009
 - 2009, S. Pollock, S. Chasteen, "Tapping into Juniors' Understanding of E&M: The Colorado Upper-Division Electrostatics (CUE) Diagnostic", poster, PERC meeting, Michigan, 2009
 - 2009, S. Pollock, S. Chasteen, "Cognitive Issues in Upper-division E&M: The utility of the Colorado upper-division Electrostatics assessment", invited poster presentation, PERC meeting, Michigan, 2009
 - 2009, S. Pollock, N. Finkelstein, P. Beale, S. Chasteen, M. Dubson, S. Goldhaber, K Perkins, C. Turpen, (2009), "Scaling Education Transformation in a Physics Dep't (part 2 of 2)". APS 4-corners meeting (Golden, CO, Oct 23 2009)
 - 2009, S. Pollock, S. Chasteen, M. Dubson, E. Kinney, P. Beale, K. Perkins, "Upper-division Transformations in Physics", Chancellor's Faculty Awards for STEM Education Innovation and Research from the i3 STEM Education Effort. (Aug 2009)
 - 2009, (Presentations in Sweden): (1) S. Pollock, "A Scientific Approach to Science Education: Tools, Practices, and Implications of Physics Education Research", Chemistry Departmental Colloquium, Gothenberg, Sweden (Sep 2009) (2) S. Pollock, R. Saljo, "A conversation on Learning Assistants and Physics Education Research", Seminar, Dep't of Physics, Gothenberg, Sweden (Sep 2009) (3) S. Pollock, "Supporting Educational Transformation in a Physics Department", Physics Departmental Colloquium, Uppsala, Sweden (Sep 2009) (4) S. Pollock, "Upper-division Course Transformations: a research-based approach", Physics Departmental Seminar, Uppsala, Sweden (Sep 2009)
 - 2009, (Presentations in Canada): (1) S. Pollock, "Understanding Educational Reforms: Impacts of Physics Education Research", Physics Dep't Colloquium, U. Victoria, Victoria BC Oct 2009) (2) S. Pollock, "Understanding Educational Reforms: Impacts of Physics Education Research", Physics Dep't Colloquium, U. British Columbia, Vancouver BC Oct 2009) (3) S. Pollock, "A research-based approach to transforming upper-division E&M", Physics Dep't seminar University of British Columbia, Vancouver BC Oct 2009)
 - 2009, S. Pollock, "Upper-division Course Transformations: a research-based approach", Physics Departmental seminar University of Washington, (Seattle WA Oct 2009)
 - 2009, S. Pollock, "Understanding Educational Reforms: Impacts of Physics Education Research", Physics Departmental Colloquium, Oregon State University (Corvallis OR, Oct 2009)
 - 2009, S. Pollock, "Upper-division Course Transformations: a research-based approach", Physics Departmental seminar Oregon State University (Corvallis OR, Oct 2009)
 - 2009, Workshop at research conference: V. Otero, S. Pollock, " Transforming your undergraduate physics course using Learning Assistants -", NASULGC Leadership Collaborative Workshop at PTEC 2009 (PA)
 - 2009, (Workshop at COLTT conference): S. Pollock, S. Chasteen, K. Perkins, "Clickers in Upper Division Courses: approaches and reactions," Colorado Learning and Teaching with Technology Conference (Boulder, CO, Aug 2009)
 - 2009, Workshop for President's teaching scholar's program: S. Pollock, "A private Universe - thinking about student thinking", CU President's Teaching Scholars Retreat, Oct 2009
 - 2009, S. Pollock, N. Finkelstein, L. Kost, "Understanding the Gender Gaps in Physics: Possible Studies & Interventions (and Grants)" (PER group meeting, Jan 15, 2009)
 - 2009, S. Pollock, " Lasting impacts of Tutorials: Longitudinal Studies and Upper Division E/M" (PER group meeting, Jun, 2009)
 - 2009, Following are presentations to the DBER (Discipline Based Educational Researcher) meetings: S. Pollock "Teaching Introductory Physics, lessons from Arons", (Aug 2009); S. Pollock "A research-based approach to upper division E&M reforms" (Sept 2009).
 - 2009, Workshop at research conference: "Running planning sessions for LAs: A workshop for physics faculty", S. Pollock and V. Otero. PhysTEC, Pittsburgh PA, Mar 2009
 - 2009, Workshop: "Transforming your undergraduate Physics course using LAs", presented by V. Otero and N. Finkelstein for the PhysTEC/APS March meeting bridging session, Pittsburgh PA, Mar 2009.
 - 2009, S. Pollock, "Colorado Learning Assistants and physics course transformation", CSU San Marcos, seminar, (October 7, 2009)
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- 2008, S. Pollock, N. Finkelstein, L. Kost, "Understanding the Gender Gap in Introductory Physics", talk W16, American Physical (APS) Society meeting, St. Louis, Mo., Apr 15 2008
 - 2008, S. Pollock, "CSEM versus BEMA", poster, American Association of Physics Teachers' (AAPT) Summer meeting, July 19-23 2008, Edmonton, Alberta Canada
 - 2008, S. Pollock, "A comparison of two research-based conceptual surveys: CSEM and BEMA", poster, American Association of Physics Teachers' Summer meeting, July 19-23 2008, Edmonton, Alberta Canada
 - 2008, S. Pollock and N. Finkelstein, "The role of Data in Supporting Education Innovations", workshop, Physics Teacher Education Coalition National Conference (PhysTEC), Austin Texas, Mar 2008.
 - 2008, S. Pollock, S. Chasteen, "Assessing Student Understanding in Upper Division undergraduate E&M", poster, Physics Education Research Conference (PERC) meeting, July 24, 2008, Edmonton, Alberta Canada
 - 2008, S. Pollock, L. Kost, N. Finkelstein, "The Persistence of the Gender Gap in Introductory Physics", poster, Physics Education Research Conference meeting, July 24, 2008, Edmonton, Alberta Canada Session
 - 2008, S. Pollock, L. Kost, N. Finkelstein, "The Gender Gap in Introductory Physics", talk and poster, American Association of Physics Teachers' Summer meeting, July 19-23 2008, Edmonton, Alberta Canada Session
 - 2008, S. Pollock, S. Chasteen, Darren Tarshis, Ward Handley, Paul Beale, "Reforming Upper-Division Undergraduate Electricity & Magnetism", poster, American Association of Physics Teachers' Summer meeting, July 19-23 2008, Edmonton, Alberta Canada
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- 2007, S. Pollock, N. Finkelstein, "Sustaining Educational transformation in physics", Poster, PhysTEC conference, Boulder CO, Spring 2007
 - 2007, S. Pollock, N. Finkelstein, M. Dubson, "Addressing Gender Disparity in Introductory Physics Courses: Are existing reforms enough?" A21.00003, talk at APS March Meeting, Denver CO 2007
 - 2007, S. Pollock, N. Finkelstein, "Sustaining Educational Innovation: engaging traditional faculty in transformed practices", A21.00004 talk at APS March Meeting, Denver CO 2007
 - 2007, S. Pollock, N. Finkelstein, "Sustaining Educational transformations in physics", talk, PhysTEC national conference, Boulder CO Spring 07.
 - 2007, S. Pollock, V. Otero . "The University of Colorado Learning Assistant Model". Workshop, at the annual meeting of the Physics Teacher Education Coalition, Boulder, CO. Mar 1-3, 2007.
 - 2007, S. Pollock, V. Otero, N. Finkelstein, "Using Undergraduate Teaching Assistants to Improve Learning In Large-Enrollment Classes", talk/workshop, National Science Teachers Association National Conference, Nov 2007
 - 2007, S. Pollock N. Finkelstein, "Replicating of Reforms in a Large-scale Lecture Environment", talk at Winter 2007 AAPT meeting, Seattle WA
 - 2007, S. Pollock, L. Kost, N. Finkelstein, "Investigating the Source of the Gender Gap in Introductory Physics", poster, PERC (Physics Education Research Conference), Greensboro NC July 2007
 - 2007, S. Pollock, "A Longitudinal Study of the Impact of Curriculum on Conceptual Understanding in E&M", poster, PERC (Physics Education Research Conference), Greensboro NC July 2007
 - 2007, S. Pollock, N. Finkelstein, L. Kost, "Does interactive engagement reduce the gender gap in introductory physics?", poster, American Association of Physics Teachers National conference, July 2007, Greensboro NC
 - 2007, Noah Finkelstein & S. Pollock, "Keeping a Good Things Going: What does sustaining reforms in physics mean?" poster at Winter 2007 AAPT meeting, Seattle WA
 - 2007, S. Pollock, Noah Finkelstein, Wendy Adams, Katherine Perkins, "Attending to More than Content Mastery: assessing student Attitudes and Beliefs in our classrooms" Workshop, PhysTEC conference, Boulder CO Spring 07
 - 2007, S. Pollock, V. Otero, N. Finkelstein, , P. Wolf, C. Fogle, "Transforming undergrad physics: the Colorado Learning Assistant program", Poster, PhysTEC conference Boulder CO Spring 07
 - 2007, S. Pollock ,V. Otero, S. Iona, "Learning Assistant Model at Your University", workshop, PhysTEC National conference, Boulder CO March 07.
 - 2007, S. Pollock, V. Otero, S. Iona, N. Finkelstein, "Learning Assistant Model at Your University." workshop, American Association of Physics Teachers, Greensboro, N. Carolina, July 28, 2007.
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- 2006, S. Pollock, N. Finkelstein, "Instructor Effects in Transformed Large Lecture Courses", Poster, *Physics Education Research Conference proceedings*, Syracuse NY, Aug 06.
 - 2006, S. Pollock, M. Dubson, "Can the Lawson Test Predict Student Grades?", poster, AAPT (American Association of Physics Teachers) meeting, Syracuse NY, July '06,
 - 2006, S. Pollock, and N. Finkelstein, "Replicating and Maintaining Successful Teaching Innovations", poster, AAPT (American Association of Physics Teachers) meeting, Syracuse NY, July '06

- 2006, S. Pollock, K. Perkins, "The role of data in systemic change", Workshop for the International Society for the Scholarship of Teaching and Learning, Nov 2006
 - 2006, S. Pollock, "Reconceptualizing Recitation", "Clickers in the Large Classroom", "CLASS: Attending to more than Content Mastery", Set of 3 workshops for the Center for Teaching Excellence, Kansas University, April 2006.
 - 2006, S. Pollock, "Attending to More than Content Mastery: Assessing Student Attitudes and Beliefs in our Classrooms", workshop presented for the ASMCUE (American Society of Microbiologists: Conference for Undergraduate Educators)" conference, May 19-21 2006 (Orlando, FL)
 - 2006, S. Pollock, N. Finkelstein, "Educational Reforms in Introductory Physics at Colorado: Replicability? Sustainability?", poster for the International Society for the Scholarship of Teaching and Learning, Nov 2006
 - 2006, S. Pollock, "Building on a Base: Applying Physics Education Research to Physics Teaching", colloquium for CSU physics department, Fort Collins, Mar 2006
 - 2006, S. Pollock, "Building on a Base: Applying Physics Education Research to Physics Teaching", colloquium for Kansas University physics department, April 2006.
 - 2006, S. Pollock, "Replication and Sustainability of Reforms in Introductory Physics at CU", Poster: for AAPT conference on Achieving Systemic Changes in Physics Teaching at Leading Research Universities, College Park MD June 2-3 2006.
 - 2006, S. Pollock, N. Finkelstein "Reforms in Introductory Physics: Replicating and Sustaining Successful Innovation", poster, PhysTEC annual conference ("Building Innovative Programs"), Fayetteville AR, Mar 06,
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- 2005, S. Pollock, "Assessing multiple research-based transformations in second semester physics.", Poster DI10 AAPT meeting, Aug '05 Salt Lake City,
 - 2005, S. Pollock and N. Finkelstein, "Characterizing a Successful Secondary Implementation of Tutorials in Introductory Physics", talk, AAPT meeting, Aug '05 Salt Lake City
 - 2005, S. Pollock, "Transferring Transformations: Learning Gains, Student Attitudes, and the Impacts of Multiple Instructors in Large Lecture Courses", poster CP42: Physics Education Research Conference, Salt Lake City Aug '05
 - 2005, S. Pollock, "Measuring Impacts: an Assessment of Multiple Research-Based Transformations in Introductory Physics" , poster for International Society for the Scholarship of Teaching and Learning (ISSOTL) conference Vancouver (Oct 05)
 - 2005, S. Pollock, N. Finkelstein, "Replicating Reforms: Characterizing a Successful Secondary Implementation of Tutorials In Introductory Physics", talk, ISSOTL conference Vancouver (Oct 05)
 - 2005, S. Pollock, N. Finkelstein, K. Perkins, "Attending to More than Content Mastery: assessing student attitudes and beliefs in our classrooms", Workshop presentation, ISSOTL conference (Oct 05) Vancouver.
 - 2005, S. Pollock and N. Finkelstein, "Assessing Student Attitudes and Beliefs in our Physics Classrooms", workshop, PhysTEC conference Muncie IN Mar 05
 - 2005, S. Pollock, "Secondary Implementation of Tutorials", Physics Education Group Seminar, Univ. of Washington, Jan '05
 - 2005, S. Pollock, N. Finkelstein, V. Otero, M. Dubson, S. Iona, C. Keller, and C. Turpen, "The Colorado PhysTEC Program: a model for increasing the number and preparation of future STEM educators", poster, ISSOTL conference (Oct 05) Vancouver.
 - 2005, S. Pollock, N Finkelstein, C Keller, C. Turpen, "Reforms in Introductory Physics Education: Assessing Colorado PhysTEC Goals", poster, PhysTEC conference, Muncie IN Mar '05.
 - 2005, S. Pollock, K. Perkins, W. Adams, N. Finkelstein, C. Wieman, "Correlating Students' Beliefs About Physics with Learning, Retention, and Recruitment", talk and poster, Four Corners Sectional Meeting of the APS, Boulder CO, Oct 2005
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- 2004, S. Pollock, "Learning gains, student attitudes, and the impacts of multiple effective reforms in a large lecture course", Poster: CP-IP17, Physics Education Research Conference, Sacramento CA Aug '04
 - 2004, S. Pollock, "Assessing reform in large-lecture courses: learning gains and student attitudes.", poster, International Scholarship of Teaching and Learning Conference, Bloomington (Oct '04)
 - 2004, S. Pollock, "Assessing the Impact of Multiple PER-Based Reforms in Large-Lecture Classes", Poster in poster session EA19, AAPT meeting, Aug 2004
 - 2004, S. Pollock, "It Works for Me, Online", written contribution, Ed. Hal Blythe/Charlie Sweet, New Forums Press, 2004.
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- 2003, S. Pollock, "Student disengagement in large lecture peer-instruction", Poster in poster session PA19, American Association of Physics Teachers conference, Madison WI 2003

- 2003, S. Pollock, "Understanding Student Disengagement in Peer-Instruction Classrooms." , poster, Fermi Summer school on Physics Education Research, Varenna, Italy, 2003.
- 2002, S. Pollock, Invited panel member, "Carnegie Fellow's Diversity Workshop", Nov 6/7 at Notre Dame.
- 2002, S. Pollock, "Examining student responses to peer instruction in large lectures", talk and paper for AAHE/CASTL meeting (American Association of Higher Education/Carnegie Academy for the Scholarship of Teaching and Learning) March 15-17, Chicago.
- 2002, Pew/Carnegie Teaching Scholar workshops, Written report, 18 pp, available at <http://kml2.carnegiefoundation.org/html/poster.php?id=26>
- 2001, S. Pollock, "Some Innovations in Teaching Physics", colloquium, Co. School of Mines,

Annual reports in physics education

2021 -25: Annual Report for NSF:IAP 2012147 "Collaborative Research: Connecting spins-first Quantum Mechanics Instruction to Quantum Information Science", S. Pollock et al.

2017-22: Annual Report for NSF:CCLI:1626280 " Collaborative Research: Research as a base to develop adaptable curricula bridging instructional paradigms in Quantum Mechanics", S. Pollock et al.

2010-15: Annual Reports of NSF:CCLI: " Developing research-based Tutorials in Upper-division Electricity and Magnetism ", S. Pollock et al.

2010: Annual Report for Science Education Initiative Physics Department program.

2009-2010 Annual Report of NSF:CCLI: "Using a Research-based Approach to Reform Upper-Division Quantum I and E&M I", K. Perkins, S. Pollock et. al.

2009-2015 Annual Report of NSF DUE "STEM Colorado/Noyce Teacher Scholarship Program", V. Otero, D. Webb, S. Pollock, N. Finkelstein, M. Klymkowsky.

2007-2015 Annual Report of NSF: ESI TPC, "Learning Assistant Model of Teacher Education in Science and Technology" V. Otero, S. Pollock et. al. , <http://stem.colorado.edu/la-program/reports-publications>

2005-2008 Annual Report of Colorado PhysTEC Project", N. Finkelstein S. Pollock, et. al. <http://www.phystec.org/institutions/colorado-boulder/>

2004-2007 Annual Report of NSF-CCLI: Implementing Tutorials Sustainably , N. Finkelstein, S. Pollock

Public outreach, and informal faculty or student talks

- 1996 to present: "Introduction to teaching for Physics Graduate TAs" (currently 2 day intensive workshops) Given annually in the fall.
- 2023: S. Pollock (w. Eleanor Hodby and Gwen Eccles) "Seeing the Visible and the Invisible: The Physics of Light and Color" December 2023
- 2023: S. Pollock, Boettcher Scholar Faculty Meeting with New Students
- 2021: S. Pollock: "Teaching Well with Technology" CU OIT faculty Panel, Sp 2021.
- 2019: S. Pollock: "Whispers and Bangs", CU Saturday Physics Wizard Show, Boulder CO, Oct 2019
- 2019, S. Pollock: "Writing Clicker Questions", CU FTEP Faculty Workshop, Feb 2019
- 2018, S. Pollock: "Ecology of Physics Education at CU ", DBER talk, Oct 2018
- 2018, S. Pollock: "Use of Tutorials", working group meeting for the National LA Workshop, Nov 2018
- 2017, S. Pollock: "Interactive Teaching", graduate TA workshop, University of Hokkaido, July
- 2017, S. Pollock: "Assessing upper-division E&M", PER group meeting, Stanford University, spring
- 2017, S. Pollock: "Gravitational Waves", Boettcher Scholars invited speaker, Feb
- 2016, S. Pollock, "Interactive engagement" Faculty Showcase Presentation, OIT/ASSETT, Boulder CO Nov 16
- 2016, S. Pollock, "Interactive Teaching", Workshop for NSF postdocs in geosciences, Boulder CO Mar '16.
- 2016, S. Pollock, "Gravitational Waves", CU Director's Club invited talk, Keystone CA June 2016
- 2016, S. Pollock, featured in NPR news story: <http://www.npr.org/sections/ed/2016/02/04/461942790/making-science-teaching-more-than-a-backup-plan>
- 2016, S. Pollock, "Academic Expectations", sessions for engineering freshmen, CU Admitted students day. (multiple times)
- 2016, S. Pollock, "Spin First Paradigm in Quantum Mechanics", for PER group, CU Boulder, Oct 2016
- 2015, S. Pollock, Saturday Physics Wizard Show, Boulder CO, Oct 2015
- 2015, S. Pollock "Scholarship of Teaching and Learning", FTEP workshop, Sep 2015
- 2015, S. Pollock, "Learning about Learning", talk for CU Alumni, Aug 12 2015
- 2015, S. Pollock, "Scholarship of Teaching and Learning", Graduate Teacher Program workshop, Aug 2015
- 2015, S. Pollock, "Academic Expectations Sessions for engineering freshmen", CU Freshman orientation, Jul 2015

- 2015, S. Pollock, Workshop and roundtable facilitator, APLU Workshop on Engaging Faculty, New Orleans, LA Jun 2015
- 2015, S. Pollock, “Scholarship of Teaching and Learning”, Parents Leadership Society Board meeting, Feb’15
- 2015, S. Pollock, “Gender Gaps in Physics”, Women in Physics group, CU Boulder Jan 2015
- 2014, S. Pollock, “A celebration of Teaching”, Arts and Sciences Leadership Society Member Reception, Oct 2014
- 2014, S. Pollock, “CO-WY Sectional AAPT meeting Welcome”, invited talk, Apr 2014
- 2014, S. Pollock, “Learning about Learning”, Boulder City Council Apr 2014
- 2014, S. Pollock, “US Professor of the Year – a celebration of teaching”, CU Chairs meeting April 2014, and the CU FTEP (Mar 2014)
- 2014, S. Pollock, “A celebration of Teaching”, CU Advocates talk with President Benson, Jun 2014
- 2014, S. Pollock, “A celebration of Teaching”, Presentation to CU Regents, Sep 2014, and a private presentation to representatives from the state legislature and the vice chancellor’s office
- 2013, S. Pollock, “PER Research”, CU Grad research opportunity seminar, Dec 2013
- 2012, S. Pollock, “Summer Sampler”, CU Outreach talk, July 2012
- 2012, S. Pollock, “Writing Clicker Questions”, FTEP workshop, with S. Chasteen, May 2012
- 2012, S. Pollock, “Education Research”, Workshop with GK12 Project Extremes, May 2012
- 2011, S. Pollock, “Careers in Physics”, Beyond Boulder, Oct 2011
- 2011, S. Pollock, “Group Study”, Engineering Quad student meeting, Sept 2011
- 2011, S. Pollock, “Nuts and Bolts”, a Workshop for CU Faculty using Learning Assistants, Aug 2011
- 2011, S. Pollock, “Taking Learning Seriously”, FTEP workshop, with D. Sieber, Apr 2011
- 2011, interviewed and quoted extensively in "Teaching for Autodidacts", James Rhem, "National Teaching and Learning Forum", Vol 20, #3 Mar 2011, p. 1
- 2011, filmed for PhET outreach (by S. Chasteen), Feb 2011
- 2011, interviewed and recorded for APLU/SMTI Professional Learning Community on STEM Faculty Teaching, Feb 2011
- 2010, filmed for "CU Best Should Teach" promotional video, Fall 2010
- 2010, "Physics Education Research in Action", CU Parent's Weekend show, Oct 2010
- 2010, "Boom: The Physics of Sound and Pressure", CU Wizard show, Oct 2010
- 2010, "Using Clickers in the Classroom", Colorado FTEP workshop, with S. Mollborne, Fall 2010
- 2010, "Upper-division Course Transformations", Science Education Initiative end of term event, Spring 2010
- 2010, "Making Clickers Work for You", Colorado FTEP workshop, with S. Chasteen, Spring 2010
- 2010, presented on "Colorado and Company" Channel 9 news segment, Jan 2010
- 2009, "Whispers and Bangs", CU Wizard show, December 2009
- 2009, "Scholarship of Teaching and Learning", Graduate Teacher Program annual Fall Intensive, Fa 2009
- 2009, "Student Engagement", presentation for Learning Assistant course, Fall 2009
- 2009, CU Boulder Admissions "summer Sampler" wizard show, July 2009
- 2009, Interviews/filming for SEI clicker videos, see <http://www.cwsei.ubc.ca/resources/clickers.htm>
- 2008, "A scientific Approach to Science Education", Utah State Science Faculty Retreat, Summer '08
- 2008, "Preparing Future Faculty for the Scholarship of Teaching and Learning", Graduate Teacher program annual Fall Intensive 2008
- 2008, "Physics education, and making the invisible visible", CU Family Weekend, Fa '08
- 2008, "Tutorials in Introductory Physics - the CU approach", Colorado Science Education Network, 1.5 hr workshop.
- 2008, "The Science of Science Education", Astronomy graduate seminar, spring 2008
- 2008, "Whispers and Bangs", CU Wizard show, Spring '08
- 2007, CU Boulder Sampler wizard show/presentation for Admissions, 1 hr, Summer '07.
- 2007, "Learning about learning: Physics education research in action", CU Family Weekend Fa '07
- 2007, "Physics Education Research in Action", CU Saturday Physics Series
- 2007, "LA program at CU: research results", Seminar for CU STAMP-TP/PER research group meeting
- 2007, "Discipline Based Education Research", Seminar for CU STAMP-TP DBER meeting, 2 presentations
- 2007, "Preparing Future Faculty for the Scholarship of Teaching and Learning", Graduate Teacher program annual Fall Intensive, Fall 07 (2 hrs)
- 2007, "Workshop for CU Faculty New To Using Learning Assistants". With V. Otero, N. Finkelstein, M. Klymkowsky, August 2007.
- 2007, Online interview for <http://universitariodefisica.blogspot.com>, Brazilian Universitário de Física
- 2007, "Scholarship of Teaching and Learning", Graduate Teacher Program Teaching Institute, March

- 2006, CU Boulder Sampler wizard show/presentation for Admissions, 1 hr, Summer.
- 2006, "Learning about learning: Physics education research in action.", CU Family Weekend.
- 2006, "Preparing Future Faculty for the Scholarship of Teaching and Learning", Graduate Teacher program annual Fall Intensive
- 2006, "Issues of inclusion, privilege & framing: Addressing gender disparity in undergraduate physics", LEAP Faculty Workshop, with N. Finkelstein, 2 hrs, April '06.
- 2006, "Diversity and Inclusion in Physics", CU Graduate Teacher Program Workshop with N. Finkelstein, 1.5 hrs, Oct '06
- 2006, "Physics Education", Workshop for VIVA (Denver University program for continuing education), 2 hrs, May '06
- 2006, "Physics Education", Workshop for CU Preprofessionals, Sep 2006 (2 hrs)
- 2006, "Teaching: the good, the bad, and the ugly", for Preparing Future Physics Faculty, talk, with N. Finkelstein and C. Keller
- 2005, "Tracking Transformed Courses, Impacts of Tutorials", Seminar for CU STEM-TP/PER group
- 2005, "Einstein's achievements (and a few blunders?)", World Year of Physics Talk, CU Boulder.
- 2005, "Tools, Practices, and Implications from Physics Education Research - I", College of Engineering and Applied Science Faculty, Dean's teaching Seminar. ", Feb 05, with N. Finkelstein
- 2005 "Physics Education Research at CU", CU Society of Physics Students, Fall '05
- 2005, Career Day host for high school students, April '05
- 2005, "Interactive Learning in the Classroom: Building on a Base", FTEP summer institute
- 2005, "Talk Amongst Yourselves: Stimulating Discussion in Large and Small Classes", CU Graduate Teacher Program panel Feb '05
- 2005, "Improving Recitations: Tutorials at CU", CU Physics Dep't Faculty Brown Bag Series
- 2005, "Physics and Physics Education at CU.", CU Boulder Talented Scholar's Day presentation: Nov '05.
- 2005, "Teaching: the good, the bad, and the ugly", for Preparing Future Physics Faculty) talk, with N. Finkelstein and C. Keller
- 2005, "Learning about learning: Physics education research in action", CU Family Weekend invited talk Fa 05.
- 2005, "Engaging students in Large Classes", Graduate Teacher program annual Fall Intensive
- 2005, invited presentation for "Early Career Faculty Program", CU Faculty Teaching Excellence Program
- 2003-2006, "STEM Colorado Workshop for K-12 Teachers, Noyce Fellows, and University Faculty." V. Otero, S. Iona, S. Pollock, N. Finkelstein, M. Dubson. Workshop, held annually.
- 2004, "Research in impacts of classroom reform." Seminar for CU STEM-TP/PER group
- 2004, "Tutorials in 1110 and 1120, and Teaching and Learning of Physics", Seminar for CU STEM-TP/PER group, Fa '04.
- 2004, "Learning about learning: Physics education research in action.", CU Family Weekend invited talk: Fa '04
- 2004, "Physics and Physics Education at CU", CU Boulder Talented Scholar's Day presentation, Nov '04
- 2004, Teaching Workshop for Astronomy department incoming graduate students, Fa '04.
- 2004, "Returning to the Nuts and Bolts of Teaching series: Inclusive Pedagogy in the Classroom", Faculty Teaching Excellence Program invited talk: Mar '04.
- 2004, "Making the Invisible Visible" CU Physics Outreach Saturday presentation
- 2004, "Engaging students in Large Classes", invited workshop for the "Community and Dialogue in Academe", Graduate Teacher program annual Spring Conference
- 2003, "On transforming physics 1110." Seminar for CU STEM-TP group, Jun
- 2002, "Making the Invisible Visible", CU Physics Outreach Saturday presentation
- 2002, Featured participant in On-Campus Housing Council on Academic Programs in Residence Halls (CAPRH) activity,
- 2002, "Teaching and Learning in Large Classes", Graduate Teacher Program Friday Forum/Workshop, Feb invited speaker.
- 2002, "Teaching large classes", Graduate Teacher program Fall Intensive invited workshop
- 2001 Montbello High School presentation/tour of CU Physics, Mar
- 2001, Graduate Teacher Program "Einstein Revisited" Conference, "Active learning in Science Classes".
- 2001, Graduate Teacher Program Friday Forum/Workshop, Jan 2001 . "Active learning in Science Classes".
- 2001, Graduate Teacher Program's Fall Conference, "Teaching Large Science Courses".
- 2001, "Parity violation in nuclear physics", talk for CU SPS
- 2000, Boulder Valley 2000 Regional Science Fair Keynote "Neutrinos, Sparks, and Mirrors: Seeing invisible physics"

Earlier work:

Refereed publications in theoretical nuclear physics:

"Estimate of contribution from p-d mixing in atomic PNC", M.C. Welliver and S. Pollock, Phys. Lett **B 551** (2003) 86 (7 pp)

"On improving the determination of the neutron distribution in a heavy spin-0 nucleus", M.C. Welliver and S. Pollock, J. Phys. G: Nucl. Part. Phys. **29** (2003) L21 (7 pp)

"Nuclear Structure Effects in Parity-Violating A(e,e')A Scattering and Atomic Parity Nonconservation", S. Pollock and M. Welliver, J. Phys. G: Nucl. Part. Phys. **27** No 4 (2001) 787 (18 pp)

"Parity Violating Measurements of Neutron Densities", C.J. Horowitz, S. Pollock, Robert Michaels, Paul Souder. Physical Review **C63**, p. 025501 (2001) (18 pp)

"Effects of Neutron Spatial Distributions on Atomic Parity Nonconservation in Cesium", S.J. Pollock and M. Welliver, Physics Letters **B 464** 1999, pp. 177-182

"Parity-Violating Excitation of the Delta(1232): Hadron Structure and New Physics", S. Pollock, N.C. Mukhopadhyay, M. Ramsey-Musolf, J. Liu, H.-W. Hammer, Nuclear Physics **A633** (1998) 481-518

"Evolution of Gluon Spin in the Nucleon", S.J. Pollock, Physics Letters **B405** 355-360 (1997)

"The Electron Nucleon Cross Section in (e,e'p) Reactions", S. Pollock, H.W.L. Naus, J.H. Koch. Phys. Rev. **C 53**, 2304-2308 (1996)

"Evolution of the Spin of the Nucleon", P.J. Mulders and S. Pollock. Nuc. Phys. **A588**, 876-888 (1995)

"Isospin-breaking Corrections to Nucleon Electroweak Form Factors in the Constituent Quark Model", V. Dmitrasinovic and S. Pollock. Phys. Rev. **C52**, 1061-1072 (1995)

"Intermediate-Energy Semileptonic Probes of the Hadronic Neutral Current" M.J. Musolf, T.W. Donnelly, J. Dubach, S. Pollock, S. Kowalski, E.J. Beise. Physics Reports **239** (1994) pp. 1-178

"Semi-inclusive Deep Inelastic Lepton Scattering in a Pion Cloud Model" A.E.L. Dieperink and S. Pollock. Z. Physica **A 348** (1994) pp. 117-121

"Neutrino-Nucleus Quasifree Neutral Current Reactions and the Nucleon Strange Quark Content" C.J. Horowitz, Hungchong Kim, D.P. Murdock, S. Pollock. Phys. Rev. **C48**, (1993) 3078-3087.

"On Form Factors and Gauge Invariance in Pion Photoproduction" R.L. Workman, H.W.L. Naus, S. Pollock. Phys. Rev. **C45** (1992) 2511-2513

"Strangeness Matrix Elements in the Nucleon" W. Koepf, E.M. Henley, S. Pollock. Phys Letters **B288** ('92) 11-17

"Neutrino and Antineutrino-deuteron Elastic Scattering and the Axial Isoscalar Nucleon Current" T. Frederico, E.M. Henley, S. Pollock, and S. Ying. Phys. Rev. **C46** (1992) 347-356

"Atomic Parity Nonconservation: Electroweak Parameters and Nuclear Structure" S. Pollock, E.N. Fortson, L. Wilts. Phys. Rev. **C46** (1992) 2587-2600.

"Measuring Strangeness Matrix Elements of the Nucleon", E.M. Henley, G. Krein, S. Pollock, and A.G. Williams. Physics Letters **B269** (1991) 31-34.

"Strange Quarks in the Deuteron" S. Pollock. Phys. Rev. **D42** (1990) 3010-3019. (Err., Phys. Rev. **D43** (1991) 2447.)

"Electron Scattering from a Bound Nucleon" H.W.L. Naus, S.Pollock, J.H. Koch, U. Olfke, Nuclear Physics **A509** (1990) 717-735

"The Spin Structure of the Nucleon and its Evolution "J. Kunz, P.J. Mulders, S. Pollock, Physics Letters **B222** (1989) 481-486

"Signatures of an extra Z_0 gauge boson in elastic e - proton scattering." S. Pollock, Phys. Rev **D39** (1989) 163-168

"Single Nucleon Coincidence Cross Sections in a Relativistic Mean Field Theory." S. Pollock, Acta Physica Polonica **B19** (1988) 419. (Erratum, **B19** (1994) 899.)

"Electroweak Interactions with the Nucleon and Tests of the Standard Model." S.Pollock, Nuclear Physics **A461**(1987) 553

Refereed articles in conference proceedings in theoretical nuclear physics

"Sensitivity of P-V $A(e,e')A$ Scattering and Atomic Parity Nonconservation to Neutron Distributions in Nuclei.", S.J. Pollock and M. Welliver, Nuclear Physics **A 663&664** (2000) pp. 381c-384c

"Parity-Violating Delta Electroweak Production: Axial Structure and New Physics", S. J. Pollock, N. C. Mukhopadhyay, M. Ramsey-Musolf, J. Liu, H.-W. Hammer, Few-Body Systems Suppl. 11, p. 112-115 (1999)

"Mesonic Models for Nucleon Strangeness" S. Pollock, Proceedings of the 5th Int. Symposium on Meson-Nucleon Physics. pi-N Newsletter #8, p. 61, Oct 1993 Ed. G. Hohler, W. Kluge, B. Nefkens

"Some Measurement for Determining Strangeness Matrix Elements in the Nucleon", E.M. Henley, T. Frederico, S. Pollock, S. Ying, G. Krein, and A.G. Williams. Few-Body Systems, Suppl. 6 (1992) 66-76.

"Parity violating e - deuteron scattering as a probe of the strangeness content of the nucleon"S. Pollock, AIP Conference Proceedings No. 223, Particles and Fields Series 42, 1991 (Polarized Collider Workshop, Ed. Collins, Heppelman, and Robinett) p.335-339

Abstracts and articles for conference proceedings, and other non-refereed articles

CU Nuclear Theory Group Annual Progress Reports, 1994 (pp. 14-43), 1995 (pp. 1-19), 1996 (pp. 1-20), 1997 (pp. 1-5), 1998 (pp. 1-8), 1999 (pp. 1-11), 2000 (pp. 1-11), 2001 (pp. 1-9), 2002 (pp. 1-9), 2003 (pp. 1-9)

Sensitivity of Low-Energy Parity-Violating Observables to Spatial Neutron Distributions", S. Pollock, M. Welliver. Abstract submitted for Fall 2001 DNP meeting.

"Nuclear Structure and atomic PNC", invited written presentation for ITAMP "Tests of Fundamental Symmetries in Atoms and Molecules" workshop, Nov 2001.

Contributed sections in Executive Summary, and parts 2.4, 4.3.3, and 5.1 in White Paper on "Workshop on Neutrino Physics Using A Stopped Pion Neutrino Facility", S. Pollock, May 22-23, 2000, Oak Ridge, Tennessee

"Parity Violating Measurements of Neutron Densities", C.J. Horowitz, S. Pollock, Robert Michaels, Paul Souder. Abstract for 7th Conference on the Intersections of Particle and Nuclear Physics, Quebec City, CA (May 2000)

"Sensitivity of Parity Violating $A(\vec{e}, e')A$ Scattering and Atomic Parity Violation to Neutron Distributions in Nuclei", S. Pollock and M. Welliver, Abstract for American Physical Society meeting, Atlanta. (Mar '99)

"Sensitivity of $A(\vec{e}, e')A$ and Atomic PNC to Neutron Distributions in Nuclei", S. Pollock and M. Welliver, Abstract for Particles and Nuclei International Conference, Uppsala, Sweden (June '99)

"Theoretical considerations in Parity Violating (\vec{e}, e') Nucleus Scattering", M. Welliver and S.J. Pollock, Abstract for Spring '98 American Physical Society meeting, 4-Corners Section.

"Pion Cloud Contribution to the Elastic Parity-Violating Electromagnetic Current Matrix Element of the Nucleon", S. Pollock, V. Dmitrasinovic, NPL Preprint NPL-1134 (1997)

"Nuclear Structure Issues in Nuclear and Atomic Parity Violation", S. Pollock, Article in Proceedings of Future Directions in Parity-Violation, June 22-24, 1997 (INT publication)

"Theoretical issues in neutral weak interactions involving atoms and nuclei", S. Pollock, abstract published in Bulletin of the APS, Vol 42, No. 7 (DNP97 October 5-8, Whistler B.C.)

"Isospin-breaking corrections to nucleon electroweak form factors", V. Dmitrasinovic and S. Pollock. Abstract submitted to Baryons '95, Santa Fe, October 1995, also American Physical Society DNP '95, Bloomington, 25-28 October 1995, also Gordon Photonuclear Conference, July 1996

"Nuclear Physics Issues in Atomic Parity Violation", S. Pollock, Lecture notes in Proceedings of Symposium on Fundamental Symmetry Tests in Atoms, July 17-19, 1995. Institute for Nuclear Theory, Seattle.

"A Study of Off-Shell Effects in Electromagnetic Reactions", J.F.J. van den Brand et al. (S. Pollock). Proposal submitted to CEBAF, March 1994

"A Study of Off-Shell Effects in Electromagnetic Reactions" J.F.J van den Brand, H.J. Bulten, R. Ent, J. Koch, S. Pollock. Letter of Intent to the CEBAF PAC-6, 1993

"Atomic Parity Nonconservation: Electroweak Parameters and Nuclear Structure" S. Pollock, E.N. Fortson, L. Wilets. Abstract for invited talk submitted to APS Washington meeting, April 20-23, 1992.

"Strangeness in Nucleons" E.M. Henley, T. Frederico, W. Koepf, G. Krein, S. Pollock, A.G. Williams, and S. Ying. Abstract submitted to LEAP '92 conference, Sept. 14-19, 1992, Courmayeur, Italy.

"Measuring Strangeness Matrix Elements of the Nucleon" E.M. Henley, G. Krein, S. Pollock, and A.G. Williams. Abstract submitted to the Gordon Conference "QCD in Nuclear Physics", Tilton, NH, July 22-26, 1991.

"Some Measurement for Determining Strangeness Matrix Elements in the Nucleon" E.M. Henley, T. Frederico, S. Pollock, S. Ying, G. Krein, and A.G. Williams. Abstract in Conference Proceedings of the 13th European Conference on Few Body Problems in Physics, Sept 9-14, 1991, Elba, Italy.

"Polarization experiments at NIKHEF." K. Allart, Th. Bauer, C.W. de Jager, J.H. Koch, J. Konijn, L. Lapikas, P.J. Mulders, S. Pollock, G. van der Steenhoven, H. de Vries. Letter of Intent, NIKHEF 89-E12.

"Electroweak Interactions in the Nuclear Domain.", S. Pollock, Stanford University Ph.D. thesis. 1988

" $\rho(\vec{e},e) p\bar{p}$ in the Standard Model." S. Pollock, Abstract and talk in Proceedings of the Parity Violation Workshop (Dec 11-12, 1986) CEBAF

"Elastic Electroweak Processes with Nucleons" S. Pollock, Abstract published in "Bulletin of the American Physical Society" 28-30 October 1985

"A Scanning 3-axis Squid Magnetometer for Measurement of Sub-Microgauss Magnetic Fields." J. Lockhart, B. Cabrera, E. Cornell, S. Pollock, Proceedings of the 17th International Conference on Low Temperature Physics (15-22 Aug, 1984) North-Holland

Invited talks in nuclear theory

- 2000, APS, Long Beach CA, "Parity Violation as a Probe of Nucleon and Nuclear Structure" (invited half hour minisymposium lead speaker, APS-DNP Apr 2000)
- 2000, Oak Ridge Tenn, "Neutrino probes of nuclear form factors", (Invited speaker and session co-chair, "Workshop on Neutrino-Nucleus Physics Using a Stopped Pi-Neutrino Facility ORLaND", May 23-26, 2000.)
- 2000, ECT - Trento, "Nuclear Structure and Atomic PNC" (invited 45 min. contribution to ECT workshop on Parity Violation)
- 1998, ECT - Trento, "Parity violation and the structure of the Delta", (Invited 45 min contribution to European Nuclear Theory Center workshop on N^* physics)
- 1997, INT Seattle, "Nuclear Structure Issues in Nuclear and Atomic Parity Violation" (invited 45 minute lead talk at Future of Parity Violation conference, joint CEBAF/Institute for Nuclear Theory)

- 1997, APS - Whistler, "Theoretical Issues in Neutral Weak Interactions Involving Atoms and Nuclei" (invited half hour minisymposium lead speaker, APS-DNP)
- 1992, APS - Wash., "Atomic PNC: electroweak parameters and nuclear structure" (invited half hour talk at APS meeting)

Other talks, seminars, and colloquia in nuclear theory

- 2000, CU - Nuclear Physics Lab, "Parity Violation as a probe of Nucleon and nuclear structure"
- 1999, APS - Atlanta, "Sensitivity of Parity Violating electron Scattering and Atomic Parity Non-conservation to Neutron Distributions" (conference talk)
- 1999, PANIC - Uppsala, "Sensitivity of $A(\vec{e}, e')A$ and Atomic PNC to Neutron Distributions in Nuclei" (conference talk)
- 1999, U. Colorado, "Through the looking-glass: What can we *still* learn from parity violating electron scattering?"
- 1998, APS - 4 Corners, "Theoretical Considerations in Parity Violating Electron Nucleus Scattering", (conference talk)
- 1998, CU - Nuclear Physics Lab, "Weak Interactions in Nuclear Physics"
- 1997, CU - Atomic Group, "Beyond Standard Models"
- 1997, U. Wyoming, "Physics of the Proton"
- 1997, Tilton NH (Gordon), "Evolution of Gluon Spin in the Nucleon" (poster presentation)
- 1997, INT Seattle, "Summary of Theory Issues in P-Violation on Heavy Nuclei" (workshop talk)
- 1996, Gordon Conference, "Isospin-breaking Modifications of Nucleon Form Factors" (poster presentation)
- 1996, PANIC - Williamsburg, "Evolution of the Spin of the Nucleon" (poster presentation)
- 1996, CU Denver, "Strangeness in the Proton"
- 1996, INT Seattle, "Future of Parity Violation Experiments"
- 1995, APS-DNP Bloomington, "Isospin-breaking in the Nucleon" (conference talk)
- 1995, CU Boulder - HEP, "Nuclear WNC and tests of the S.M."
- 1995, INT Seattle, "Nuclear physics issues in atomic PNC"
- 1995, INT Seattle, invited summer visitor, ("brown bag" seminars)
- 1995, CO School of Mines, "Strangeness in the Proton"
- 1993, PANIC - Perugia "Neutrino Interactions and Strange Quark Content of the Proton" (poster presentation)
- 1993, UNC Chapel Hill, "Atomic PNC"
- 1993, CU Boulder, "Strangeness of the proton"
- 1993, NIKHEF-H, "Beyond Standard Models"
- 1993, Landelijk Seminarium, Nijmegen, "Atomic PNC"
- 1993, NIKHEF-K, "Atomic PNC"
- 1992, Cal Tech, "Effects of particle and nuclear physics in atomic PNC"
- 1992, Argonne, "Effects of particle and nuclear physics in atomic PNC"
- 1992, CEBAF, "Effects of particle and nuclear physics in atomic PNC"
- 1992, Los Alamos, "Particle and nuclear physics in atomic PNC"
- 1992, Hampton College, "The Strangeness of the proton"
- 1992, Old Dominion Univ., "The Strangeness of the proton"

Public outreach or student talks

- 2000, Presentation at School of Music, "Web Based Teaching Tricks"
- 2000, Graduate Teacher Friday Forum, "Teaching Large Lectures", Nov 17 2000
- 1996, CU - Frontiers of Mod. Phys., "Status of Solar Neutrinos"
- 1995, CU Boulder - Physics Day, "Solar Neutrino Puzzle"
- 1995, CU Sigma Pi Sigma, "Physics Resources on the Internet"
- 1994, Longmont Lions Club, "What's Up in Modern Physics?"

Classroom Teaching History at CU

Semester	Course	Title	Type	# of Students
1. Fa 1993	Phys 2010	General Physics 1	Rec/Lab	28+29
2. Sp 1994	Phys 2020	General Physics 2	Rec/Lab	31+14
3. Fa 1994	Phys 2140	Methods of Theoretical Physics	Lec	21
Fa 1994	Phys 1110	General Physics I	FallFest Rec	21
4. Sp 1995	Phys 2170	Intro to Modern	Lec	18
5. Fa 1995	Phys 2140	Methods of Theoretical Physics	Lec	49
Fa 1995	Phys 1120	General Physics 2	Rec	20
6. Sp 1996	Phys 2170	Intro to Modern Physics	Lec	27
7. Fa 1996	Phys 3220	Quantum Physics	Lec	20
8. Sp 1997	Phys 4420	Nuclear and Particle Physics	Lec	8
Sp 1997	Phys 1140	Experimental Physics	Lab	7
9. Fa 1997	Phys 3220	Quantum Physics	Lec	15
10. Sp 1998	Phys 4410	Quantum Physics 2	Lec	12
11. Fa 1998	Phys 2010	Introductory Physics 1	Lec/Lab	233+295
12. Sp 1999	Phys 4410	Quantum Physics 2	Lec	16
13. Fa 1999	Phys 2010	Introductory Physics 1	Lec/Lab	300 + 301
14. Sp 2000	Phys 2020	Introductory Physics 2	Lec/Lab	200 + 200
15. Fa 2000	Phys 3070	Energy and Environment	Lec	22
16. Sp 2001	Phys 1110	Physics 1 (team taught)	Lec/Rec	235+235
Sp 2001	Phys 2010	Introductory Physics 1 (took over for 1/5 semester)	Lec/Lab	225
17. Fa 2001	Phys 2020	Introductory Physics 2	Lec/Lab	144
Fa 2001	Phys 1010	Physics of Everyday life (took over 5 weeks)	Lec	206
18. Sp 2002	Phys 1120	Physics 2	Lec/Rec	330
19. Fa 2003	Phys 1110	Physics 1	Lec/Rec	599
Fa 2003	Phys 4810/7810	Physics Education (team taught)	Seminar	8 + 8 audits
20. Sp 2004	Phys 1110	Physics 1	Lec/Rec	264 + 295
21. Fa 2004	Phys 1120	Physics 2	Lec/Rec	239 + 241
22. Sp 2005	Phys 3070	Energy and Environment	Lec	59
23. Fa 2005	Phys 1240	Sound and Music	Lec	212
Fa 2005	Phys 4810/7810	Teach. & Learn. Phys (team)	Seminar	4
24. Sp 2006	(NA)	(Bought out teaching to produce Teaching Company video)		
25. Fa 2006	Phys 4810/7810	Teaching and Learning Physics	Seminar	11
Fa 2006	Phys 1120	Physics 2 (team taught, backup)	Lec/Rec	425
26. Sp 2007	Phys 1240	Sound and Music	Lec	194
27. Fa 2007	Phys 1120	Physics 2 (team taught, lead)	Lec/Rec	430
28. Sp 2008	Phys 3310	E&M 1	Lec	27
29. Fa 2008	Phys 3220	Quantum Physics	Lec	36
30. Sp 2009	Phys 2020	Physics 2 - (team taught, lead)	Lec	199+143
31. Fa 2009	Ph 422 (OSU)	Paradigms: Vector fields (sabbatical @ Oregon State Univ)	Lec (Sabbatical)	24
32. Sp 2010	(NA)	Sabbatical	Sabbatical	
33. Fa 2010	Phys 2020	Physics 2 - (team taught, lead)	Lec	170
34. Sp 2011	Phys 2210	Classical Mech/Math Methods	Lec	58
35. Fa 2011	Phys 3320	E&M II	Lec	29
36. Sp 2012	Phys 2210	Classical Mech/Math Methods	Lec	74
37. Fa 2012	Phys 2020	Physics 2 – (team taught, lead)	Lec.	185
38. Sp 2013	Phys 3310	E&M I	Lec	67
39. Fa 2013	Phys 3320	E&M II	Lec	56
40. Sp 2014	Phys 2010	Physics 1	2ndary	240
41. Fa 2014	Phys 3320	E&M II	Lec.	50

42. Sp15	Phys 2020	Physics 2 – (team taught, lead)	Lec.	326
43. Fa15	Phys 1110	Physics 1 (team taught, lead 2 lecture sections)	Lec.	572 in mine
44. Sp16	Phys 2020	Physics 2 – (team taught, lead)	Lec	
45. Fa16	Phys 3220	Quantum Mechanics	Lec	45
Fa 2016	Phys 3221	Co-seminar for QM	Tutorial	12
46. Sp17	(assisted teaching QM at OSU)	(Sabbatical leave, Oregon State University)	Sabbatical	
Summer 17	STEM Teaching Methods class	Hokkaido University	6-wk. Course for faculty	
47. Fa17	(Assisted teaching of new Tutorials)	(Sabbatical leave, Cal Poly Pomona & Cal State Fullerton)	Sabbatical	
48. Sp18	Phys 3220	Quantum Mechanics	Lec	79
Sp 2018	Phys 3221	Co-seminar for QM	Tutorial	11
49. Fa18	Phys 3220	Quantum Mechanics	Lec	73
Fa 2018	Phys 3221	Co-seminar for QM	Tutorial	13
50. Sp19	Phys 1140	Experimental Phys 1 (team taught, lead)	Lec (3 sections)	242 + 232 + 177
51. Fa19	Phys 1140	Experimental Phys 1	Lec (2 sections)	273 + 254
52. Sp20	Phys 2210	Classical Mechanics 1 (team taught, I had one section)	Lec	55
53. Fa20	Phys 3220	Quantum Mechanics	Lec	72
Fall 2020	Phys 3221	Co-seminar for QM	Tutorial	11
54. Sp21	Phys 3220	Quantum Mechanics (assisted by I. Milic)	Lec	99
Sp 2021	Phys 3221	Co-seminar for QM	Tutorial	28
55. Fa21	Phys 3220	Quantum Mechanics	Lec	75
Fall 2021	Phys 3221	Co-seminar for QM	Tutorial	17
56. Sp22	Phys 4410	Quantum Mechanics 2	Lec	44
57. Fa22	Phys 4410	Quantum Mechanics 2	Lec	68
58. Sp23	Phys 2210	Classical Mechanics 1 Team teaching with E. Neil	Lec	115
59. Fa23	Phys 1115	General Physics 1 Team teaching with Y. Shi	Lec	132
60. CY 24	(NA)	(Sabbatical)		
61. Sp25	Phys 3320	E&M II	Lec	93
62. Fa25	Phys 1115	General Physics 1 Team teaching with P. Beale	Lec	159

Curriculum development

Compiled and published CU Curricular materials at <https://www.physport.org/curricula/CUBoulder>

Developed complete set of new written weekly homeworks for General Physics 1 (Phys 1115)

Published Quantum Information Curricular materials at <https://www.physport.org/curricula/ACEQIS>

Developed new cryptography online Tutorial for <https://Acephysics.net>

Developing new classroom Tutorials for Class Mech 1 Spring 2023

Developed materials for Quantum 2 (Concept tests, and tutorials), 2022

Published Spins First Quantum Curricular materials at <https://www.physport.org/curricula/ACEQM>

(these are heavily downloaded – I count over 100 faculty downloads nationally since it started)

Published online materials for faculty: <https://www.colorado.edu/per/resources/course-materials> (these are also heavily used, I get dozens of requests for passwords every semester from faculty around the world)

Developed online "Acephysics" guided tutorials for Quantum, 2020 and 2021 <https://Acephysics.net>

Developed "Instructor guide" for transformed Phys 1140 lab course, 2019

Developed modified Quantum conceptual assessment including spins, 2017/2018

Developed Quantum Mechanics Tutorial/ co-seminar course and materials, Phys 3220 – 2016-18

Developed "spins first" Clicker questions and in class activities, Phys 3220 – 2016-18

Developed Clicker Questions, Pre-post testing, class materials, Phys 3320 – 2011 and 2013

Developed Computational class activities and assessment, Phys 2210 - 2012
Developed Clicker Questions, Pre-post testing, class materials, Phys 2210 – 2011 and 2012
Modified lab materials, Phys 2020 - 2010
Developed Tutorial pre-post questions, Phys 3310-2009 and 2013
Developed Clicker Questions and pre-post testing, Phys 3310 - 2008
Introduced web-based student activities, Phys 4810/7810 - 2006
Developed Clicker Questions and pre-post testing, Phys 1240 - 2006
Developed Clicker Questions and pre-post testing, Phys 3070 - 2005
Introduced Tutorials in Introductory Physics in Phys 1120 - 2004
Introduced Tutorials in Introductory Physics in Phys 1110 - 2004
Developed Peer Instruction materials in Phys 1110 - 2001
Developing web based physics course home pages -1994 to present
Developed Physics X with M. Dubson (no credit Comps training for grad students) (1998)
Expanded Mathematica curriculum in Phys. 2140 (1994-1995)
Created Fall Fest (physics/calculus) recitation section (1994)
Coordination of Calc I with Phys 1110 (with G. Fox APPM) (1994)

Physics department committees

Physics graduate admissions committee 2025
Physics Program Learning Committee (chair Fall 2022-2023)
Physics Executive Committee, 2020-2021
A&S Mentoring committee, 2012-2016, 2018, 20-22 (Chair 2014-16, 2019, 2023), 2025
PUEC evaluation committee 2019, 2021
Faculty search committee (PER) 2017
Undergrad Curriculum Committee 2013-17
Learning Assistant Coordinator for Physics, 2004-2018, co-coordinator to present
Teaching Evaluation Committee, 2001-2009, 2018-19 (Chair 2006, 07, 08, 18-19)
Physics Science Education Initiative Director, 2010-13
Undergraduate Arts and Sciences Advising, 1994-2015 (Chair 2014-2015)
CAC (Chair's Advisory Committee), 2013-15
Junior Faculty Steering Committee, 1993 - 2008 (Chair 2007/8)
Physics Graduate Oral Examinations, 1994 – present
Physics Evaluation Panel, 1996, 1997, 2001, 2002, 2006
Comprehensive Examination Committee, 1993, 1994, 1999, 2000
Departmental Undergraduate Core Advisor, 1997-1999
External Review Strategy, 1993, 2008
Physics Graduate Committee, 1994, 1995, 1999, 2000
Physics Computer Committee, Sp 1995 -2001
FTEP Physics/Computer Liaison 1998
Organizer, Nuclear half of Nucl./HEP seminar, Fa 1995-2000
Faculty search committee, Nuclear Physics, 2000, 2001
Faculty search committee, Condensed Matter theory 1994, 1995
Faculty search committee, AMO theory, 1995, 1996

Campus committees

CU Next Learning Assistant Faculty Community 2023-2024
PTSP Selection Committee 2021 to present
CSL (Center for Stem Learning) Fellow and advisor
CU Conflicts of Interest and Committee, 2019- present
CU Chancellor's Award committee, 2018-present
BFA Instructor Track Faculty Affairs Committee, 2011-2019
Carlson Gym Renovation Planning Committee, 2016
CU Learning Spaces Committee, 2015
CSL (Center for STEM Learning) Fellow and advisor, 2015-present
First Year Seminar Curriculum Committee, 2015-16
McCray Awards Committee, 2015-present
FTEP Faculty Board, 2015-16
Prehealth Advising Committee 2003-present
Presidents Teaching and Learning Collaborative, 2005-present

President's Teaching Scholar selection committee, 2009-2010
Planning Committee, FTEP Conference on Classroom Learning Assessment, 2006, 2007
CU Recruitment: Boulder Sampler, Family Weekend, Talented Scholars, 2005- present
CU Summer Ready Program, 2007
A&S Course Curriculum Committee 2003-2006
A&S Natural Science Core Curriculum working group 2005
Center of the American West advisor, 2005
Campus Teaching, Learning, and Assessment Collaboration, 2004, 2005
Provost's committee on Teaching and Learning 2003, 2004
Educational Technology Strategic Planning Group, 2001, 2002
BFA Excellence Awards committee, 2002
ABET accreditation committee, 2002
Dean's Small Grant Committee, 1998, 1999
UROP reviewer, Sp 1998-2001
Volunteer for CU Public Speakers Bureau, 1995
CU Freshman Orientation 1994-1998