

Noah Finkelstein

CONTACT

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EDUCATION

NSF Post-doc in Physics Education Research (*PFSMETE*), 1998- 2001
University of California, San Diego - Lab. of Comparative Human Cognition (advisor: Michael Cole)
University of California, Berkeley - GSE - Science and Mathematics Education (adv.: Andrea diSessa)
Ph.D., Applied Physics, 1998
Princeton University, Dept of MAE, School of Engineering and Applied Science, Princeton NJ
B.S., Mathematics, 1990
Yale University, New Haven CT (with emphases in: physics and philosophy)

EMPLOYMENT

Professor, May '12 – present
Department of Physics, University of Colorado, Boulder CO
Associate Professor (with tenure), Apr '08 – May '12
Department of Physics, University of Colorado, Boulder CO
Assistant Professor, Aug '03 – Apr '08
Department of Physics, University of Colorado, Boulder CO
Research Consultant, Aug '02 – Aug '04
Harvard-Smithsonian Center for Astrophysics, Science Education Department, Cambridge MA
Research Fellow, Jan '98- Jul '03
Lab of Comparative Human Cognition, University of California, San Diego, La Jolla CA
Instructor (High School), Aug '02 - Feb '03
High Tech High School, San Diego, CA
Lecturer and Academic Coordinator, Oct '01- Jul '02
*Jacobs School of Engineering, University of California, San Diego, La Jolla, CA and
Teacher Education Program, University of California, San Diego, La Jolla, CA*
Lecturer, Mar '99- Sep '01
Department of Physics, University of California, San Diego, La Jolla, CA
Research Associate, Sep '92 - Jan '98
Applied Physics and Laser Diagnostics Group, Princeton University, Princeton, NJ
Instructor, Sep '94 - Sep '97
Dean of the College, Princeton University, Princeton, NJ

HONORS / AWARDS / FELLOWSHIPS

Timmerhaus Teaching Ambassador, University of Colorado (system-wide), inaugural yr., 2014-2017.
US-Brazil Professor Lecturer, APS and SBF (Brazilian Physical Society), 2016
ΣΠΣ Outstanding Physics Professor of the Year, honor society of physics students, 2014.
Presidential Teaching Scholar, University of Colorado (system-wide), 2012-
Fellow, American Physical Society, 2012-
Outreach Award, University of Colorado Boulder, Office of University Outreach 2011, 2012, 2015, 2017
Diversity & Excellence Award, University of Colorado, system-wide award, 2011 and 2009
Outstanding Faculty Graduate Advising Award, University of Colorado, campus-wide award, 2010.
Outstanding Referee, *Physical Review* journal, American Physical Society, 2009.
Boulder Faculty Assembly Excellence in Teaching Award for 2006-2007, Boulder campus-wide award 2007.
NSF / Science Magazine's, International Science and Engineering Visualization Challenge, 1st Place, 2007
Gold Pin Award for Excellence in Teaching, University of Colorado, Best Should Teach Initiative, 2007.
Residence Life Academic Teaching Award, Physics 1020: Physics of Everyday Life, 2005.
ATLAS Fellow, Alliance for Technology, Learning, and Society, University of Colorado, 2004-
Junior Faculty Development Award, Council on Research and Creative Work, University of Colorado, 2004.
NSF Postdoctoral Fellow in Mathematics, Science, Engineering and Technology Education, 1998-2001.
Graduate Fellowship, SPIE The International Society for Optical Engineering, 1996-97.
Sigma Xi, Honor Society, inducted Princeton University 1994.
Guggenheim Graduate Fellowship, Princeton University, 1992-93.
Magna Cum Laude, Yale University, 1990.
Anthony D. Stanley Prize, excellence in pure and applied mathematics, Yale University, 1989.

GRANTS (Active)

- PI: NSF DUE 1725959, “Collaborative Research: Transforming the Evaluation of Teaching: A Study of Institutional Change to Advance STEM Undergraduate Education,” \$662,230.00, Aug 2017-Jul 2022
- Co-Author / Inaugural Education Director: NSF DMR #1548924, “Science and Technology Center on Real-Time Functional Imaging (STROBE),” \$24,000,000, 2016-2021.
- Co-PI , NSF IUSE# 1524832, “Creating and Studying a National Network of Centers of STEM Education: Developing Foundational Infrastructure for Educational Transformation,” \$1,499,707, 2015-2020
- Co-PI: NSF DUE # 1626565, “Departmental Action Teams: Sustaining Improvements in Undergraduate STEM Education Through Faculty Engagement,” \$1,919,515, 2016-2020
- Co-PI: DRL 1713060, "Determining the Landscape of Informal Physics Programming in the United States," \$689,455, Aug 2017-Jul 2020
- PI: NSF DUE # 1625824, “Collaborative Research: Integrating conceptual reasoning with mathematical formalism: Teaching and assessing mathematical sense-making in quantum mechanics,” \$214,638, 2016-2020
- Co-PI: NSF INCLUDES # 1649201, “Creating Academic Pathways in STEM (CAPS): A Model Ecosystem for Supporting Two-Year Transfer,” \$300,000, 2016-2019.
- Co-PI: NSF Noyce: STEM Colorado Teaching to Learn Program, \$799,998.00, 2012-2019.
- PI, CU Outreach Award, “*Computation-Based Education Curricula for PISEC*,” \$6,000 2017-2018.
- Co-PI, NSF DRL 1423496, Pathways: Measuring the Impact of Participation in Informal STEM Programming on University Students, \$299,780, 2014-2018.
- Co-PI, NSF IUSE 1432204, Collaborative Research: Undergraduate Students' Epistemology and Expectations of Experimental Physics, \$362,002, 2014-2018
- Co-PI: NSF HRD 1251590, “Broadening Women's Participation in STEM: The Critical Role of Belonging”, \$1,030,439.00, 2013-2018.
- Co-PI, NSF DUE Noyce, STEM Colorado’s Streamline to Mastery, \$1,499,569, 2009-2018

GRANTS (Previous)

- PI, AAU, Association of American Universities’ STEM Education Initiative, “Professionalizing educational practice through measurement and assessment: materials, infrastructure, and cultural support,” \$500,000. 2013-2017.
- Co-PI: NSF TUES 1323101, “Incorporating Modeling into Upper-division Physics Labs,” \$599,920.00, 2013-2017
- PI: NSF TUES 1322734, “Collaborative Research: Helping Engineering Students Transform Their Understanding of Quantum Phenomenon and Devices,” \$205,912 CU of \$599,156. 2013-17.
- PI, NSF I-3, *Towards a Center for Science Technology Engineering & Math Education*, \$998,600, 2009-2016
One of 6 of NSF’s Institutional Innovation through Integration program.
- Co-PI, Alfred P. Sloan Foundation, “Reaching the Middle 50%: Engaging traditional, senior faculty in STEM education transformation,” \$20,000, 2014-2015.
- PI, CU Outreach Award, “Incorporating Physics and Performance Art in PISEC Outreach,” \$7,800 2015-2016
- Co-PI: NSF EEC *Initiation Grant: Improving Attitudes towards Engineering Via Aesthetics*, \$150,000, 2013-2015.
NSF initiation grant to study the intersection of engineering (flow visualization), art, and education.
- PI, Alfred P. Sloan Foundation, 2013-5-12 SLS, A National Discussion University-based STEM Education Centers, \$74,865.00, 2013-2014.
- Co-PI NSF TUES – *Using a Research-based Approach to Reform Upper-division Laboratory Courses*, \$199,747.00, 2011-2014
- Co-PI, NSF DRL REESE, *Understanding and Reducing the Gender Gap in Math and Science: Cognitive, Social, and Neural Mechanisms in Identity Threat*, \$999,865, 2009-2014
- PI: CU Outreach Award, "Building Undergraduate Leadership, Teaching Skills, and Scholarly Research in Diverse Local Afterschool Science Programs," \$7,500, 8/1/12 - 7/31/13,
- Co-PI CU Outreach Award, "World of Waves: CU STEM for Middle and High School Teachers and Students," \$23,800, 8/1/12 - 7/31/13, ND Finkelstein, J. Gopinath, S. Forsyth (co-PI).
- Co-PI, CU-ICJMT, Utilizing ICT and New Media for Taking a Syncretic Approach to Complex Social and Scientific Problems, \$1,000, 2012-13,
- PI: CCC, *Partnerships for Informal Science Education in the Community*, ” Scholarship of Engagement in the STEM Disciplines grant, Colorado Campus Compact, \$1,500, 2012-2013.
One of the first scholarship of engagement grants in STEM education at CU.
- Co-PI: NSF: DUE CCLI, *Physics and Chemistry Education Technology Project*, \$498,765, 2008-2012.
- CU Outreach Award, "Partnerships in Informal Science Education in the Community: Diverse Local Afterschool Science Programs," \$7,500, 8/1/11 - 7/31/12, ND Finkelstein (PI).

Co-PI NSF: NSF DUE NOYCE: STEM Colorado/Noyce Teacher Scholarship Program, \$500,000 2008-2011
Support of future physics and STEM teachers, fellowship for students following our LA program.
PI: NSF CAREER: Faculty Early Career Development Award: *Physics Education Research and Contexts of Student Learning*, \$479,902, 2005-2011. The NSF's "most prestigious award in support of the early career-development" (NSF website).

Co-PI: NSF: DUE CCLI, *Using a Research-based Approach to Reform Upper- Quantum I and E&MI*, \$150,000, 2008-2010.
Co-PI: NSF: DRL REESE: *STEM Educational Change Efforts in Higher Education*, \$198,379, 2007-2009.
PI: American Physical Soc.: *Colorado PhysTEC: Physics Teacher Education Coalition*, \$424,576, 2004- 2008.
Co-PI: NSF: DUE CCLI, *Physics Education Technology Project*, \$499,767, 2005-2008.
Co-PI: NSF: SBE HSD, *Facilitating Change in Higher Education*, \$97,011, 2006-2008.
PI: NSF: DUE, CCLI, *Implementing Tutorials Sustainably*, \$179,000, 2004-2007.
PI: University of Colorado, Outreach Committee, *Science Explorers*, \$5,000, 2006-2007.
PI: University of Colorado, Council on Research and Creative Work, *Physics Education Research and Contexts of Student Learning*, \$5,000, 2004.
PI: University of Colorado, Service Learning Program: *Teaching and Learning Physics*, \$2,500, 2004.
PI: Univ. of Colorado, Cntr for Leadership Education for Advancement and Promotion, \$12,000 (est), 2003-2004.
PI: NSF: DGE,: Postdoctoral Fellowships in Mathematics, Science Engineering & Technology Education, \$153,000, 1998 –2001.
Co-PI: NSF: IERI: *Coordinating Educational Institutions for Sustained Acad. Success*, \$118,496 2001-2002.
Co-PI: University of California, Presidential Grants in Education, Explorers Dimension \$23,000, 2000-2001.
Co-PI: University of California, Presidential Grants in Educ, Extending K-12 Education, \$18,000. 1999-2001.

Senior Personnel / Co-Author: National Mathematics and Science Initiative, CU Teach: Replicating UTeach at CU Boulder, \$2,400,000 2007-2012.
Senior Personnel / Co-Author: NSF IGERT #0801680, *Interdisciplinary Graduate Education in Computational Optical Sensing and Imaging*, \$600,000, 2008-2012.
Senior Personnel / Co-Author: NSF CCLI #0613426 *The CIRTLL Network: Shaping, Connecting, and Supporting the Future National STEM Faculty*, \$5,085,698, 2008-2012.
Senior Personnel / Co-Author: NSF ESI: Teacher Professional Continuum, ESI: 0554616, *LA-TEST: Learning Assistant Model of Teacher Education in Science and Technology*, \$2,493,149, 2006-2011.
Senior Personnel / Co-Author: NSF IIS # 0511965, *Collaborative Research: Telling the Story - Learning Math, Science and Engineering Through Animation*, \$584,821, 2006-2009.

STUDENTS MENTORED (in Physics unless specified)

Postdocs/Research Scientists Advisor:

Sarah Andrews, Institutional change (SITAR), 2018-
Jessica Keating, Institutional change (SITAR), 2017-
Brett Fielder, PER, postdoc in informal physics education, 2017-
Michael Bennett, PER postdoc in informal physics education 2016-
Joel Corbo, PER / AAU (STEM Education Transformation), 2013-
Stephanie Chasteen (informal), PER Group, Science Education Initiative, Indep. Consultant, 2009-
Claudia Fracchiolla, PER postdoc, science education, 2016-2017 (UCD, Dublin; Marie Curie award 2018)
Daniel Reinholz, AAU, Center for STEM Learning, 2014-2016 (asst. professor SDSU)
Kathleen Hinko JILA Physics Frontier Center and PER group, 2011-2016 (asst. professor Michigan State)
Ben Zwickl, PER Postdoc (co-advisor with H. Lewandowski), 2010-2013. (asst. professor RIT)
Laurel Mayhew (JILA Physics Frontier Center and PER group, 2007-2011

PhD Lead Advisor:

Patrick Kohl (PhD Aug 2007), Teaching Professor, Colorado School of Mines (as of Sept 2007).
Noah Podolefsky (PhD May 2008), industry environmental engineering.
Chandra Turpen (PhD May 2010), asst. research professor, physics, University of Maryland College Park.
Lauren Kost-Smith (PhD, Physics, May 2011, co-advisor, teacher Chicago area).
Charles Baily (PhD, Physics May 2011, faculty St. Andrews University)
Benjamin Spike (Ph.D. Physics, 2014, faculty / instructor, UC Berkeley, Physics).
current: Simone Hyater-Adams (PhD, ATLAS in PER, 2019 – Lustig Award, comps 3 2018), Jessica Hoehn (PhD, Physics, 2019, comps3: 2018) Alexandra Lau (PhD Physics, 2020, comps2 2017), Julian Gifford (PhD Physics 2020, comps 2 2019)

PhD Committee:

Enrique Suarez (PhD, SOE, 2017) Bethany Wilcox (PhD, Physics, 2015.); Josephine Kilde (PhD, University of Colorado, ATLAS 2015/16). Katherine Goodman (PhD, University of Colorado, ATLAS / HCI 2015).; Susan Kohler, (PhD, Astrophysics and Planetary Sciences, 2014.); Ben Van Dusen ((PhD, School of Education, PER, University of

Colorado Boulder, 2014); Kara Gray (PhD, School of Education, PER, University of Colorado Boulder, 2013); Mike Mullan (PhD, Physics, Quantum Theory, University of Colorado Boulder, 2014); Victoria Nwosu, (PhD, University of Cape Town, Physics, physics education research, 2012); Colin Wallace (PhD, AstroPhysics, astronomy education research, May 2011); Kimberly Trenbath (PhD, ATOC, atmospheric education research, Dec 11); Hedi Iverson (PhD, School of Education, physics education research, May 11); Ben VanDusen (PhD School of Ed, PER, anticip 2014), Michael Ross (PhD, SOE, PER, 2013); Robynne Lock (PhD, Physics May 2011), Dasiy Raymondson (PhD, physics Oct 2009); Danielle Harlow (School of Educ, PhD Aug 2007, now at UCSB faculty school of education); Wendy Adams (PhD Jan 2008, now at UNC faculty.); Robert Nelson (PhD physics 2009, University of Colorado); John Airey, (PhD, 2009, Physics/PER, Uppsala U, Sweden); V Shekoyan, (PhD 2008, PER/ Physics, Rutgers University)

MS Students:

Katherine Rainey (MA, Physics 2017) Jack Olsen (phys 2014); Rosemary Wulf (phys, 2013, Karen Malone, (Museum, 2013), C Keller (phys, 2006); Comps cmttee: Goodman (20140, Ingerman (2014), Macuso (2013), Colussi (2013) Cox (2012), Chung Lee (2012), and others.

Undergrad Honors Thesis Advisor, all in physics:

T. Williams (2018, Holoyoke, co-advisor), E. Hayden (2018). E. Euler (2015), B. Thurman (2015), D Rehn (*suma*, Dec 2011), S Taylor (*cum laude*, 2010), J Bartley (*cum laude*, 2009), D Tarshis (*summa cum laude*, 2008), H Demarest (*summa cum laude*, 2004). Sr Thesis: J Price (2005), L Achibald (2009). C Fitzgerald (2011)

Research Exp. for Undergraduates, REU / UROP Advisor:

I Hanemann (2018), T Williams (2017; Holoyke); L Kiepora (2015, CU), M Lopez (2015, UCSD), D. S. Woody (2014, CU), E. Euler (2014, CU) L. Goodhew (2012, SPU), Linea Metcalf (2012, JHU), Danny Rehn (2011 & '12, CU) Alex Fout (2009, CU Boulder), H Bankowski (2008, Simmons), Turhan Carroll (2006, NCSU); M Gratny (2005, KSU)

COURSES TAUGHT:

Fa 18: PHYSICS 2130: Modern Physics for engineers, 114 students, FCQ rating 5.7/6.0
 Sp 18: PHYSICS 2130: Modern Physics for engineers, 105 students, FCQ rating 5.7/6.0
 Fal17: PHYSICS 4460/5460 Teaching and Learning Physics, 22 students, FCQ rating 5.9/6.0
 Sp 16: PHYSICS 2130: Modern Physics for engineers, 70 students, co-teaching FCQ rating 5.6/6.0
 Fa15: PHYSICS 4460/5460 Teaching and Learning Physics, 27 students, FCQ rating 6.0/6.0
 Sp 15: PHYSICS PHYSICS 2130: Modern Physics for engineers, 142 students, FCQ rating 5.9/6.0
 Fa 14: PHYSICS 3330: Electronics for the Physical Sciences (jr. lab), 17 students, FCQ rating 5.8/6.0
 Sp 14: PHYSICS 3330: Electronics for the Physical Sciences (jr. lab), 18 students, FCQ rating 5.7/6.0
 Fa13: PHYSICS 4460/5460 Teaching and Learning Physics, 25 students, FCQ rating 6.0/6.0
 Sp 13: PHYSICS 2130: Modern Physics for engineers, 81 students, FCQ rating 5.8/6.0
 Fa12: PHYSICS 1010 Physics of Everyday Life I, FCQ rating 5.6/6.0
 Sp12: PHYSICS 1230 Physics of Light and Color (co-instructor), FCQ rating n.a.
 Fa11: PHYSICS 4460 Teaching and Learning Physics, 25 students, FCQ rating 5.8/6.0
 Sp11: PHYSICS 1020 Physics of Everyday Life, 2nd Semester, 43 students, FCQ rating 5.9/6.0
 Fa10: PHYSICS 2130: Modern Physics for engineers, 106 students, FCQ rating 5.9/6.0
 Sp09: PHYSICS 1020 Physics of Everyday Life, 2nd Semester, 62 students, FCQ rating 5.8/6.0
 Fa08: PHYSICS 4810/7810: Teaching and Learning Physics, 32 students, FCQ: rating 5.9 / 6.0
 Sp08: PHYSICS 1020 Physics of Everyday Life, 2nd Semester, 56 students, FCQ rating 5.5/6.0
 Fa07: PHYSICS 2170: Modern Physics for physics majors, 85 students, FCQ rating: 5.8 /6.0
 Sp07: PHYSICS 2130: Modern Physics for engineers, 174 students, FCQ rating: 5.9/6.0
 Fa06: PHYSICS 2130: Modern Physics for engineers, 93 students, FCQ rating: 5.7/6.0
 Fa05: PHYSICS 2020: Intro Phys 2, algebra based, E/M & Optics, 174 students, FCQ: B+
 Fa05: PHYSICS 4810/7810: Teaching and Learning Physics, 8 students, FCQ: A
 Sp05: PHYSICS 1020: Physics of Everyday Life, 2nd Semester, 54 students, FCQ: A
 Fa04: PHYSICS 4810/7810: Teaching and Learning Physics, 22 students, FCQ: A+
 Sp04: PHYSICS 2020: Intro Phys 2, algebra based, E/M & Optics, 374 stud, FCQ: B+/A-
 Fa03: PHYSICS 2010: Intro Phys 1, mechanics, waves, 18 students, recitation, FCQ: A
 Fa03: PHYSICS 4810/7810: Teaching and Learning Physics, 18 students FCQ: A
 Fa02: Physics 1 (University Physics), High Tech High School, 44 students.
 Sp02: TEPI18: Adolescent Dvlpmnt, Teacher Ed. Prog, UC San Diego, 32 students, student rating: 100%
 Sp02: ENG280/ECE198: Teaching and Learning Engineering, UC San Diego, 18 students
 Wi02: ENG280/ECE198: Teaching and Learning Engineering, UC San Diego 12 students
 Fa99, 00, & 01: PHY180/280: Teaching and Learning Physics, UC San Diego, 17 students

JOURNAL ARTICLES:

1. S. Hyater-Adams, C. Fracchiolla, N. Finkelstein, K. Hinko “Critical look at physics identity: An operationalized framework for examining race and physics identity,” *Phys. Rev. Phys. Educ. Res.* **14**, 010132 (2018).
2. J. Hoehn and N. Finkelstein, “Students’ flexible use of ontologies and the value of tentative reasoning,” *Physical Review: Physics Education Research*, *Phys. Rev. Phys. Educ. Res.* **14**, 010122 (2018).
3. K. Goodman, J. Hertzberg, and N. Finkelstein, “Surely You Must Be Joking, Mr. Twain! Re-engaging Science Students Through Visual Aesthetics,” *Leonardo Journal*, MIT press, 10.1162/LEON_a_01604, (2018).
4. Reinholz, D. L., Corbo, J. C., Dancy, M., & Finkelstein, N. Departmental action teams: Supporting faculty learning through departmental change. *Learning Communities Journal*, *9*, 5-32. (2017).
5. M Dennin, A Feig, N Finkelstein, A F Greenhoot, M Hildreth, A K. Leibovich, J D. Martin, M B. Moldwin. D K. O’Dowd, L A. Posey, Z D. Schultz, T L. Smith, E R. Miller, “Aligning Practice to Policies: Changing the Culture to Recognize & Reward Teaching at Research Universities,” *CBE Life-Sciences*, 16(4). (2017)
6. K L. Lewis, J G. Stout, N D. Finkelstein, S J. Pollock, A Miyake, G L. Cohen, T A. Ito, “Fitting in to Move Forward: Belonging, Gender, and Persistence in the Physical Sciences, Technology, Engineering, and Mathematics (pSTEM),” *Psychology of Women Quarterly*, pp1-17, Aug 16, 2017, (2017)
7. C. Henderson, M. Connolly, E. Dolan, N. Finkelstein, S. Franklin, S. Malcom, C. Rasmussen, K. Redd, K. St. John, “Towards the STEM DBER Alliance: Why We Need a Discipline-Based STEM Education Research Community,” *J Eng. Educ.* **106** (3), pp. 349–355 (2017). [also appearing in *CBE-Life Sciences*, *J Rsrch Undergrad Mathematics Education*]
8. K. Lewis, J G. Stout, S J. Pollock, N D. Finkelstein, T A. Ito, “Fitting in or opting out: A review of key social-psychological factors influencing a sense of belonging for women in physics,” *PhysRev:PER*, *12*, 020110 (2016).
9. B. Spike* and N. Finkelstein, “Design and application of a framework for examining the beliefs and practices of physics teaching assistants,” *Phys. Rev. Phys. Educ. Res.* *12*, 010114 (2016).
10. K. Hinko, * P Madigan, * E Miller, * and N.D. Finkelstein, “Characterizing pedagogical practices of university physics students in informal learning environments,” *Phys. Rev. Phys. Educ. Res.* *12*, 010111 (2016)
11. J. Corbo, * D. Reinholz, * M Dancy, S Deetz, and N Finkelstein, “Framework for transforming departmental culture to support educational innovation,” *Phys. Rev. Phys. Educ. Res.* *12*, 010113 (2016)
12. C. Baily* and N.D. Finkelstein, “Teaching quantum interpretations: Revisiting the goals and practices of introductory quantum physics courses,” *Phys. Rev. ST Phys. Educ. Res.* *11*, 020124 (2015)
13. B M. Zwickl, * D Hu, N Finkelstein, and H. J. Lewandowski, "Model-based reasoning in the physics laboratory: Framework and initial results," *Phys. Rev. ST Phys. Educ. Res.* *11*, 020113 (2015)
14. B M. Zwickl, * N Finkelstein, H. J. Lewandowski, Incorporating Learning Goals About Modeling into an Upper-Division Physics Laboratory Experiment *Am J. Phys.*, *Am. J. Phys.* **82**, 876 (2014).
15. B M. Zwickl, * T Hirokawa, N Finkelstein, and H. J. Lewandowski, “Epistemology and expectations survey about experimental physics: Development and initial results” *Phys. Rev. ST PER.* **10**, 010120 (2014)
16. D A. Rehn,* E B. Moore, N S. Podolefsky, N D. Finkelstein, “Tools for High-Tech Tool Use: A Framework and Heuristics for Using Interactive Simulations,” *J. Teaching & Learning with Technology*, *2*(1), 31-55 (2013)
17. B. Zwickl,* N.D. Finkelstein, H. Lewandowski, “The Process of Transforming an Advanced Lab: Goals, Curriculum, and Assessments,” *Am. J. Physics*, **81**(1), 63, (2013).
18. B. Spike* and N.D. Finkelstein, “Preparing Tutorial and Recitation Instructors: A Pedagogical Approach to Focusing Attention on Content & Student Reasoning,” *Am. J. Phys.* **80**, 1020 (2012).
19. A. Beach, C. Henderson, & N. Finkelstein, “Facilitating Change in Undergraduate STEM Education: Implications from an analytic review of literature: *Change: The Mag. of Higher Lrning*, **44** (6), 52–59, (2012).
20. C. Henderson, A. Beach and N.D. Finkelstein, “Facilitating Change in Undergraduate STEM Instructional Practices: An Analytic Review of the Literature” *J. Research Science Teaching*, *48* (8), 952-984 (2011).
21. A. Mikaye, L. Kost*, N.D. Finkelstein, S. Pollock, G. Cohen, T. Ito, “Reducing the Gender Achievement Gap in College Science: A Classroom Study of Values Affirmation” *Science* **330**(6008) pp. 1234-1237 (Nov 26, 2010)
22. C. Turpen* and N.D. Finkelstein, “The construction of different classroom norms during Peer Instruction: Students perceive differences,” *Phys. Rev. ST Physics Ed. Research* *6*, 020123 (2010).
23. C. Baily* and N. Finkelstein, "Refined characterization of student perspectives on quantum physics," *Phys. Rev. ST Physics Ed. Research*, *6*, 020113 (2010).
24. L. Kost,* S. Pollock and N. Finkelstein, "Gender disparities in second-semester college physics: The incremental effects of a smog of bias," *Phys. Rev. ST Physics Ed. Research*, *6*, 020112, (2010).
25. V Otero, S Pollock, and N Finkelstein, “A physics department’s role in preparing physics teachers: The Colorado Learning Assistant model,” *American Journal of Physics*, *78* (11), pp. 1218-1224, (2010).
26. C. Baily* and N. Finkelstein, “Teaching and understanding of quantum interpretations in modern physics courses,” *Phys. Rev. ST Physics Ed. Research* *6*, 010101, (2010).

27. C. Henderson, N. Finkelstein, & A. Beach A. "Beyond Dissemination in College science teaching: An Introduction to Four Core Change Strategies." *Journal of College Science Teaching*. **39**(5), 18-26, (2010).
28. N. Lasry, N. Finkelstein, E. Mazur, "Are most people too dumb for physics," *Phys Teacher*, **47**, 418-422 (2009).
29. C. Turpen* and N.D. Finkelstein, "Not all interactive engagement is the same: Variations in physics professors' implementation of Peer Instruction," *Physical Review ST: Phys Educ. Research* **5**, 020101, (2009).
30. C. Baily*, and N.D. Finkelstein, "Development of quantum perspectives in modern physics," *Phys. Rev. ST Phys. Educ. Res.* **5**, 010106 (2009).
31. L. Kost*, S.J. Pollock, and N. Finkelstein, "Characterizing the gender gap in introductory physics," *Physical Review ST: Phys Educ. Research*, **5**, 010101 (2009).
32. S. Pollock and N. Finkelstein, "Sustaining Educational Reforms in Introductory Physics," *Phys. Rev. ST Physics Ed. Research* **4**, 010110 (2008)
33. P. Kohl* and N.D. Finkelstein, "Patterns of multiple representation use by experts and novices during physics problem solving " *Phys. Rev. ST Physics Ed. Research* **4**, 010111, (2008)
34. E. Price and N.D. Finkelstein, "Preparing Graduate Students to be Educators", *American Journal of Physics*, **76**(7), pp. 684-690 (2008).
35. N. S. Podolefsky* and N.D. Finkelstein, "Analogical Scaffolding and Learning Abstract Ideas in Physics: empirical studies." *Physical Review, Special Topics: Physics Education Research*, **3**, 020104, 16 pgs, (2007)
36. N.S. Podolefsky* and N.D. Finkelstein, "Analogical scaffolding and the learning of abstract ideas in physics: An example from electromagnetic waves" *Physical Review, Special Topics: PER*. **3**, 010109, 12 pgs, (2007).
37. P. Kohl,* N.D. Finkelstein, D. Rosengrant "Strongly and Weakly Directed Approaches to Teaching Multiple Representation Use in Physics," *Physical Review, Special Topics: PER*, **3**, 010108, 10 pgs, (2007).
38. S. J. Pollock, N.D. Finkelstein and L. Kost* "Reducing the Gender Gap in the Physics Classroom," *Physical Review, Special Topics: Physics Education Research*, **3**, 010107, 4 pgs, (2007).
39. N.D. Finkelstein, W. Adams,* C Keller,* K Perkins, C Wieman & the PhET Team, "High-Tech Tools for Teaching Physics: the Physics Education Technology Project," *J of Online Lrn & Tch*, **2**(3), 109. 11pgs, (2006).
40. N.S. Podolefsky* and N.D. Finkelstein, "The Perceived Value of College Physics Textbooks: Students and Instructors May Not See Eye to Eye" *The Physics Teacher*, **44**(8), 338-342, (2006).
41. V.Otero, N.D. Finkelstein, R. McCray, and S. Pollock, "Who is Responsible for Preparing Science Teachers?" *Science*. **313**(5786), 445-446 (2006).
42. N.S. Podolefsky* and N.D. Finkelstein, "Use of analogy in learning physics: The role of representations" *Physical Review, Special Topics: Physics Education Research*, **2**, 020101, 10 pgs, (2006).
43. P.B. Kohl* and N.D. Finkelstein, "Effect of representation on students solving physics problems: a fine-grained characterization" *Physical Review, Special Topics: Physics Education Research*, **2**, 010106, 12 pgs, (2006).
44. P.B. Kohl* and N.D. Finkelstein, "The effect of instructional environment on physics students' representational skills," *Physical Review, Special Topics: Physics Education Research*, **2**, 1,010102, 8 pgs, (2006).
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- N. Finkelstein, content specialist / advisor, Professional Development Course: *Physics for the 21st Century*, Harvard-Smithsonian Center for Astrophysics, Science Media Group and Annenberg Foundation, 2011.
- N. Finkelstein, physics content advsr, *Ultimate Skiing*, by R LeMaster Human Kinetics, Champaign, IL, 2009.
- N. Finkelstein, content specialist / advisor, *Essential Science for Teachers: Physical Science*, Harvard-Smithsonian Center for Astrophysics, Science Media Group, 2004.

POPULAR WRITINGS / PRESS / PRESENTATIONS / NEWS:

- N.D. Finkelstein, J. Keating, “Promoting Scholarly Evaluation of Teaching: Addressing the Third Rail of Academia,” ASCB Newsletter, 23 Aug 2018. [invited]
- N. Finkelstein, “Personal and professional engagement in education policy: Roles of individuals and the American Physical Society,” American Physical Society, Forum on Education News, Spring 2018.
- N. Finkelstein, J C. Corbo, D L. Reinholz, M Gammon, and J Keating, “Evaluating teaching in a scholarly manner: A model and call for an evidence-based, departmentally-defined approach to enhance teaching evaluation for CU Boulder,” White Paper for [Academic Futures](http://academicfutures.org), CU Boulder, 2017.
- N. Finkelstein, “Goings on of the American Physical Society Council,” Newsletter of the Forum on Outreach and Engaging the Public, American Physical Society, Fall 2017.
- N. Finkelstein, The Critical Role of Higher Education (and variant titles), from Timmerhaus Teaching Ambassador Addresses, nearly 60 addresses and workshops, many available at: <http://www.colorado.edu/timmerhaus/>, 2015-2016,
- N.D. Finkelstein, How I learned to quit worrying and love the university, PER Council of Grad Students newsletter, May 2015.
- N. D. Finkelstein, Preserving the Promise of Higher Education a Critical Time, TNT Powderkeg Brewing, 2 Jul 2015, Boulder Rotary Club, Sept 2015, South Metro Denver Chamber STEM Event, Oct 2015, Rotary Club of Boulder, Nov 2015,
- J Thompson, E Brews, N Finkelstein, J Hawkins, R Scherr, “Introducing GPER: The American Physical Society’s newest topical group is devoted to physics education research,” Points of View, *Physics Today*, Jun 2013.
- N.D. Finkelstein, STEM Education for Colorado, Chancellor’s Advisory Council, Sept 2013.
- E. Brews, N.D. Finkelstein, J. Thompson, J. Hawkins R. Scherr, “Interest in New Topical Group in Physics Education Research,” Forum on Education Newsletter, (summer 2012).
- E. Brews, N.D. Finkelstein, J. Thompson, “Toward establishing a Physics Education Research Topical Group within the American Physical Society,” Forum on Education Newsletter, (summer 2012).
- N.D. Finkelstein and H. Quinn, “NRC Frameworks for K12 Education: toward the next generation science standards,” National Webinar hosted by Am. Physical Society, moderator and commentator, 27 Apr 2012.
- L. Kost, S. Pollock and N. Finkelstein, *Gender Differences in Introductory Physics: The Impact of a Self-Affirmation Intervention*, APS CSWP Gazette Newsletter, Fall 2011.
- N. Finkelstein, moderator / commenter, *Science Myth and Media*, 63rd Conference on World Affairs, Apr 2011.
- N. Finkelstein, *Forward to God Envy*, by Rabbi Jamie Korngold, Jewish Lights Press, Jan 2011 (unpublished).
- N. Finkelstein, moderator / commenter, *War on Science*, 62nd Conference on World Affairs, Apr 2010.
- N. Finkelstein, moderator / commenter, *The Purpose of the Universe is to Create God*, 61st Conf. World Affairs, Apr 2009.
- N. Podolefsky and N.D. Finkelstein, “Counterexamples and Concerns regarding ‘The Advantage of Abstract Examples in Learning Math,’” *Science*, Letters 2, Feb 2009. [reviewed]

- N. Finkelstein, V. Otero, and M. Klymkowsky, "The University of Colorado Learning Assistant Program and Advances in STEM Education at Colorado," 50th Yr Reunion, CU Foundation, Univ. of Colorado, May 2008.
- N Finkelstein, "Science Education" KGNU Thursday Call-in Radio Show, 5 July 2007.
<http://kgnu.org/cgi-bin/programinfo.py?time=1183680000>
- N.D. Finkelstein, "What's All the Fuss about Physics Education Research?" CU Boulder, REU Seminar, Jul, 2007 [invited]
- N Finkelstein, A Moment in Science, Boulder Channel 1 internet television, Jun 2007. <http://www.boulderchannel1.com/>
- N Finkelstein, Valerie Otero, and Steven Pollock, "Teaching to Learn: The Colorado Learning Assistant program's impact on learning content." *Newsletter of the American Physical Society's Forum on Education*, Spring 2007.
- E Price & N Finkelstein, "Graduating Educated Graduate Students," *Newsletter, APS Forum on Educ*, Spring 2006.
- N Finkelstein, "The Role and Promise of Physics Education Research." *Am.Phys. Soc. News, Back Page*, Jan 2006.
- N Finkelstein, "The Physics of Alien," *Physics in Film Series*, University of Colorado, Oct 31, 2005.
- N Finkelstein, M Dubson, C Keller, S Pollock, S Iona, and V Otero, "CU Physics Education: Recruiting and Preparing Future Physics Teachers," *American Physical Society Forum on Education Newsletter*, Spring 2005.

INVITED TALKS AT NATIONAL/ INTERNATIONAL MEETINGS AND CONFERENCES:

1. N.D. Finkelstein, "Educational Transformation at a Critical Time: the promises of physics education," Reunión Annual de la AAPT -MX, Monterrey, MX 8 Dec 2018, [national keynote]
2. N.D. Finkelstein, "Education Leadership Learning Exchange Program: A Discussion of STEM Education Transformation in the United States," Russian Education Delegation meeting, Boulder CO 5 Dec 2018.
3. S. Hyater-Adams, *T Williams, C Fracchiolla, N Finkelstein, K Hinko, "Performing Physics: An investigation of identity at the intersections of race, science, and performance art," 2018 Annual Meeting of the APS Four Corners Section, October 12–13, 2018; University of Utah, Salt Lake City, Utah [Invited]
4. J. R. Hoehn,* N.D. Finkelstein When students are in an indeterminate state: Valuing the messiness of students' ontological reasoning in quantum mechanics, PER Conference, Wash. DC, Jul 2018. [Jury Selected talk]
5. J Keating, J Corbo, M Gammon, D Reinholz, N.D. Finkelstein, The Teaching Quality Framework: A scholarly approach to teaching evaluation, NSEC 2018 Nat'l Conf, Columbus OH, Jun 6-8, 2018. [invited rapid talk]
6. J. Hoehn* and N. Finkelstein, "Investigating and promoting epistemological sophistication in quantum physics," Phys Education Research Conf, Cincinnati, OH, Jul 23, 2017 [jury selected talk]
7. N. Finkelstein, "Current Thinking About STEM DBER Alliance," Transforming Undergraduate STEM Education national conference, St. Paul MN, Jul 5, 2017 [plenary panel]
8. K. Redd, and N. Finkelstein, "Center Roles in Improving Undergraduate STEM Education", Network of STEM Education Centers annual meeting, New Orleans, LA Jun 22, 2017 [plenary opening]
9. N. Finkelstein, "STEM DBER Alliance Organizational Structure" (facilitator / plenary), STEM DBER Alliance Planning and Organizational Meeting, Howard Hughes Medical Institute, May 9, 2017.
10. N.D. Finkelstein and J. Hoehn,* "Going Beyond Calculation and Concepts: Students' Interpretations and Knowledge Structures in Quantum Mechanics," APS April Meeting, Washington, DC, Jan 29, 2017
11. J. Hoy,* A. Gupta, and N.D. Finkelstein, "Conceptual blending as a tool for analyzing group discourse," PER Conference, Sacramento CA Jul 20 2016
12. N.D. Finkelstein & C. Baily,* "Student Ontologies in Teaching Quantum Mechanics and Researching Student Difficulties," AAPT National Meeting Sacramento CA, Jul 18, 2016.
13. B Dreyfus, E Sohr, A Gupta, J Hoy, N Finkelstein," Ontologies in Quantum Mechanics as a Research and Instructional Lens," AAPT National Meeting Sacramento CA, Jul 18, 2016
14. S Hyater-Adams* N Finkelstein, C Fracchiolla, K Hinko, "Understanding the Relationship Between Physics and Racial Identity for Black Students," AAPT National Meeting Sacramento CA, Jul 17, 2016
15. N.D. Finkelstein and K.Redd, "Center Roles in Improving Undergraduate STEM Education," National Network of STEM Education Centers, San Antonio, TX, Jun 4, 2016. [keynote]
16. N.D. Finkelstein, , J. Corbo, D. Reinholz & D. Bernstein, "Towards a Framework for Assessing and Promoting Teaching Quality," AAU / Cottrell Building a Culture of Continuous Improvement Implementing Effective Evaluation of Teaching, Laguna Beach, CA, May 23, 2016.
17. N.D. Finkelstein, "Preserving the Promise of Higher Education: educational transformation at a critical time," Strategies for Success national workshop, Toronto Canada, 13 May 2016 [keynote]
18. N.D. Finkelstein, "STEM Education Centers: a University and National Resource transforming undergraduate education," United States Congress, Collaboration for NSF, Washington DC, 26 April 2016
19. N.D. Finkelstein, "Educational Innovation: national trends and local models," AAU STEM Education Initiative annual meeting. Washington DC, 5 Apr 2016
20. N.D. Finkelstein, "Policy in physics education," APS PhysTEC National Meeting, Baltimore MD 13 Mar, 2016
21. N.D. Finkelstein, "Working Effectively with University Administrators for Educational Transformation," Physics Teacher Education Coalition, Mar 12, 2016

22. N.D. Finkelstein, "Education Policy Symposium: National Policy and Diversity in STEM education," AAPT national meeting New Orleans LA, Jan 2016, [plenary discussant]
23. N.D. Finkelstein, "Externalizing and Publishing in PER: A Discussion of Challenges, Practices, and Opportunities," AAPT National Meeting, New Orleans, LA, Jan 2016.
24. N.D. Finkelstein and Kacy Redd, "Network of STEM Education Centers (NSEC)," 2015 National POD Conference, San Francisco November, 2015.
25. N.D. Finkelstein and Kacy Redd, "Framing a Network of STEM Education Centers," Association of Public and Land-grant national SMTI exec meeting, Indianapolis, IN, Nov 15 2015.
26. N.D. Finkelstein, "Educational Transformation at a Critical Time: why us and why now," APS Four Corners CO-WY-NM-UT Sectional Meeting, Phoenix, AZ, 17, Oct 2015. [keynote]
27. N.D. Finkelstein, "Not All Interactive Engagement is the Same: why theory, culture and mindset matter," HD-MINT National Conference in STEM Education, Nuremburg Germany, 25 Sept 2015 [keynote]
28. N.D. Finkelstein, "Towards a Framework for supporting and evaluating Teaching Quality," Assoc. of American Universities, STEM Initiative National Meeting, St. Louis, MO, 13 Oct 2015.
29. N.D. Finkelstein, "Taking the Right Path at a Digital Crossroads: Why both vision and theory are essential in educational transformation with technologies," Colorado COLTT Conference, Boulder, CO, 6 Aug 2015.
30. N.D. Finkelstein, "Policy Matters: Perspectives and Prospects in Educational Policy for Physics & Physics Educators," AAPT National Meeting 27 July 2015.
31. M Dubson N Finkelstein, D Lieberman, E Johnsen, "MOOC vs. a Standard Physics Class: Demographics and Outcomes,": AAPT National Meeting 27 July 2015.
32. N.D. Finkelstein, "Next Stages of the BayView Alliance", BVA Conference, Vancouver, CA, 12 Jun 2015.
33. N.D. Finkelstein and K. Redd, "What We Know about STEM Education Centers and Their Intersection with Teacher Preparation," APLU/ SMTI National Conference, New Orleans, LA, 3 Jun 2015 [plenary]
34. N.D. Finkelstein, "The STEM Education Centers Network," APLU/ Science Math Teaching Imperative National Conference, New Orleans, LA, 4 Jun 2015
35. N.D. Finkelstein, "Participating In Higher Education at a Critical Time: why us and why now," CO STEM Equity Summit, Colorado Springs, CO 28 Apr 2015 [plenary]
36. N.D. Finkelstein, "Digital Crossroads: Do the Perils of Virtually Educating Students Outweigh the Promise?," Colorado Distance Learning Association Annual Meeting, Boulder CO 22 Apr 2015. [keynote]
37. N.D. Finkelstein, "Why (and How) Policy Matters in Physics Education: a disciplinary perspective on educational policy," American Physical Society National meeting, Baltimore, MD, Apr 2015.
38. N.D. Finkelstein, "Partnership in STEM Education," Statewide two year college workshop on STEM education, Boulder CO 3 Apr 2015.
39. N.D. Finkelstein, "Plenary Policy Symposium: Diversity in Physics Education," discussant, AAPT National Meetings, San Diego, CA Jan 7, 2015, [plenary panel]
40. N.D. Finkelstein, S. Franklin, "The faculty role in advocacy: how," AAPT Nat'l Mtg, San Diego, CA Jan 7, 2015.
41. N.D. Finkelstein, "Modeling Technology & Education: a study comparing in-person and MOOC instruction in Physics 1," CO Learning & Tech Conf, Boulder Co, 6 Aug, 2014.
42. N.D. Finkelstein, "Why Now and Why Us: Actively Engaging in Educational Transformation the Roles and Promises of Engagement in Education at a critical time," Xperience STEM Nat'l Conference, 1 Aug 2014.
43. M. Dubson, N.D. Finkelstein, E. Johnsen, D. Liemberman, "Apples and Oranges: Comparing a MOOC with a Standard Class," AAPT/PERC bridging session, PERC 2014, Minneapolis MN, 28 Jul 2014. [keynote]
44. N.D. Finkelstein, et. al "Affordances of MOOCs and humans: a study comparing in-person and MOOC instruction in Physics 1," National Meeting of AAPT, Minneapolis MN, 28 Jul 2014.
45. N.D. Finkelstein, "Actively Engaging in Educational Transformation the Roles and Promises of Technology & Disciplinary Engagement at a critical time," SALTISE, Montreal, Quebec, 12 Jun 2014 [keynote]
46. N.D. Finkelstein & J. Corbo, "Professionalizing Educational Practice through Measurement Assessment and Culture," AAU National STEM Education Initiative, Washington, DC, May 14, 2014.
47. N.D. Finkelstein, "What's All the Fuss About Physics Education Research? A Disciplinary Route into Educational Research and Transformation," SPS National Meeting, Golden, CO, 2 Mar 2014. [keynote]
48. N.D. Finkelstein, "Studying Systemic Change in Undergraduate STEM education," NRC Undergraduate STEM Ed Workshop for Two and Four Year colleges, Newport Beach, CA, Jan 21, 2014.
49. N.D. Finkelstein, "Framing Pre- & Post- Testing of Student Learning," *Effective Evaluation of Teaching and Learning*, Cottrell Scholars' Collaborative & Association of American Universities, Wash. DC, Jan 16, 2014.
50. N.D. Finkelstein, "Education Policy Symposium: Next Gen Science Standards," AAPT national meeting Orlando FLA, 7 Jan 2014, [plenary discussant]

51. N.D. Finkelstein, "Technotopia vs. Courserapocalypse: Improving the national discourse around online education and technology mediated education," CO Learning & Teaching with Tech Conf, Boulder Co, 8 Aug, 2013.
52. N.D. Finkelstein, "Advancing and Professionalizing Educational Practice through measurement and assessment: materials, infrastructure, and cultural support" AAU, STEM Ed Init. Nat Meeting, Wash, DC, 25 Jul 2013.
53. N.D. Finkelstein, "Affect not as an afterthought: coupling content and social-psychological aspects in physics learning," Bridging Talk, National Meeting of AAPT and Physics Education Research Conference, Portland OR, 17 Jul 2013. [plenary]
54. N.D. Finkelstein, "The Essential Roles of Disciplinary Engagement in Educational Transformation," Cottrell Scholars Annual Meeting, Research Corp. for Scientific Advancement, Tucson, AZ, 10 Jul 2013 [plenary]
55. N.D. Finkelstein and E. Price, "Assessment and Evaluation in College Physics," AAPT, AAS, APS New Faculty Workshop, College Park MD, 19 Jun 2013.
56. N.D. Finkelstein, "Center for STEM Learning at University of Colorado Boulder," AAU/Sloan National Workshop on Transforming Undergraduate STEM Education, Washington, DC, 18 Jun 2013.
57. N.D. Finkelstein, "(Establishing a) Research Agenda for Online Education in Physics: A quick tour of theory and a taxonomy of research questions," APS National Meeting on Online Education & Technology in Physics Education," College Park MD, 2 Jun 2013.
58. N.D. Finkelstein, "Discipline-based Education Research: engaging universities in educational transformation at a critical time," Nat'l Council of Teaching Mathematics, Denver CO 16 Apr 2013.
59. N.D. Finkelstein "Undergraduate Physics Assessment and Evaluation " AAPT, AAS, APS Experienced Faculty Workshop, College Park MD, 6 April 2013.
60. N.D. Finkelstein, "NGSS and Physics/Chemistry Teacher Education," Plenary Discussant, PhysTEC National Meeting, Baltimore, MD, 17 Mar 2013. [plenary]
61. N.D. Finkelstein, "Physics Education Research: a resource for educational transformation at a critical time," Joint National Meetings of MAA and AMS, San Diego, CA, 12 Jan 2013
62. N.D. Finkelstein, "AAPT Symposium on Physics Education and Public Policy," Plenary Discussant, AAPT Nat'l meeting, New Orleans, LA, 8 Jan 2013. [plenary]
63. N.D. Finkelstein and N. S. Podolefsky, "Technology in the Classroom: a 5,000- year-old tradition," AAPT Nat'l meeting, New Orleans, LA, 9 Jan 2013.
64. N.D. Finkelstein, "University of Colorado Boulder's Center for STEM Learning," APLU National Meeting, Denver, CO, Nov 11, 2012.
65. N.D. Finkelstein, "Cultural Perspectives on Learners' Performance & Identity in Physics," Plenary Discussant, Physics Education Research Conference, 2012. Philadelphia PA, Aug 2, 2012 [plenary]
66. N.D. Finkelstein, "Multi-Disciplinary Based Education Research," AAPT Nat'l meeting, Phil., PA Aug 1, 2012
67. B.M.Zwickl,* H. Lewandowski, and N.D. Finkelstein, "Assessing students' attitudes and Beliefs about Experimental Physics," AAPT Nat'l meeting, Philadelphia, PA Aug 1, 2012
68. N.D. Finkelstein and E. Price, "Assessment and Evaluation in College Physics," AAPT, AAS, APS New Faculty Workshop, College Park MD, Jun 26, 2012.
69. N.D. Finkelstein, "Evolve or Die: challenges (and opportunities) in physics and astronomy education," Gordon Research Conference on Physics Education Research, Waterville ME, 17 Jun 2012 [keynote]
70. N.D. Finkelstein, "Building on a Scholarship in Physics Education for Course and Program Transformation," APS Building Thriving Undergrad Physics Programs Conference, Washington DC, 10 Jun 2012.
71. N.D. Finkelstein, "University of Colorado's Center for STEM Learning," APLU Science and Mathematics Teacher Imperative Meeting, Washington, DC, 8 Jun 2012.
72. N.D. Finkelstein, "Physics Education Research: a resource for educational transformation at a critical time," Transforming Research in Undergraduate STEM Education, St Paul, MN, 4 Jun 2012 [plenary].
73. N.D. Finkelstein, "The Colorado Learning Assistant Programme," Conference on Student-Generated Content and Peer Support to Enhance Student Engagement and Learning, Univ. of Manchester, UK, 16 May 2012.
74. N.D. Finkelstein, "CU-Boulder Center for STEM Learning: A national hub for STEM education research and reform," First National Meetings of Centers of Math & Science Education, Salt Lake City, UT, 14 May, 2012.
75. N.D. Finkelstein "STEM Education, Research Universities and the Future of Colorado", Colorado General Assembly, Hearings of the Joint Education Committee, Senate and House of Representatives, Feb 29, 2012.
76. N.D. Finkelstein and S.J. Pollock, "Making the Case: The role of data in supporting educational innovations," Physics Teacher Education Coalition National Meeting, Ontario, CA Jan 2012.
77. N.D. Finkelstein, "Physics Education Research, Public Policy, and Politics," AAPT National Meeting, plenary symposium, Winter meeting, Ontario CA Jan 2012 [plenary discussant]
78. N.D. Finkelstein, B. VanDusen, and S.J. Pollock, and "A Model for Graduate Education in PER as a Sub-discipline of Physics," AAPT National Meeting, Winter meeting, Ontario CA, Jan 2012

79. N.D. Finkelstein, "Research on Accessing in Physics Education," Joint Annual Meetings of the National Societies of Black Physicists and Nat'l Soc. of Hispanic Physicists, Sept 2011.
80. N.D. Finkelstein, "Assessment and Evaluation in College Physics," AAPT, AAS, APS New Faculty Workshop, College Park MD, Jun 28, 2011.
81. N.D. Finkelstein, "Responding to J. Collins – As Biology has Changed How has Science Education," Michigan State National Meeting on Biology Education: Chicago IL, Apr 29, 2011
82. L. Kost,* S. Pollock and N. Finkelstein, " Investigating Gender Differences in Introductory Physics," AAPT National Meeting, Jacksonville FL, Jan 2011.
83. V. Otero, S. Pollock and N. Finkelstein, "A Physics Department's Contribution to Preparing Physics Teachers: Learning Assistants," AAPT National Meeting, Jacksonville FL, Jan 2011.
84. N.D. Finkelstein, "Answering the Nation's Call: the role of physicists in transforming education," PR-LSAMP, Annual Best Practices Conference, Ponce, Puerto Rico, Oct 29, 2010 [plenary]
85. N.D. Finkelstein, "STEM Education at the University of Colorado," CO-LABS, Briefing of State and National Legislative Delegations, Boulder CO, Aug 12, 2010.
86. N.D. Finkelstein, "Scholarly Approaches to Education: the Role of Physicists in Education," SPIE Optics and Photonics national meeting, San Diego, CA July 31, 2010 [keynote]
87. N.D. Finkelstein, "Assessment and Evaluation in College Physics," AAPT, AAS, APS New Faculty Workshop, College Park MD, Jun 29, 2010.
88. V. Otero and N.D. Finkelstein, "Starting a Colorado Learning Assistant Program," Assoc. of Public and Land-grant University, Science and Math Teacher Imperative annual meeting, Cincinnati, OH, Jun 9, 2010.
89. N. Finkelstein, M. Dubson, and K. Perkins, "Seeding and Sustaining Educational Transformation in a Physics Department," AAPT National SPIN-UP Workshop, New Brunswick, NJ, June 5, 2010.
90. M. Cole, N. Finkelstein and 10 members of LCHC, "Sylvia Scribner Award Address," Am. Educational Research Association Annual Meeting, Denver, CO, May 2, 2010 [invited award address]
91. N. Finkelstein, "Strengthening Undergraduate and Graduate STEM Education," U.S House of Reps, Comm on Science & Technology, Research & Science Education Subcommittee Hearings, Wash., DC, Feb 4, 2010.
92. N. Finkelstein, "The Role of New Technologies in Science and Mathematics Education," South African Association for Research in Mathematics, Science and Technology Education Annual Conference, Durban, South Africa, Jan 18-22, 2010 [invited plenary]
93. N. Finkelstein, "Studying Change," Science and Mathematics Teacher Imperative Leadership Collaborative, Association of Public and Land-grant Universities Provosts' Meeting, Miami, FL Jan 6-8, 2010.
94. N. Finkelstein, C. Henderson, A. Beach and L. Mayhew, "Creating and Sustaining University-Community Partnerships in Science Education," Am. Geophysical Union annual meeting, San Francisco, Dec 17, 2009.
95. N. Finkelstein, "Textbooks as Educational Tools," Workshop on Knowledge-Based Textbooks, Vulcan Inc, Seattle, WA Nov 23, 2009.
96. N. Finkelstein, "Initiative on K-12 Teacher Preparation: University of Colorado," National Advisory Board Meeting of the Center for the Integration of Research Teaching and Learning, Washington DC, Oct 29, 2009.
97. S. Pollock, N Finkelstein, K Perkins, S Chasteen, M Dubson, "When Top Down Meets Bottom Up: Supporting Educational Transformation in a Physics Department," 2009 Summer Meeting: Ann Arbor, MI, Jul 2009.
98. V. Otero, N. Finkelstein, P. Beale, T. Gleeson, M. Klymkowsky, L. Shepard, M. Stade, "The Boulder Approach to STEM Education and Teacher Preparation," APLU, SMTI Conference, Boulder, CO. May 17-18, 2009.
99. N. Finkelstein, "Themes, Foundations and Frontiers: a perspective on goals, theory, models and experiment in PER," Foundations and Frontiers in PER, National Conference, Bar Harbor, ME 17 Jun, 2009. [plenary]
100. N. Finkelstein, "Our Classrooms as Cultural Systems: An Examination of Social and Cultural Influences in Two Educational Environments," Physics Education Research Conference, Ann Arbor, July 30, 2009
101. N.D. Finkelstein, "Applying Education Research: Implementing and Sustaining Educational Transformations in Undergraduate Physics", Congres de l'ACP, Canadian Physics Congress, Moncton, Canada, Jun 8, 2009.
102. M. Cole, R. Lecusay, and N.D. Finkelstein, " Using Cultural-Historical Theories of Activity to Promote Science in After- school Learning Environments" Springer Forum on Cultural Studies in Science Education Center for Research in Mathematics & Science Education San Diego State University, April 12, 2009
103. V. Otero and N.D. Finkelstein, " Transforming undergraduates physics course using Learning Assistants," 2009 Physics Teacher Education Coalition Conference, Pittsburgh, PA, Mar 13, 2009.
104. C. Henderson, A Beach, N.D. Finkelstein, "An Overview of the Four Core Categories of Change Strategies for Reforming STEM Instruction", invited talk, AAPT/AAAS Winter Meeting, Chicago, IL, Feb 14, 2009.
105. N. D. Finkelstein, "Understanding When and Why Education Works: the role of new technologies in physics education, " Joint Annual Meetings NSBP & NSHP, Nashville, TN, 13 Feb 2009

- 106.C. Henderson and N.D. Finkelstein, "Facilitating Change in Undergraduate STEM: The Need to Problematize and Improve Our Approaches to Change," 2009 PTEC Conference, Pittsburgh, PA, Mar 13, 2009.
- 107.N. Finkelstein, "Educating Scientifically: Tools, Practices, and Implications of Physics Education Research," AAPT Mexico National Conference, Monterrey Mexico, Dec 12, 2008. [invited keynote]
- 108.N. Finkelstein, "University Community Partnerships in Informal Science Education," Breaking through Walls, Service Learning Symposium, University of Colorado, Oct 29, 2008.
- 109.N. Finkelstein, "Learning Assistants at CU-Boulder," Physics Teacher Education Coalition and NW Regional Meeting of the AAPT, Oct 10, 2008 [invited plenary]
- 110.N. Finkelstein, "Acting in Our Own Self-Interest: Blending University and Community" Physics Education Research Conference 2008, Edmonton CA, July 24, 2008.
- 111.N. Finkelstein, "Recognizing the Political Role of Physicists and Physics Teachers," Am. Assoc. of Physics Teachers Annual Meeting, Edmonton, CA, July 23, 2008,
- 112.V. Otero, N. Finkelstein, and M Stanchurski*, "The Learning Assistant/Noyce Fellowship Recruitment and Preparation Program" NSF Noyce PI's Annual Meeting, Washington DC Jun 27, 2008,
- 113.C. Turpen and N.D. Finkelstein "Case Studies and Institutional Analysis of the Implementation of a Pedagogical Reform in Intro Physics," Facilitating Change in STEM Education, Augusta, MI, Jun, 2008
114. C. Henderson, A. Beach, N. Finkelstein, R. Larson, "Preliminary Categorization of Literature on Promoting Change in Undergraduate STEM." *Facilitating Change in Undergrad STEM symposium*,Augusta, MI. Jun '08.
- 115.N.D. Finkelstein, P.E. Heron, and E.F. Redish, "Proposing a Decadal Study in Physics Education," Board on Physics and Astronomy Meeting, National Academies, Washington, D.C. April 26, 2008
- 116.N.D. Finkelstein, "Problems and Solutions for the Next Generation: a bright future of interdisciplinary work," Canadian American Mexican Physics Conference, Montreal, Quebec, CA, Aug 2007
- 117.N.D. Finkelstein, "A Road Less Traveled: Exploring Teaching Assistant Training Programs in Physics" Am Assoc of Phys Teachers National Meeting, Greensboro, NC, Aug 2007
- 118.N.D. Finkelstein, "The Role of Representations and Analogies in Solving Physics Problems," Joint Mtg of the Nat'l Society of Black Physicists and Nat'l Soc. of Hispanic Physicists, Boston MA, Feb 2007.
- 119.N.D. Finkelstein, "Colorado PhysTEC: improving undergraduate education and the future of K12 physics teaching," APS Executive Board Meeting and Capital Campaign, College Park, MD Nov 4. 2006.
- 120.M. Cole and N.D. Finkelstein, "The Design of Out of School Educational Activities" National Academy of Education, Fellows Retreat and Annual Meeting, Boulder CO, Oct 2006.
- 121.N.D. Finkelstein, P. Kohl and N. Podolefsky "Representation, Analogy, and Solving Physics Problems," Am. Assoc. of Physics Teachers Annual Meeting, Syracuse, NY, Jul 2006
- 122.K. Perkins and N.D. Finkelstein, "Assessing Virtual Environments," Am. Assoc. of Physics Teachers Annual Meeting, Syracuse, NY, Jul 2006
- 123.M. Dancy and N.D. Finkelstein, "Breaking the Paradigm: Working from a Sociopolitical-Critical Perspective," Am. Assoc. of Physics Teachers Annual Meeting, Syracuse, NY, Jul 2006
- 124.N.D. Finkelstein, "Learning Virtually: examining the potential of computer simulations in learning E/M," Gordon Conference on Phys. Educ. Research, Mount Holyoke, MA, Jun 2006.
- 125.N.D. Finkelstein, "Colorado PhysTEC and The Learning Assistant Model for Transforming Undergraduate Science Education," AAPT Annual Chair's Meeting, Washington DC, Jun 2006.
- 126.N.D. Finkelstein, "Reconsidering Tools and Contexts of Student Learning" NAS/NSF Invitational Workshop, Reconsidering the Textbook, Washington DC, May 2006
- 127.N.D. Finkelstein, "Learning About the Physical World Virtually" Annual Meeting of the Physics Teacher Education Coalition (PTEC), Fayetteville AK, Mar 2006
- 128.N.D. Finkelstein, "Sustainable and Scalable Reforms in Physics Education: Research studies from Colorado PhysTEC" American Physical Society Annual Meeting, Baltimore MD Mar 2006
- 129.N.D. Finkelstein, "Advances in Physics Education Research: contexts and tools of student learning," Joint Mtgs of the Nat'l Soc of Black Physicists and Nat'l Soc of Hispanic Physicists", San Jose CA, Feb 2006.
- 130.N.D. Finkelstein, "Making as Science of Science Education: Tools Practices and Implications of Physics Education Research," University of Calgary, Dept of Physics, Colloquium, Sept 23 2005.
- 131.N.D. Finkelstein, "Educating Scientifically: tools, practices, and implications from physics education research (PER)," Canadian American Mexican Physics Conference, San Diego CA Aug 20, 2005 [invited keynote]
- 132.N. D. Finkelstein, C. Turpen, S. Pollock, M. Dubson, S. Iona, C. Keller, and V. Otero, "Colorado PhysTEC: a model of research-based practices for teacher preparation," Phys Educ Rsrch Conf 2005, Aug 11-12, 2005.
- 133.N.D. Finkelstein, "Supporting Hybrid Worlds in Science and Education," Knowles Science Teaching Foundation, Annual Fellows Meeting, Colorado Springs, CO, Aug 2004.

- 134.N.D. Finkelstein, "Seeing Change: the challenges of transfer and transformation of educational practice and research in physics," Physics Education Research Conference. Sacramento CA, Aug 2004
- 135.N.D. Finkelstein, "The Context of Graduate Student Preparation in Physics," American Physical Society, Annual Meeting, Denver CO, May 2004
- 136.N.D. Finkelstein, "Graduate Students Leading the Way: PER training in a traditional university department," Am. Assoc. of Physics Teachers, Miami Beach, Jan '04
- 137.N.D. Finkelstein, "What Do We Know About Classroom Practices and Cognition in Physics?" Am. Assoc. of Physics Teachers, Miami Beach, Jan '04
- 138.N.D. Finkelstein, "Graduating Professionals in Physics," Big 12 PER Conference, Manhattan KS, Nov 2003.
- 139.N.D. Finkelstein, "Context in the Context of Physics and Learning," PER Conf., Rochester, NY, July 26, 2001.
- 140.N.D. Finkelstein and J. Libarkin, "Who Cares About Post-Doc's Anyway? Evaluating the National Science Foundation's Postdoctoral Fellowships in Science, Mathematics, Engineering, and Technology Education," National Association for Research in Science Teaching, St. Louis, MO, March 26-29, 2001.
- 141.W.R. Lempert, N.D. Finkelstein, R.B. Miles, "Optical Filters for Non-Intrusive Combustion Diagnostics," Gordon Conference, Combustion Diagnostics, Plymouth, NH, July, 1997.

INVITED COLLOQUIA / UNIVERSITY ADDRESSES:

1. N Finkelstein, S Franklin, C Henderson, S Malcom, C Rasmussen, K Redd, B Ruedi K St. John, G Weaver, "STEM DBER Alliance," National Science Foundation, EHR Directorate, invited seminar, Jun 26, 2018.
2. N.D. Finkelstein, "Educational Transformation at a Critical Time: the promises of engaging physicists and physics education research," Department of Physics Drexel University 17 May 2018
3. N.D. Finkelstein, "Educational Transformation at a Critical Time: the promises of disciplinary engagement Why physicists? And Why Now?," Department of Physics, Cornell University 7 May 2018
4. N.D. Finkelstein, "Educational Transformation at a Critical Time: the promises of disciplinary engagement Why physicists? And Why Now?," Department of Physics, Michigan State University, 19 Apr 2018.
5. N.D. Finkelstein, "Educational Transformation at a Critical Time: why us and why now the promises of disciplinary engagement," Inst for Lrn & Education Sci, Temple University, 9Apr 2018 [campus-wide addr]
6. N.D. Finkelstein, "Educational Transformation at a Critical Time: the promises of disciplinary engagement," Department of Physics, University of Oregon Feb 5, 2018.
7. N. D. Finkelstein, "Institutional and Organizational Change in Higher Education," University of Oregon, Provost Office, AAU-sponsored effort, campus-wide seminar, Feb 5, 2018.
8. N. D. Finkelstein, "Physics and Inclusion: studies, calls and models for including more women in physics," University College Dublin, Ireland Nov 23,2017
9. N. D. Finkelstein, "Master Class: Educational Research within the Disciplines," Royal Irish Academy, Dublin, Ireland, 22 Nov 2017.
- 10.N. D. Finkelstein, "Preserving the Promise of Higher Education: our critical roles in excellence and access," National Irish University-Galway, Galway, Ireland, 21 Nov, 2017.
- 11.N. D. Finkelstein, "Taking a scholarly route to improving education: theory, practice and tools to support educational transformation (in STEM)," Cal. Institute of Technology, Pasadena, CA, Sep 13, 2017
- 12.N. D. Finkelstein, "Promoting Scientific Identities: a role for partnerships and participation," Weizmann Institute of Science," Rehovot, Israel, Sept 5, 2017.
- 13.N. D. Finkelstein, L Corwin S Miller, AB Hunter, B Kraus, H Loshbaugh, K Lopez, S Shaheen, and Janet Yowell, "Creating Academic Pathways in STEM (CAPS)," Faculty Workshop, University of Colorado Boulder, May 11, 2017.
- 14.N.D. Finkelstein, "Taking a scholarly route to institutional change: theory, practice and tools in support of educational transformation in STEM," Campus Learning Series, Univ. California Santa Cruz, Apr 13, 2017
- 15.N.D. Finkelstein, "Education Leadership Learning Exchange Program: A Discussion of STEM Education Transformation in the United States," Creative Learning Systems' SmartLab ,Colorado, Mar 17, 2017.
- 16.N.D. Finkelstein, Taking a scholarly route institutional transformation: theory, practice and tools to support educational improvement," Systemic Transformation of Education through Evidence-Based Reforms (STEER), *University of South Florida, Mar 9, 2017.*
- 17.N.D. Finkelstein, "Educational Transformation at a Critical Time: why us and why now - the promises of disciplinary engagement, Dept of Physics, Universidade Federal de Minas Gerais Nov 17, 2016.
- 18.N.D. Finkelstein, "Why Education Research in Physics? State of the Art & Getting Started in Physics Education Research," COLTEC, Universidade Federal de Minas Gerais, Nov 16, 2016.
- 19.N.D. Finkelstein, "State of the Art and Getting Started in PER," Instituto de Fisica, Universidade Federal Fluminenses, Nov 11, 2016.

20. N.D. Finkelstein, "Educational Transformation at a Critical Time: why us and why now," Instituto de Física, Universidade Federal do Rio de Janeiro, Nov 10, 2016
21. N.D. Finkelstein, "Educational Transformation at a Critical Time: why us and why now - the promises of disciplinary engagement," Universidade Federal Fluminenses, Nov 9, 2016.
22. N.D. Finkelstein, "State of the Art and Getting Started in PER," Instituto de Física, Universidade Federal do Rio de Janeiro, Nov 8, 2016
23. N.D. Finkelstein, "Advancing Undergraduate Education: through disciplinary based educational research," Adams State University, Alamosa CO, (campuswide) Oct 19, 2016
24. N.D. Finkelstein, "Preserving the Promise of Higher Education: our critical roles in excellence and access," Colorado State University Fort Collins CO, Sept 30 2016 (campuswide address)
25. N.D. Finkelstein, "Center for STEM Learning history and future," University of Colorado Boulder, STEM Education Symposium, Boulder, CO, Sept 28 2016
26. N.D. Finkelstein, Educational Transformation at a Critical Time, United States Air Force Academy (USAFA), Colorado Springs, CO, (campus wide address) Sept 23 2016
27. N.D. Finkelstein, "Why a network of higher education systems matters," Hawaii System, 2 Aug, 2016
28. N.D. Finkelstein, "Disciplinary Based Engagement in Educational Transformation," National University of Ireland, Galway 21 Mar 2016
29. N.D. Finkelstein, "Preserving the Promise of Higher Education: educational transformation at a critical time," Trinity College Dublin and University College Dublin, 18 Mar, 2016
30. N.D. Finkelstein, "Educational Transformation at a Critical Time: why us and why now," Department of physics Colloquium, Trinity College Dublin, Dublin Ireland, 16 Mar 2016.
31. N.D. Finkelstein, "Educational Transformation at a Critical Time: why us and why now -- the promises of disciplinary engagement," Boston University, campus-wide address, 1 Mar, 2016
32. N.D. Finkelstein, "Facilitating Change in Undergraduate Education," University of Colorado, Colorado Springs, campus-wide address 18 April, 2016
33. N.D. Finkelstein, "Preserving the Promise of Higher Education: educational transformation at a critical time," University of Colorado, Colorado Springs, campus-wide address 18 April, 2016
34. N.D. Finkelstein, "Active Learning in the Classroom: Fad or Fixture," Anschutz Medical Campus and CU Denver Joint Presentation, Denver CO, campus-wide address 11 April, 2016
35. N.D. Finkelstein, "Colorado Achievement Pathways Initiative," Colorado Achievement Pathways Summit, Boulder CO, 7 April 2016.
36. N.D. Finkelstein, "Preserving the Promise of Higher Education: educational transformation at a critical time," Colorado School of Mines, Golden, CO 26-Feb 2016, [keynote campus wide address]
37. N.D. Finkelstein, "Taking a scholarly route to evaluating and promoting quality teaching: theory, practice and tools to support educational transformation," Yale University, 20 Nov 2015.
38. N.D. Finkelstein, "Educational Transformation at a Critical Time: why us and why now: the promises of disciplinary engagement," Hamburg University of Technology, Hamburg Germany, 17 Sept 2015
39. N.D. Finkelstein "Preserving the Promise of Higher Education: educational transformation at a critical time," University of Ljubljana, Ljubljana, Slovenia 15 April 2015
40. N.D. Finkelstein, "Towards a model of systemic change in university STEM education: Preserving the Promise of Higher Education a critical time," University of British Columbia, 10 Jun 2015.
41. N.D. Finkelstein, "Preserving the Promise of Higher Education: disciplinary engagement in educational transformation a critical time" Arizona State University, Learning Sciences, Jan 15, 2015.
42. N.D. Finkelstein, "What's all the fuss about Discipline Based Education Research and STEM Education?," ATLAS Colloquium, University of Colorado Boulder, 7 Nov 2014.
43. N.D. Finkelstein, "Why Physics Has and Must Engage the promises of engagement at a critical time," Global Physics Department Colloquium, 15 Oct 2014.
44. N.D. Finkelstein, "Educational Transformation at a Critical Time: why us and why now the promises of disciplinary engagement," Department of Physics, University of Toronto, 18 Sept 2014.
45. N.D. Finkelstein, "Disciplinary Engagement in Educational Transformation at a Critical Time," Workshop on Education Lecture Series, University of Chicago, Chicago, IL, 8 April 2014.
46. N.D. Finkelstein, "The Roles and Promises of University & Disciplinary Engagement in The Transformation of STEM Education at a Critical Time," Purdue, DLRC 7 Apr 2014.
47. N.D. Finkelstein, "Educational Transformation at a Critical Time the Roles and Promises of University & Disciplinary Engagement," University Nevada Reno, 27 Jan 2014 [campus-wide]
48. N.D. Finkelstein, "Physics Education Research & the Roles of Physics and Physicists in the Transformation of Education," Physics Colloquium, Colorado State University, Nov 18 2013.

49. N.D. Finkelstein, "Disciplinary Engagement the Transformation of Education," Physics Colloquium, University of California, Davis, Nov 4, 2013.
50. N.D. Finkelstein, "Physics and it's Roles in the Transformation of Education," Physics Colloquium, University of California, Berkeley, Oct 21, 2013.
51. N.D. Finkelstein, "How and Why Centers and DBER can support NSF's WIDER," Greater Philadelphia Area Coalition in STEM education (Arcadia, Bryn Mawr, Drexel, Eastern, LaSalle, Temple, U Delaware, U Pennsylvania, and Villanova) 5 Jun 2013.
52. N.D. Finkelstein, "Why and How the Science, Math and Engineering Communities Must be Involved in National Educational Transformation," Faculty STEM Initiative, Chicago State University 25 Apr 2013 [campus-wide]
53. N.D. Finkelstein, "When and How Science Math and Engineering Programs must be in Campus and National Educational Transformation," Math Science Learning Education Consortium, Univ. CO Denver, 15 Mar 2013.
54. N.D. Finkelstein, "When and How Science Math and Engineering Programs must partner for educational transformation at a critical time," Distinguished Thinker Series, UC, Davis 11 Feb 2013 [campus wide address]
55. N.D. Finkelstein, "Engaging Disciplines & Universities: In educational transformation (at a critical time)," National Science Foundation, EHR Directorate, Arlington VA, 10 Dec 2012.
56. N.D. Finkelstein, "Physics Education Research: a resource for educational transformation at a critical time," Department of Physics Colloquium, Florida State University, Tallahassee, FL, 8 Nov 2012.
57. N.D. Finkelstein, "Connecting Education & Physics, University & Pre-College: Physics Education Research addressing national calls...", Learning Systems Institute, Florida State University, 8 Nov 2012.
58. N.D. Finkelstein, "Physics Education Research: a resource for educational transformation at a critical time," Department of Physics Colloquium, Tufts University, Boston, MA, 7 Sept 2012.
59. N.D. Finkelstein, "Discipline-based Educational Research: University of Colorado Boulder," CIRTL National Network Meeting, U Wisconsin, 19 July 2012.
60. N.D. Finkelstein, "CU-Boulder's role in National STEM Education Activities and Policies," Science Education Initiative / iSTEM End of Year Event, Boulder, CO, 9 May 2012.
61. N.D. Finkelstein and R. Parson, "NSF I3: Towards a Center for STEM Education," National Science Foundation, Mid-Point Review, Washington, DC, 26 Mar 2012.
62. N.D. Finkelstein, K. Hinko, D. Kotys-Schwartz, "University-Community Partnerships: How Informal STEM Education can improve undergraduate education, teacher prep, and discipline-based education research," National Science Foundation, Informal Science Education Division, Washington, DC, 26 Mar 2012.
63. N.D. Finkelstein, "Advances in Physics Education Research: contextualizing PER and considering upper division educational transformation," Florida International University, Dept. of Physics, 6 Mar 2012.
64. N.D. Finkelstein, "A Scholarly Approach to (Science) Education: key tools for transformation at a critical time nationally," Annual Symposium: Success in the Classroom, University of New Mexico, Albq, NM, 15 Feb 2012. [keynote address]
65. N.D. Finkelstein, "The Promise of and Need for Scholarship in Educational Transformation," University of Arizona, Department of Physics, Feb 17, 2012.
66. N.D. Finkelstein, "A Scholarly Approach to Science Education: key tools for transformation at a critical time nationally," University of New Mexico, Campus-wide Teaching Excellence Symposium, Feb 15, 2012
67. N.D. Finkelstein, "Physics Education Research: the promise of scholarship in educational transformation," Penn State University, Department of Physics, Dec 7, 2011.
68. N.D. Finkelstein, "Physics Education Research: A Resource for Educational Transformation at a Critical Time," University of Colorado Boulder, Department of Physics, Boulder CO, Nov 16, 2011.
69. N.D. Finkelstein, "Making a Science out of Science Education: Transforming physics classes using research in physics education," Department of Physics, Colloquium, University of Cincinnati, OH, Oct 7, 2010
70. N.D. Finkelstein, "Understanding When and Why Education Works: the Roles of New Tools and Practices in Physics Education," Coalition on STEM Education, University of Cincinnati, OH, Oct 7, 2010
71. N.D. Finkelstein and V. Otero, "Colorado STEM Education: Investing in Colorado's Future" Board of Regents Meeting, University of Colorado, Jun 24, 2010.
72. N.D. Finkelstein, "Achieving Excellence in Undergraduate Education: the Colorado Learning Assistant Model," Boston University, Provost and Dean's Council Meetings, Boston, MA, April 15, 2010.
73. N.D. Finkelstein, "Towards a Scholarship of Teaching and Learning in Science and Engineering," Computational Optical Sensing and Imaging center, University of Colorado, Boulder, Apr 12, 2010.
74. N.D. Finkelstein, "Understanding When and Why Education Works: the Role of New Technology in Physics Education," Department of Science Teaching, Weizmann Institute of Science, Rehovot, Israel, Nov 10, 2009.
75. N.D. Finkelstein, "Representation and Analogy Use by Students in Learning Physics," Department of Math Education, Faculty of Education, University of Haifa, Haifa, Israel, Nov 5, 2009.

76. N.D. Finkelstein, "Theories of Representation and Analogy Use by Students in Learning Physics," Rutgers University, Department of Physics, Sep 4, 2009.
77. N.D. Finkelstein, "Examining Colorado's Approach to Sustaining and Scaling Educational Reform: Opportunities for Montana", Keynote address to the State-wide initiative: Montana Math and Science Teacher Initiative, Steering Committee Meeting, May 1, 2009, Helena Montana. (State-Level Policy Makers) [Keynote]
78. N.D. Finkelstein, " Reconsidering Tools in STEM Education: The Use of Analogy and Representation," Department of Math & Science Educ., School Engineering & Sciences, Clemson University, April 24, 2009.
79. N.D. Finkelstein, "Scholarly Education: Implications of Physics Education Research" GAANN Retreat, School of Engineering, University of Colorado, Apr 16, 2009.
80. N.D. Finkelstein, " Educating Scientifically: Tools, Practices, and of Physics Education Research," Physics Department, Uppsala University, Uppsala, Sweden, Feb 26, 2009.
81. N.D. Finkelstein, "Representations, Analogies and Learning Physics," University of California San Diego and San Diego State, MSED program, Oct 21, 2008.
82. N.D. Finkelstein, "Analogical Scaffolding, Representations and Meaning in Physics," University of Maryland, Physics Education Research Group Meeting, April 25, 2008.
83. N.D. Finkelstein, "Unpacking Representations, Meaning and How Students Use Analogies To Learn Physics," University of Illinois, Physics Education Group Meeting, April 24, 2008.
84. N.D. Finkelstein, "An incomplete Tour of STEM Education at CU & CIRTl-specific activities" Cntr for Integration of Research, Teaching & Learning Annual Meeting, Boulder, CO, April 3 2008.
85. N.D. Finkelstein, "Making a Science out of Science Education: Implications of Physics Education Research for Science Teaching" Astrophysics & Planetary Sciences Colloquium, Univ. Colorado, Jan 14, 2008.
86. N.D. Finkelstein, "Physics Education Research and Understanding the Contexts of Student Learning in Physics" Center for Research in College Science Teaching, Michigan State University, Jan 9, 2008.
87. N.D. Finkelstein, "Making a Science out of Science Education: Studies of Transforming Undergraduate Physics" Colloquium Department of Applied Physics, Harvard University, Cambridge, MA, Oct 19, 2007.
88. N.D. Finkelstein, "Understanding the Tools Students Use to Learn Physics: Representation, Analogy, and Computer Sims" Joint Colloquium CEOO, Education , and of Physics, Tufts Univ, Medford, MA, Oct 18, 2007.
89. N.D. Finkelstein, "Educating Scientifically: Advances in Physics Education Research," Fermi National Accelerator Lab Colloquium, Batavia, IL, May 2007.
90. N.D. Finkelstein, "Applying Physics Education Research to the next generation of classroom practice" Department of Physics Colloquium, Emory University, Atlanta, GA, Apr 2007.
91. N.D. Finkelstein, "Advances in PER: New Directions and Findings in Physics Education" Physics Colloquium, University of Northern Colorado, CO, Apr 2007.
92. N.D. Finkelstein, "Student Learning in Physics and the role of representation analogy and context," Institute for Cognitive Studies Colloquium, University of Colorado at Boulder, Mar 2007.
93. N.D. Finkelstein, " A Science of Science Education: studies of transforming undergraduate physics," Department of Physics Colloquium, Rutgers University, New Brunswick, NJ, Feb 2007.
94. N.D. Finkelstein, "Learning Assistants, Course Transformation, and Discovery Learning in Physics," College of Natural Sciences New Faculty Teaching Conference, University of Texas, Austin, TX, Oct 2006
95. N.D. Finkelstein, "Researching Reform: studies of transforming undergraduate physics," Departmental Colloquium, Department of Physics, University of Arizona, Tucson, AZ, Oct 2006
96. N.D. Finkelstein, "New Tools, Traditional Contexts: Examining the potential of computer simulations for undergraduate education," PER Seminar Series, The Ohio State University, Columbus, OH, May 2006
97. N.D. Finkelstein, "The GK12: Educating Scientifically," CIRES GK12, Boulder, CO, Mar 2006
98. N.D. Finkelstein, "Recent advances in Physics Education Research: examining contexts of student learning," Kansas State University, Department of Physics, Colloquium, Nov 29, 2005
99. N.D. Finkelstein, "A Science of Science and Engineering Education," Tufts University, School of Engineering, Center for Engineering Education Outreach, Colloquium, Oct 24, 2005.
100. N.D. Finkelstein, " Thinking Scientifically about Science Education" Colorado School of Mines, Physics Department Colloquium, Sept 27, 2005.
101. N.D. Finkelstein, "Revisiting our Classrooms: tools, practices, and implications from physics education research (PER)" Princeton University, Engineering Math Physics Faculty Seminar, Aug 5, 2005
102. N.D. Finkelstein, "The GK12 and DBER at the university: a quick tour" CIRES Seminar, April 20, 2005.
103. S.J. Pollock and N.D. Finkelstein, "Building on a Base: tools, practices, and implications from physics education research (PER)" Dean's Faculty Seminar in Education, School of Engineering, Feb 21, 2005.
104. N.D. Finkelstein, "Physics Education Research @ Colorado: Tutorials, Attitudes and Context," University of Washington, Physics Education Group, May 2004

- 105.M. Dancy and ND Finkelstein, “ A Discussion of PER, Economics, Politics, and Reform,“ University of Washington, Physics Education Group, May 2004
- 106.N.D. Finkelstein, “Physics Education Research at Colorado: tools and implication for non-major astronomy classes,” Departmental Colloquium, Astrophysical and Planetary Sciences, Feb 2004
- 107.N.D. Finkelstein, “Realizing Our Potential: Making Tools and Contexts for Physics Education,” Center for Adaptive Optics, University of California, Santa Cruz, May 2003.
- 108.N.D. Finkelstein, “Creating Hybrid Worlds in Science and Education,” Departmental Colloquium, Department of Education, U.C., Santa Cruz, Mar 2003
- 109.N.D. Finkelstein, “Physics Education Research: tools and contexts for educating students in physics,” Physics Dept. Colloquium, University of Colorado, Boulder Feb 2003.
- 110.N.D. Finkelstein, “Physics Education Research and implications for educating at the university,” Physics Departmental Colloquium, U.C., San Diego, Nov. 2002.
- 111.N.D. Finkelstein, “Preparing Future Physics Faculty: engaging physics graduate students in education,” Two Year College Physics Conference, Palomar College, April 20, 2002.
- 112.N.D. Finkelstein, “Theory & practice of combining school, community and university to promote physics,” Center for Research in Educational Equity Assessment and Teaching Excellence, Faculty Research Seminar, University of California, April 9, 2002.
- 113.N.D. Finkelstein, “Education and Teaching in Physics: what we know about the state of affairs and implications from Physics Education Research” Center for Teaching Development, Preparing Future Physics Faculty, University of California, San Diego, Feb 8 / 15, 2002.
- 114.N.D. Finkelstein, “The Role of Context in Physics Education,” Center for Research in Mathematics and Science Education, San Diego State, Colloquium, Nov 2, 2001
- 115.N.D. Finkelstein, “ Bridging Studies of Physics and Education,” Colloquium Address, Graduate School of Education, U.C. Berkeley, May 2001.
- 116.N.D. Finkelstein, “Teaching Physics in Context: a model for coordinating education, outreach, and research,” PER Seminar, Department of Physics, University of Maryland, College Park, MD, March 30, 2000.
- 117.N.D. Finkelstein, “Technology in Education: a means of bridging text and context?” Teacher Education Program, University of California, San Diego, March 7, 2000.
- 118.N.D. Finkelstein, “Putting Physics in Context and Context in Physics,” Center for Teaching Development, Preparing Future Physics Faculty, University of California, San Diego, Nov 5, 1999.
- 119.N.D. Finkelstein, “Subverting Physics,” Center for Research in Educational Equity Assessment and Teaching Excellence (CREATE), University of California, San Diego, Nov 3, 1999.
- 120.N.D. Finkelstein, “Building Lego into Afterschool Educational Programs,” Fifth Dimension Afterschool Education Conference, U.C. San Diego, Riverside, and Santa Barbara, Appalachia State University, Boone, NC, and University of Ronneby, Ronneby, Sweden, May 17, 1999.
- 121.N.D. Finkelstein, “Stimulating and Exciting Light Activities: Lasers, Princeton and the Future,” Sigma Xi public lecture series, Princeton University, Nov 9, 1997.

CONTRIBUTED PAPERS, POSTERS AND TALKS at NATIONAL CONFERENCES

1. D Izadi, I Ward, K Hinko, C.Fracchiolla, N Finkelstein, Program Identification for Determining the Informal Physics Landscape, AAPT National Meeting, Houston TX, Jan 12-15, 2019
2. D Izadi, K Hinko, C.Fracchiolla, N Finkelstein, I Ward, Developing Instruments to Survey the Informal Physics Landscape, AAPT National Meeting, Houston TX, Jan 12-15, 2019.
3. B L. Fiedler, , M B. Bennett, C. Fracchiolla, K. Hinko, N D. Finkelstein, A Design-Based Informal Physics Program from a Youth Perspective, Physics Education Research Conference, July Washington DC, 2018.
4. I. Hanemann, J R. Hoehn, , N D. Finkelstein, Documenting and characterizing differences in students’ epistemologies between classical and quantum physics, Physics Education Research Conference, July Washington DC, 2018.
5. J R. Hoehn, J D. Gifford, N D. Finkelstein, Dynamics of students’ ontological reasoning across modalities and contexts in modern physics, Physics Education Research Conference, July Washington DC, 2018.
6. M B. Bennett, B L. Fiedler, C.N D. Finkelstein, How Does Program Design Promote or Constrain Pedagogical Approaches? Physics Education Research Conference, July Washington DC, 2018.
7. T William, S A. Hyater-Adams, N.D. Finkelstein, C Fracchiolla, K. Nordstrom, K. Hinko, The Intersection of Identity and Performing Arts of Black Physicists, Phys Education Research Conf., July Washington DC, 2018.
8. J D. Gifford, J R. Hoehn, N D. Finkelstein, Representational Integration: A framework for Mathematical Sense Making, Physics Education Research Conference, July Washington DC, 2018.

9. E. Hayden, M B. Bennett, N D. Finkelstein Personalization of Learning, and Scientific Pursuit in an Inquiry-based Learning Environment, Physics Education Research Conference, July Washington DC, 2018.
10. S A. Hyater-Adams, T William, C Fracchiolla, N.D. Finkelstein, K. Hinko Performing Physics: An Analysis of Design-Based Informal STEAM Education Programs: How Does Program Design Promote or Constrain Pedagogical Approaches? Physics Education Research Conference, July Washington DC, 2018.
11. C. Henderson, S. Franklin, N.D. and Finkelstein, STEM DBER Alliance, AAPT National Conf., Washington D.C., 30 July, 2018.
12. J R. Hoehn, J D. Gifford, N D. Finkelstein, Epistemological Stances and Mathematical Sense Making in Quantum Mechanics, AAPT National Conf., Washington D.C., 30 July, 2018.
13. J D. Gifford, J R. Hoehn, N D. Finkelstein Useful Math: Investigating Mathematical Sense-Making in Learning Quantum Physics, AAPT National Conf., Washington D.C., 30 July, 2018.
14. S A. Hyater-Adams, T William, C Fracchiolla, N.D. Finkelstein, K. Hinko, Identity in STEAM: Building Physics Identities through Performance, AAPT National Conf., Washington D.C., 30 July, 2018.
15. T William, S A. Hyater-Adams, N.D. Finkelstein, C Fracchiolla, K. Nordstrom, K. Hinko, The Intersection of Identity and Performing Arts of Black Physicists, , AAPT National Conf., Washington D.C., 30 July, 2018.
16. K. Hinko, N.D. Finkelstein, Determining the Landscape of Informal Physics in the United States, AAPT National Conf., Washington D.C., 30 July, 2018.
17. M B. Bennett, B.L. Fiedler, N D. Finkelstein, Impacts of Educational Structures on Pedagogical Approaches in Informal Learning, AAPT National Conf., Washington D.C., 30 July, 2018.
18. B L. Fiedler, P. Reynerson, M B. Bennett, N D. Finkelstein, C. Fracchiolla, A Student-Driven Definition of Productivity in Informal Learning, AAPT National Conf., Washington D.C., 30 July, 2018.
19. C. Henderson, S. Franklin, N.D. Finkelstein, NSEC 2018 National Conference, Columbus OH, Jun 6-8, 2018. STEM DBER Alliance, NSEC 2018 National Conference, Columbus OH, Jun 6-8, 2018.
20. M Bennett,* K Hinko, B Fiedler,* N Finkelstein, "The Effect of Explicit Training in Pedagogical Modes for Informal Physics Educators, Physics Education Research Conference, Cincinnati OH, Jul 2017.
21. S. Hyater-Adams,* K Hinko N Finkelstein "Applying a Racialized Physics Identity Framework for Different Nationalities," Physics Education Research Conference, Cincinnati OH, Jul 2017.
22. T. Williams, S. Hyater Adams, and N.Finkelstein, "Characterizing the Role of Arts Education in the Physics Identity of People of Color," Physics Education Research Conference, Cincinnati OH, Jul 2017.
23. J. Hoehn,* J Gifford,* N D. Finkelstein, E Sohr A Gupta, "Supporting and analyzing mathematical sense-making for learning in quantum mechanics," Physics Education Research Conference, Cincinnati OH, Jul 2017.
24. J. Corbo,* D. Reinholz, M. Pilgrim, and N. Finkelstein, "Departmental Action Teams as a Mechanism for Promoting Departmental Change," Physics Education Research Conference, Cincinnati OH, Jul 2017.
25. M Bennett,* K Hinko, B Fiedler,* N Finkelstein, "Preparing Physicists to be Informal Educators," AAPT National Summer Meeting, Cincinnati, OH, Jul 2017,
26. S. Hyater-Adams,* C. Fracchiolla, K Hinko N Finkelstein, "Rethinking Identity: A Framework for Physics Identity that Considers Race," AAPT National Summer Meeting, Cincinnati, OH, Jul 2017,
27. M Bennett,* K Hinko, B Fiedler,* N Finkelstein, "Towards Defining Productivity in Informal Physics Education Programs," AAPT National Summer Meeting, Cincinnati, OH, Jul 2017,
28. J. Hoehn, J. Gifford, N. Finkelstein, "What Does Mathematical Sense-Making Look Like in Quantum Mechanics?," AAPT National Summer Meeting, Cincinnati, OH, Jul 2017.
29. J. Corbo,* D. Reinholz, M. Dancy, and N. Finkelstein, "Effective Facilitation of Teams to Enact Departmental Change," AAPT National Winter Meeting, Atlanta, GA, Feb 2017,
30. S. Hyater-Adams,* K Hinko, N.D. Finkelstein, "Understanding connections between physics and racial identities through recognition and relational resources," PER National Conference, Sacramento CA, Jul 21, 2016
31. N. Franco, C. Fracchiolla, K. Hinko, N.D. Finkelstein, "Examining student engagement with activity theory in an afterschool physics program" PER National Conference, Sacramento CA, Jul 21, 2016
32. C. Fracchiolla, A Pearlstein, N Finkelstein, B Jones, K Hinko Understanding the impact of institutional structures and cultural practices on university informal physics programs, PER National Conference, Sacramento CA, Jul 21, 2016
33. K Hinko, C. Fracchiolla, S. Hyater-Adams, N.D. Finkelstein, University physics students' attitudes and experiences in informal physics programs, PER National Conference, Sacramento CA, Jul 21, 2016
34. J. Hoy, and N.D. Finkelstein "Thinking Quantum Mechanically: Introducing Students to Reasoning in Modern Physics," AAPT National Meeting Sacramento CA, Jul 18, 2016
35. K Hinko, P Madigan, E Miller, N Finkelstein, "Characterizing Pedagogical Practices of Physics Students in Informal Learning Environments AAPT National Meeting Sacramento CA, Jul 18, 2016

36. J C. Corbo, D L. Reinholz, M H. Dancy, and N Finkelstein, "Faculty Learning Communities and Departmental Action Teams: making sustainable change," AAU STEM Educ Initiative Annual Conference, Oct 2015.
37. H.J. Lewandowski and N. Finkelstein, "Redesigning a junior-level electronics course to support engagement in scientific practices," 2015 Physics Education Research Conference, College Park, MD.(2015).
38. J C. Corbo, D L. Reinholz, M H. Dancy, and N Finkelstein, "Departmental Action Teams: Empowering faculty to make sustainable change," 2015 Physics Education Research Conference, College Park, MD. (2015).
39. J. Hoy, K. Hinko, and N.D. Finkelstein, "Understanding dynamic ontologies using conceptual blending: A case of student reasoning about photons," 2015 Physics Education Research Conference, College Park, MD. (2015).
40. D R. Dounas-Frazer, K L. Van De Bogart, N D. Finkelstein, M R. Stetzer, H J. Lewandowski "Research Methodologies for Studying Troubleshooting, Metacognition, and Modeling in Junior-Level Electronics Courses," 2015 Physics Education Research Conference, College Park, MD. (2015).
41. B. Zwickl, D Hu, N Finkelstein, and H. J. Lewandowski, "Modeling-Based Reasoning in the Upper-Division Physics Laboratory," "2015 Physics Education Research Conference, College Park, MD. (2015).
42. S Hyater-Adams, K Hinko, and N Finkelstein, "Pathways to STEM: Understanding identity of adult physicists through narrative analysis," 2015 Physics Education Research Conference, College Park, MD.
43. J. T. Stanley, D Dounas-Frazer, N Finkelstein, H J Lewandowski, "Replacing Lab Reports with Lab Notebooks: Developing and Assessing Authentic Scientific Communication Skills," AAPT Sm Mtg: College Park, (2015).
44. H Lewandowski , N Finkelstein, D Dounas-Frazer, Engaging Students in Scientific Practices in an Electronics Course," AAPT 2015 Summer Meeting: College Park, Maryland (2015).
45. D R. Dounas-Frazer, N Finkelstein, H J Lewandowski., Troubleshooting in an Electronics Course and the Experimental Modeling Framework," AAPT 2015 Summer Meeting: College Park, Maryland (2015).
46. J Hoy, N Finkelstein, H Hinko, D Woody, "Particle or Wave: Supporting Students' Ontological Development in Modern Physics," AAPT 2015 Summer Meeting: College Park, Maryland (2015).
47. H A. Hinko, P Madigan, E Miller, N D. Finkelstein, "Pedagogical Modalities of University Physics Students in an After-school Program," AAPT 2015 Summer Meeting: College Park, Maryland (2015).
48. J C. Corbo, D L. Reinholz, M H. Dancy, S Deetz, N Finkelstein, "Department Action Teams: Empowering Faculty to Make Sustainable Change," AAPT 2015 Summer Meeting: College Park, Maryland (2015).
49. S A. Hyater-Adams. N. Finkelstein, K Hinko, "Utilizing Informal Science Programs to Understand and Promote Connections Between Physics Identity and Racial Identity," AAPT 2015 Mtg.: College Park, Maryland (2015).
50. K. Goodman, J. Hertzberg, T. Curran, and N. Finkelstein, "Expansion of Perception in Fluids" Am. Soc. for Engineering Education, Seattle, WA, Jun 15-17, 2015.
51. S A. Hyater-Adams. N. Finkelstein, K Hinko, "Utilizing Informal Science Programs to Understand and Promote the Connections Between Physics Identity and Racial Identity," Nat'l Soc of Black Physicists, 26 Feb 2015.
52. N.D. Finkelstein, J. Corbo, D. Reinholz, M. Dancy, S. Deetz, "Towards a Model of Systemic Change in University STEM Education," Transforming Institutions Conference, Indianapolis, IN, Oct 23, 2014.
53. J C. Corbo, N Finkelstein, M Dancy, S Deetz, D Reinholz , Fostering positive cultural changes in college STEM departments," PER Conference 2014, Minneapolis, MN, 30-31, Jul, 2014.
54. H Lewandowski, B Pollard, N Finkelstein, "Preparing students for research experiences through instructional labs in electronics," PER Conference 2014, Minneapolis, MN, 30-31, Jul, 2014.
55. D Lieberman, M Dubson, D Finkelstein, K Goodman, E Johnsen, J Olsen, "Physics I MOOC – Educational Outcomes," PER Conference 2014, Minneapolis, MN, 30-31, Jul, 2014.
56. P Madigan, N Finkelstein, K Hinko, "Pedagogical Development of University Physics Students in Informal Learning Environments," PER Conference 2014, Minneapolis, MN, 30-31, Jul, 2014.
57. J Olsen, M Dubson, N D. Finkelstein, K A. Goodman, E Johnsen, D H. Lieberman, "Comparative Educational Outcomes from 3 Introductory Physics Courses," PER Conference 2014, Minneapolis, MN, 30-31, Jul, 2014.
58. J Seneca, N Finkelstein, K Hinko, "Use of Scientific Language by University Physics Students Communicating to the Public," PER Conference 2014, Minneapolis, MN, 30-31, Jul, 2014.
59. R Wulf, K Hinko, N Finkelstein, "Children's Communication Practices in an Informal Physics Program," PER Conference 2014, Minneapolis, MN, 30-31, Jul, 2014.
60. B Zwickl, D Hu, N Finkelstein, H Lewandowski , 'Making models of measurement tools: Examples from think-aloud student interviews," PER Conference 2014, Minneapolis, MN, 30-31, Jul, 2014.
61. B M. Zwickl, Di Hu, N.D. Finkelstein, & H. J. Lewandowski, "Assumptions and Idealizations in Students' Reasoning During Laboratory Activities," AAPT National Meeting, Minneapolis, MN, 26-30, Jul, 2014.
62. H Lewandowski, B. Pollard, N.D. Finkelstein Preparing Students for Research Experiences Through Instructional Labs in Electronics, AAPT National Meeting, Minneapolis, MN, 26-30, Jul, 2014.
63. J C. Corbo, N. Finkelstein, M Dancy, S Deetz, P Chinowsky, Fostering Positive Cultural Changes in College STEM Departments, AAPT National Meeting, Minneapolis, MN, 26-30, Jul, 2014.

64. J. Olsen, M Dubson, N D. Finkelstein, K A. Goodman, E Johnsen, D H. Lieberman, "Comparative Educational Outcomes from 3 Introductory Physics Courses," AAPT National Meeting, Minneapolis, MN, 26-30, Jul, 2014.
65. P. Madigan, N. Finkelstein, K. Hinko, Characterizing Student-educator interactions in an after-School Physics Program, AAPT Winter Meeting, Orlando, Florida 4-7 Jan 2014.
66. H. Lewandowski, B. Zwickl, T. Harokawa, N. Finkelstein, "Colorado Learning about Science Survey for experimental Physics (e-CLaSS)," AAPT Winter Meeting, Orlando, Florida 4-7 Jan 2014.
67. B. Zwickl, H Lewandowski, and N. Finkelstein, " Characterizing Students' use of Models during experimentation," , AAPT Winter Meeting, Orlando, Florida 4-7 Jan 2014.
68. B. Spike and N.D. Finkelstein, "TA-PIVOT: A Framework for Examining Physics Teaching Assistants' Beliefs and Practices," Physics Educ. Research Conference, Portland, OR, 17-18 Jul 2013.
69. R. Wulf, K. Hinko and N.D. Finkelstein, "Comparing Mechanistic Reasoning in Open and Guided Inquiry Physics Activities," Physics Educ. Research Conference, Portland, OR, 17-18 Jul 2013.
70. B. Zwickl, N. Finkelstein, and H. Lewandowski, "Students' use of modeling in the upperdivision physics laboratory," Physics Educ. Research Conference, Portland, OR, 17-18 Jul 2013.
71. K. Hinko and N.D. Finkelstein, "Characterizing Epistemological Frames of Scientific Communication between Physicists and Non-experts," Physics Educ. Research Conference, Portland, OR, 17-18 Jul 2013.
72. B. Zwickl, T. Hirokawa, N. Finkelstein, and H. Lewandowski, A national assessment of under- graduate Physics Labs: First results," AAPT National Meeting, Portland OR, 14-17 Jul 2013.
73. K. Hinko, C. Gil and N. D. Finkelstein, "Characterizing Physics students' scientific Communication skills for non-expert audiences," AAPT National Meeting, Portland OR, 14-17 Jul 2013.
74. B. Spike, and N.D. Finkelstein, "Examining and Connecting Physics Teaching assistants' Beliefs and Practices," AAPT National Meeting, Portland OR, 14-17 Jul 2013.
75. B. Zwickl, N. Finkelstein, and H. Lewandowski, "Students' use of modeling in the upper-division physics laboratory," AAPT National Meeting, Portland OR, 14-17 Jul 2013.
76. R. Wulf, K. Hinko and N.D. Finkelstein, "Mechanistic reasoning in an informal Physics Program," AAPT National Meeting, Portland OR, 14-17 Jul 2013.
77. B. Zwickl, N. Finkelstein, and H. Lewandowski, "Using Modeling to emphasize Quantitative thinking in the Laboratory" AAPT Nat'l meeting, New Orleans, LA, 7 Jan 2013.
78. K Hinko* and N D. Finkelstein "Impacting University Physics Students Through Participation In Informal Science" , Physics Education Research Conference, Philadelphia, PA, Aug 2012.
79. R Wulf,* K Hinko* and N D. Finkelstein "Promoting Children's Agency And Communication Skills in an Informal Science Program" , Physics Education Research Conference, Philadelphia, PA, Aug 2012.
80. S J. Pollock and N Finkelstein "Impacts of Curricular Change: Implications from 8 Years of Data in Introductory Physics," Physics Education Research Conference, Philadelphia, PA, Aug 2012.
81. J G. Stout,* T A. Ito, N D. Finkelstein and S J. Pollock "How a Gender Gap in Belonging Contributes to the Gender Gap in Physics Participation," Physics Education Research Conference, Philadelphia, PA, Aug 2012.
82. B T. Spike* and N D. Finkelstein "Applying a Framework for Characterizing Physics Teaching Assistants' Beliefs and Practices," Physics Education Research Conference, Philadelphia, PA, Aug 2012.
83. H. Lewandowski, B. Zwickl,* N. Finkelstein, A Framework for Adopting Modeling in Upper-Division Lectures and Labs," Physics Education Research Conference, Philadelphia, PA, Aug 2012.
84. B. Zwickl,* H. Lewandowski & N. Finkelstein, Development and Validation of the Colorado Learning Attitudes about Science Survey for Experimental Physics," PER Conference, Philadelphia, PA, Aug 2012.
85. H Lewandowski, B Zwickl, N Finkelstein, "Creating sustainable Positive Change in upper-division Laboratory Courses at a Large research university," Am Assoc. of Phys Teacher, Nat'l Meeting, Philadelphia, PA, 2012.
86. B M. Zwickl, N Finkelstein, H.J. Lewandowski, "Framework for adopting Modeling in upper-division Lectures and Labs," Am Assoc. of Phys Teacher, Nat'l Meeting, Philadelphia, PA, 2012.
87. B T. Spike, N D. Finkelstein, "Physics teaching assistants' Beliefs and Practices: applying a Framework," Am Assoc. of Phys Teacher, Nat'l Meeting, Philadelphia, PA, 2012.
88. B T. Spike, N D. Finkelstein, "Framework for documenting Physics teaching assistants' Beliefs and Practices," Am Assoc. of Phys Teacher, Nat'l Meeting, Philadelphia, PA, 2012.
89. B A. Hinko, N Finkelstein, "Broadening of university student Physics Education through informal science," Am Assoc. of Phys Teacher, Nat'l Meeting, Philadelphia, PA, 2012.
90. Stout, J. G., Ito, T. A., Kost-Smith, L. E., Cohen, G. L., Finkelstein, N. D., Miyake, A., & Pollock, S. J., "Values affirmation helps to align stereotype threatened women's beliefs about their ability with their actual ability." Self and Identity Preconference at the Society for Personality and Social Psychology, San Diego, CA. Jan 2012.

91. B Zwickl, N Finkelstein, H Lewandowski, "What Is the Relevance of Physics Education Research to the Advanced Lab?" AAPT National Meeting, Omaha, NE, Jul 2011.
92. B Spike, N Finkelstein, "Engaging Instructors in Discussing Student Difficulties: A Model for Preparation Research on Learning Assistants and TA's," AAPT National Meeting, Omaha, NE, Jul 2011.
93. L Carr, V Kuo, P Kohl, N Finkelstein, "Socratic Dialogs and Clicker Use in Upper-Division Mechanics Courses Upper Division Undergraduate," AAPT National Meeting, Omaha, NE, Jul 2011.
94. L Kost-Smith, S Pollock, N Finkelstein. "Gender Differences in Psychological Factors and Interventions to Address Them Physics Education Research," AAPT National Meeting, Omaha, NE, Jul 2011.
95. N.D. Finkelstein, K. Cramer, M. McLeod, "Physics for the 21st Century: a course in modern physics for teachers, students, and the public," Am Phys Society, Apr Meeting, Anaheim, CA, May 2, 2011
96. C. Baily and N.D. Finkelstein, "Interpretation in Quantum Physics as Hidden Curriculum," Physics Education Research Conference, Portland Or, July 2010
97. L. Mayhew & N.D. Finkelstein, "Sustainability of K12 Afterschool Programs," PER Conf, Port. Or, July 2010
98. R. Wulf, L. Mayhew and N.D. Finkelstein, "Children's Attitudes about Science as a Result of Informal Science Education," Physics Education Research Conference, Portland Or, July 2010
99. J. Bartley, L. Mayhew and N.D. Finkelstein, "Supporting Scientists Ability to Communicate About Science in Everyday Language," Physics Education Research Conference, Portland Or, July 2010
100. B. Spike, and N.D. Finkelstein, "Examining the Beliefs and Practice of Teaching Assistants: Two Case Studies," Physics Education Research Conference, Portland Or, July 2010
101. L. Kost, S.J. Pollock and N.D. Finkelstein, A. Miyake, G. Cohen, and T. Ito "Gender Differences in Physics 1: The Impact of a Self-Affirmation Intervention," Physics Education Research Conf, Portland Or, July 2010
102. L E. Kost, S J. Pollock, N D. Finkelstein, Studies of the Gender Gap Across the Introductory Physics Year, American Association of Physics Teachers National Meeting, Portland, Or, July 2010
103. B T. Spike, N D. Finkelstein, Eliciting Beliefs of Recitation Instructors Through Video Commentary, American Association of Physics Teachers National Meeting, Portland, Or, July 2010
104. L M. Mayhew, N D. Finkelstein Impacts of Informal Science Education University: Community Partnerships American Association of Physics Teachers National Meeting, Portland, Or, July 2010
105. L E. Kost, S J. Pollock, N D. Finkelstein, The Impact of Self-Efficacy in The Introductory Physics Year, American Association of Physics Teachers National Meeting, Portland, Or, July 2010
106. J E. Bartley, L M. Mayhew, N D. Finkelstein, Developing and Assessing University Students' Communication Skills Through Teaching Physics, Am Assoc. of Physics Teachers National Meeting, Portland, Or, July 2010
107. C. Baily, N.D. Finkelstein, The Critical, but Often Overlooked, Teaching of Interpretation in Modern Physics Courses, American Association of Physics Teachers National Meeting, Portland, Or, July 2010
108. R P. Wulf, M. Mayhew, N D. Finkelstein, Impact of Informal Science Education on Children's Attitudes about Science, American Association of Physics Teachers National Meeting, Portland, Or, July 2010
109. N.D. Finkelstein, "Teaching and Learning Physics: coordinating physics, education, university and community," National Association for Research on Science Teaching Annual Conference, Philadelphia, PA, Mar 23, 2010.
110. A. Beach, C. Henderson, N. Finkelstein, and Y. Lin, "Improving Undergraduate Science Instruction: Results of Multidisciplinary Synthesis of the Literature", Am Ed. Research Assoc, Denver, CO, April 30, 2010.
111. N.D. Finkelstein and S. Pollock, "Sustaining Educational Transformation in a Physics Department (part 1 of 2)," APS 4 Corners Sectional Meeting, Colorado School of Mines, Golden, CO, Oct 23, 2009.
112. S. Pollock, N Finkelstein, S Chasteen, M Dubson, S Goldhaber, K Perkins, C Turpen. "Scaling Educational Transformation in a Physics Department (part 2 of 2)," APS 4 Corners Meeting, Golden, CO, Oct 23, 2009.
113. L. Kost, S. Pollock, and N. Finkelstein, "Unpacking Gender Differences in Students' Perceived Experiences in Introductory Physics" Physics Education Research Conf. Ann Arbor MI, Jul, 2009.
114. C. Baily* and N. Finkelstein, "Understanding and Teaching Quantum Interpretations in Modern Physics Courses" Physics Education Research Conf. Ann Arbor MI, Jul, 2009.
115. C. Turpen*, N. Finkelstein, and S. Pollock, "Towards Understanding Classroom Culture: Students' Perceptions of Tutorials" Physics Education Research Conf. Ann Arbor MI, Jul, 2009
116. J. Bartley*, M. Mayhew*, N. Finkelstein, "Reaching Students through Informal Science Education" Physics Education Research Conf. Ann Arbor MI, Jul, 2009.
117. L. Mayhew and N. Finkelstein, "Learning to Teach Science through Informal Science Education Experiences" Physics Education Research Conf. Ann Arbor MI, Jul, 2009.
118. B. Spike* & N. Finkelstein, "A Study of Undergraduate and Graduate Student Conceptions of Teaching" Physics Education Research Conf. Ann Arbor MI, Jul, 2009.

119. Lin, Y., Henderson, C., Finkelstein, N., & Beach, A. "Examining Change Strategies in University STEM Education", contributed talk, AAPT 2009 Summer Meeting, Ann Arbor, MI, July 28, 2009.
120. C. Turpen and N. Finkelstein, "Student Perceptions and Instructional Choices in Educational Reform: Studies of Peer Instruction," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
121. L. Kost, S. Pollock, and N Finkelstein, "Gender Differences in Students' Perceived Experiences in Introductory Physics," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
122. B. Spike, and N Finkelstein, "Research on Training Undergraduate and Graduate Student Instructors in Tutorials," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
123. J. E. Bartley, L. Mayhew and N. Finkelstein, "The Potential of Informal Science Education for Development of Individuals and Institutions," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
124. L. Mayhew and N. Finkelstein, "Informal Science Teaching Experience Informs Formal Science Teaching Training," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
125. C. Turpen and N. Finkelstein, "Students' Perceptions of the Use of Tutorials at the University of Colorado," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
126. L. Kost, S. Pollock, and N Finkelstein, "Unpacking the Gender Gap in Introductory Physics," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
127. C. Baily and N. Finkelstein, "Varying Quantum Interpretations and Implications in Modern Physics Instruction," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
128. C. Turpen and N. Finkelstein, "Instructional choices in the implementation of research-based physics educational materials," APS April Meeting, Denver, CO, May 4, 2009
129. L. Kost, S. Pollock and N.D. Finkelstein, "Examining the Gender Gap in Introductory Physics," APS April Meeting, Denver, CO, May 4, 2009
130. N. Finkelstein, C. Henderson, & A. Beach, "What's all the fuss about Adoption and Diffusion? Study and Improvement of Change Strategies in Physics Education," APS April Meeting, Denver, CO, May 4, 2009
131. V K. Otero, N D. Finkelstein, R M. Talbot, D C. Webb, L J. Moin, M W. Klymkowsky, J Krajcik, "A Longitudinal Study on Pedagogical Content Knowledge: Synthesizing our Research on Content, Pedagogy, and Practice," NARST 2009, Orange County, CA, Apr 2009.
132. N. Finkelstein and N. Podolefsky, "Analogical Scaffolding: The Use of Analogy and Representation to promote and understand conceptual learning in physics," NARST 2009, Orange County, CA, Apr 2009
133. A. Beach, C. Henderson, and N. Finkelstein, "An Analysis of Published Strategies for Changing Undergraduate Science," Am. Educational Research Association annual meeting, San Diego, Apr 2009.
134. B. Gravel, N.D. Finkelstein, R. Lecusay, L. Mayhew, "Educational Technology Demonstrations: SAM" 2009 AAPT / AAAS Winter Meeting, Chicago IL, Feb 2009.
135. S. Chasteen, M. Dubson, K. Perkins, S. Pollock, N. Finkelstein, "Researching the Use of Clickers in Upper division" 2009 AAPT / AAAS Winter Meeting, Chicago IL, Feb 2009.
136. R. A Lecusay, B. Gravel, N. Finkelstein, L. Mayhew, "Using Telementoring to support afterschool education," 2009 AAPT / AAAS Winter Meeting, Chicago IL, Feb 2009.
137. P. Wolf, N Finkelstein, L Mayhew, E CoBabe-Ammann, V Otero, S Pollock, E Wood, "Applications and Benefits of University-Community Partnerships in Informal Science Education," Joint Annual Meetings National Society of Hispanic Physicists National Society of Black Physicist, Nashville, TN, 13 Feb 2009
138. A. Beach, C. Henderson, N. Finkelstein, & R.S. Larson, "Facilitating Change in Undergraduate Science Instruction: Synthesis of Change Strategies across Disciplines," Research paper presented at the annual conference of the Association for the Study of Higher Education, Jacksonville, FL, November 6, 2008.
139. C. Henderson, A. Beach, N. Finkelstein, & R.S. Larson, "Facilitating Change in Undergraduate STEM: Preliminary Results", Michigan Section of AAPT 2008 Fall Meeting, Port Huron, MI, Oct 11, 2008.
140. C. Turpen* and N.D. Finkelstein, "Institutionalizing Change: Case Studies & Institutional Analysis of Pedagogical Reform in Intro Phys" 2008 Physics Education Research Conference, Edmonton, CA Jul 2008.
141. N. Podolefsky* and N.D. Finkelstein, "How Abstract is Abstract? Signs, Salience, and Meaning in Physics" 2008 Physics Education Research Conference, Edmonton, CA Jul 2008
142. C. Henderson, A. Beach & N.D Finkelstein, "Facilitating Change in Undergraduate STEM: Preliminary Results from an Interdisciplinary Literature Review," 2008 Physics Educ Research Conf, Edmonton, CA Jul 2008.
143. C. Baily* and N.D. Finkelstein, "Student Understanding of Quantum Measurement and Uncertainty" 2008 Physics Education Research Conference, Edmonton, CA Jul 2008
144. L. Mayhew* and N.D. Finkelstein, "New Media and Models for Engaging Under-Represented Students in Science" 2008 Physics Education Research Conference, Edmonton, CA Jul 2008.
145. L. Kost,* S. Pollock and N.D. Finkelstein, "The Persistence of the Gender Gap in Introductory Physics" 2008 Physics Education Research Conference, Edmonton, CA Jul 2008.

146. M Dubson, S Pollock, S Chasteen, N Finkelstein, K Perkins, "Clicker Use in Upper-Level Courses" *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
147. C Henderson, A Beach, N Finkelstein, R. S Larson, "Facilitating Change in Undergraduate STEM: Preliminary Results from an Interdisciplinary Literature Review" *AAPT National Meeting*, Edmonton, Canada, Jul 2008.
148. C Turpen,* N.D. Finkelstein, "Effects of Variation of Faculty Practice on Student Perceptions." *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
149. L. Kost,* S Pollock, N Finkelstein, "The Persistence of the Gender Gap in Introductory Physics," *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
150. N Podolefsky,* N Finkelstein, "Towards an Operational Definition of Abstraction in Physics Education Research," *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
151. L Mayhew,* N Finkelstein, "Model of University-Community Science Partnerships to Engage K12 Students," *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
152. L Mayhew,* N Finkelstein, "Technology to Engage Underrepresented K12 Students in Science Pre-College," *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
153. C Baily,* N Finkelstein "Student Understanding of Measurement and Uncertainty in Quantum Physics," *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
154. L Kost,* S Pollock, N Finkelstein, "Understanding the Persistence of the Gender Gap in Introductory Physics," *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
155. P Wolf,* N Finkelstein, E Wood, L Mayhew,* V Otero, "University Efforts in Transforming K-12 Education" *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
156. N.D. Finkelstein, C. Henderson, A. Beach, R. Larson, "A research-based perspective on initiating and sustaining change in STEM education," Physics Tchr Educ Coalition, Annual Meeting, Austin, TX Mar 2008.
157. N. Finkelstein, L. Kost and S.J. Pollock, "Understanding the Gender Gap in Introductory Physics" National Society of Black Physicists and National Society of Hispanic Physicists Joint Annual Mtg, Wash DC Feb 2008
158. N.D. Finkelstein, C. Henderson, A. Beach, R. Larson, "Facilitating Change in STEM Education: a research-based perspective on initiating and sustaining change," Am. Assoc. of Phys Teachers, Baltimore, MD, Jan 2008.
159. C. Turpen, N. Finkelstein, C. Keller, "Understanding Faculty Use of Peer Instruction," Physics Education Research Conference, Greensboro, NC, Aug 2007
160. N. Podolefsky and N. Finkelstein, "Salience of Representations and Analogies in Physics: How do students know what to know?" Physics Education Research Conference, Greensboro, NC, Aug 2007
161. K. Perkins, C. Turpen, N. Finkelstein, and C. Keller, "Using Clickers in Upper-division Physics Courses: What do students think?" Physics Education Research Conference, Greensboro, NC, Aug 2007
162. L. Kost, S. Pollock, and N. Finkelstein, "Investigating the Source of the Gender Gap in Introductory Physics," Physics Education Research Conference, Greensboro, NC, Aug 2007
163. P. Kohl, and N. Finkelstein, "Expert and novice use of multiple representations in physics problem solving," Physics Education Research Conference, Greensboro, NC, Aug 2007
164. C. Keller, N. Finkelstein, S. Pollock, and C. Turpen, "Research-based Practices For Effective Clicker Use," Physics Education Research Conference, Greensboro, NC, Aug 2007
165. P. Kohl and N. Finkelstein, "Patterns of multiple representation use in expert and novice physics problem solvers," American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
166. N. Podolefsky, N. Finkelstein, "How to teach with analogy - a research based approach," American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
167. C. Turpen, N. Finkelstein, "Not all Interactive Engagement is the Same: Variation in Faculty Use of Peer Instruction," American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
168. C. Keller, N. Finkelstein, S Pollock, C Turpen, "Towards a set of research-based best practices for clicker use" American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
169. K Perkins, C Turpen, N. Finkelstein, C Keller, "Using Clickers in Upper-division Physics Courses: What Do Students Think?" American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
170. P Wolf, N Duncan, V Otero, S Pollock, N. Finkelstein, "Transforming Undergraduate Physics: The Colorado Learning Assistant Program," American Association of Phys Teachers Nat'l Mtg, Greensboro, NC, Aug 2007.
171. S Pollock, N. Finkelstein, L Kost, "Does interactive engagement reduce the gender gap in introductory physics?" American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
172. K Perkins, K Perkins, C Turpen, N. Finkelstein, C Keller, "Student opinions on the use of clickers in upper-division physics courses," American Association of Physics Teachers Nat'l Mtg, Greensboro, NC, Aug 2007.
173. C. Turpen, C. Keller, N. Finkelstein, "Understanding Faculty use of Peer Instruction," American Association of Physics Teachers National Meeting, Greensboro, NC, 2007.

174. N. Podolefsky, N. Finkelstein, "Teaching physics with analogies - an example from electromagnetic waves," American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
175. P. Kohl, N. Finkelstein, "Multiple representation use in physics problem solving, with expert-novice comparisons," American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
176. C. Turpen, E. Quilty, T. Carroll, N. Finkelstein, "Engaging & Encouraging Children In Science and Assessing Success," American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
177. E. Price and N. Finkelstein, "Preparing graduate students to be educators" American Physical Society National March Meeting Denver CO, Mar 2007.
178. P. Kohl and N. Finkelstein, "The role of representation when solving physics problems" American Physical Society National March Meeting Denver CO, Mar 2007
179. N. Finkelstein and S. Pollock, "Addressing Gender Disparity in Introductory Physics Courses: Are existing reforms enough?" American Physical Society National March Meeting Denver CO, Mar 2007
180. S. Pollock and N. Finkelstein, "Sustaining Educational Innovation: engaging traditional faculty in transformed practices" American Physical Society National March Meeting Denver CO, Mar 2007
181. E. J. Quilty, C. Turpen, N. D. Finkelstein, "Engaging and Encouraging Children in Science: The Colorado Jr. Scientists League Summer Camp," Joint Meetings of the NSBP and NSHP Boston MA, Feb 2007
182. N. D. Finkelstein, P. Wolf, C. Fogle, S. Pollock and V. Otero "Transforming Undergraduate Physics: The Colorado Learning Assistant Program," Joint Meetings of the National Society of Black Physicists and National Society of Hispanic Physicists, Boston MA, Feb 2007
183. N. D. Finkelstein and S. J. Pollock, "Keeping a Good Thing Going: What does sustaining reforms in physics mean?" Joint Annual Mtg of the American Astro Soc and Am Assoc of Phys Teachers, Seattle, WA, Jan 2007.
184. N. D. Finkelstein and S. J. Pollock, "Reforms in a Large-scale Lecture Environment" Joint Annual Meeting of the American Astronomical Society and American Association of Physics Teachers, Seattle, WA, Jan 2007.
185. H. L. Shipman, N. Finkelstein, D. McCray, M. Mac Low, D. Zollman "The Textbook of the Future: What Will It Look Like?" Joint Annual Meeting of the American Astronomical Society and American Association of Physics Teachers, Seattle, WA, Jan 2007.
186. N. D. Finkelstein, "Physics Education Research and Contexts of Student Learning: Representation, Analogy, and Solving Physics Problems" NSF REESE PIs Meeting, Washington DC, Dec 2006.
187. S. Pollock and N. D. Finkelstein, "Educational Reforms in Introductory Physics at Colorado: Replicability? Sustainability?" International Society for the Scholarship of Teaching and Learning, Washington DC Nov 2006.
188. S. Pollock, K. Perkins and N. D. Finkelstein, "The Role of Data in Systemic Change," International Society for the Scholarship of Teaching and Learning, Washington DC Nov 2006.
189. C. J. Keller, N. D. Finkelstein, K. Perkins and S. J. Pollock, "Effective Use of Computer Simulations in Undergraduate Laboratory Environments," Physics Education Research Conference, Syracuse NY, Jul 2006.
190. P. B. Kohl, D. Rosengrant, and N. D. Finkelstein, "Comparing Explicit and Implicit Teaching of Multiple Representation Use in Physics Problems," Physics Education Research Conference, Syracuse NY, Jul 2006.
191. N. S. Podolefsky and N. D. Finkelstein, "Reframing Analogy: framing, blending, and representations as mechanisms of learning by analogy," Physics Education Research Conference, Syracuse NY, Jul 2006.
192. S. J. Pollock and N. D. Finkelstein, "Sustaining Change: Instructor Effects in Transformed Large Lecture Courses," Physics Education Research Conference, Syracuse NY, Jul 2006.
193. C. Turpen, N. D. Finkelstein, and S. J. Pollock, "Sustaining Reform: A Qualitative Study of Professors' Beliefs and Classroom Practices," Physics Education Research Conference, Syracuse NY, Jul 2006.
194. C. Turpen and N. D. Finkelstein, "Professors' Views on the Difference Between Learning and Doing Physics" American Association of Physics Teachers National Meeting, Syracuse, NY, Jul 2006
195. S. J. Pollock and N. D. Finkelstein, "Replicating and Maintaining Successful Teaching Innovations," American Association of Physics Teachers National Meeting, Syracuse, NY, Jul 2006
196. P. B. Kohl, D. Rosengrant, and N. D. Finkelstein, "Multiple Representations and Problem Solving I: Student Performance in Different Environments," AAPT National Meeting, Syracuse, NY, Jul 2006
197. P. B. Kohl, D. Rosengrant, and N. D. Finkelstein, "Multiple Rep's and Problem Solving II: Do Students Do What They Say?" American Association of Physics Teachers National Meeting, Syracuse, NY, Jul 2006
198. C. Turpen, N. D. Finkelstein, and S. J. Pollock, "Sustaining Reform: Professor's Beliefs and Classroom Practices," American Association of Physics Teachers National Meeting, Syracuse, NY, Jul 2006
199. N. S. Podolefsky and N. D. Finkelstein, "Teaching EM Waves via Analogies," American Association of Physics Teachers National Meeting, Syracuse, NY, Jul 2006
200. C. J. Keller, N. D. Finkelstein, and S. J. Pollock, "Studying the Use of Computer Simulations in Undergraduate Lab Environments," American Association of Physics Teachers National Meeting, Syracuse, NY, Jul 2006

201. N.D. Finkelstein, "Educational Discontinuities: a case study of teaching university level physics in an urban high school," National Association for Research on Science Teaching, San Francisco, CA, Apr 2006
202. N.D. Finkelstein, "Physics Education Research: tools and contexts of student learning (NSF CAREER Grant: 2005-2010)", EHR/ REC PI's Meeting for the National Science Foundation: Washington DC. Dec 2005.
203. N. Podolefsky, N.D. Finkelstein, S.J. Pollock, "Suzie Doesn't Read (the Textbook), and She's Getting an A" Four Corners Sectional Meeting of the APS, Boulder CO, Oct 2005. [award winner]
204. P. Kohl and N.D. Finkelstein, "The effects of representational format on student problem-solving performance." Four Corners Sectional Meeting of the APS, Boulder CO, Oct 2005
205. C. Keller, N.D. Finkelstein, K. Perkins, S.J. Pollock, "Assessing Computer Simulations in Undergraduate Physics Lectures and Laboratories" Four Corners Meeting of the APS, Boulder CO, Oct 2005. [award winner]
206. K. Perkins, W. Adams, S.J. Pollock, N.D. Finkelstein, C.E. Wieman, "Correlating Students' Beliefs About Physics with Learning, Retention, and Recruitment," Four Corners Meeting of the APS, Boulder CO, Oct 2005.
207. W. Adams, K. Perkins, N. Podolefsky, N.D. Finkelstein, C.E. Wieman, "Men and Women Know Experts' Beliefs About Science, but Disagree," Four Corners Sectional Meeting of the APS, Boulder CO, Oct 2005.
208. N.D. Finkelstein, S. Pollock, 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," International Society for the Scholarship of Teaching and Learning, Annual Conference, Vancouver Oct 2005.
209. S. Pollock and N.D. Finkelstein, "Replicating Reforms: Characterizing a Successful Secondary Implementation of Tutorials In Introductory Physics," ISSOTL, Annual Conference, Vancouver Oct 2005.
210. N.D. Finkelstein, "Failing Our Students: Systemically Building Bridges or Walls Between High School and University Physics," American Association of Physics Teachers Annual Meeting, Aug 6-10, 2005.
211. C. Keller, N. D. Finkelstein, K.K. Perkins, and S.J. Pollock, "Assessing The Effectiveness Of A Computer Simulation In Conjunction with Tutorials In Introductory Physics In Undergraduate Physics Recitations," Physics Education Research Conference 2005, Aug 11-12, 2005.
212. P.B. Kohl and N.D. Finkelstein, "Representational Competence and Introductory Physics" Physics Education Research Conference 2005, Aug 11-12, 2005.
213. N.S. Podolefsky and N.D. Finkelstein, "Analogical Scaffolding: A Research Based Model of Learning Abstract Ideas in Physics" Physics Education Research Conference 2005, Aug 11-12, 2005.
214. K.K. Perkins, M.M. Gratny, W.K. Adams, N.D. Finkelstein and C.E. Wieman, "Towards characterizing the relationship between students' self-reported interest in and their surveyed beliefs about physics" Physics Education Research Conference 2005, Aug 11-12, 2005.
215. C. Turpen, N.D. Finkelstein, M. Dubson, C. Keller, S. J Pollock, S. Iona, V. Otero, "Overview and Research Results from the Colorado PhysTEC Program," Am Assoc of Phys Teachers National Meeting, Aug 6-10, 2005.
216. N. Podolefsky, N.D. Finkelstein, S.J. Pollock, "Johnny Doesn't Read (the Textbook), and He's Getting an A" American Association of Physics Teachers National Meeting, Aug 6-10, 2005.
217. P.B. Kohl and N.D. Finkelstein, "Student Representational Competence in Traditional and Transformed Classroom Environments," American Association of Physics Teachers National Meeting, Aug 6-10, 2005.
218. M. Dubson, S.J. Pollock, N.D. Finkelstein, "Logistics of a Secondary Implementation of the Washington Tutorials," American Association of Physics Teachers National Meeting, Aug 6-10, 2005.
219. C. Keller, N.D. Finkelstein, K. Perkins, S.J. Pollock, "Assessing Computer Simulations in Undergraduate Physics Lectures and Labs" American Association of Physics Teachers National Meeting, Aug 6-10, 2005.
220. K. Perkins, W. Adams, S.J. Pollock, N.D. Finkelstein, C.E. Wieman, "Correlating Students' Beliefs About Physics with Learning, Retention, and Recruitment," AAPT National Meeting, Aug 6-10, 2005.
221. W. Adams, K. Perkins, N. Podolefsky, N.D. Finkelstein, C.E. Wieman, "Men and Women Know Experts' Beliefs About Science, but Disagree," Am Association of Physics Teachers National Meeting, Aug 6-10, 2005.
222. S.J. Pollock, and N.D. Finkelstein, "Characterizing a Successful Secondary Implementation of "Tutorials in Introductory Physics" American Association of Physics Teachers National Meeting, Aug 6-10, 2005.
223. S. Pollock, N Finkelstein, C Keller, and C. Turpen, "Reforms in Introductory Physics Education: Assessing Colorado PhysTEC Goals" PhysTEC National Conference, Muncie IN, Mar 2005.
224. C Keller, K Perkins, S Pollock, and N. Finkelstein, "Assessing the effectiveness of computer simulations in undergraduate physics lectures and laboratories" PhysTEC National Conference Muncie IN, Mar 2005,
225. N.D. Finkelstein and S. Rosenberg "When the Classroom Isn't School: PER for Social Inclusion in the Sciences" 2005 American Association of Physics Teachers National Meeting Albuquerque, NM, Jan 2005.
226. K. Perkins, W. Adams, S Pollock, N.D. Finkelstein, C.E. Wieman, "Correlating Students' Beliefs about Physics with Students' Learning" American Association of Physics Teachers National Meeting, Albuquerque, Jan 2005.
227. K. Perkins, W. Adams, N.D. Finkelstein, S. Reid, R. LeMaster, M. Dubson, N. Podolefsky, and C.E. Wieman, "Incorporating PhET Simulations into Courses & Impacts on Student Learning" AAPT Mtg, Alb NM, Jan 2005.

228. N.D. Finkelstein, "Infusing SOTL into Physics: completing the preparation of future faculty," International Society for the Scholarship of Teaching and Learning, Inaugural Meeting, Bloomington, IN Oct 2004.
229. N.D. Finkelstein, K. Perkins, W.Adams, N. Podolefsky, "Can Computer Simulations Replace Real Lab Equipment?" Physics Education Research Conference. Sacramento CA, Aug 2004.
230. N.D. Finkelstein, "Constructing Reality: Contexts Supporting (and Inhibiting) Students' Representing the World Through Physics," AAPT National Meeting, Sacramento, CA, Aug 2004.
231. W Adams, ND Finkelstein, C Wieman, "Using the Colorado Learning Attitudes About Science Survey to Probe Students' Attitudes and Beliefs About Reality," AAPT National Meeting, Sacramento, CA, Aug 2004.
232. K Perkins, W Adams, ND Finkelstein, C Wieman, "Learning Physics with Simulations: The Role of Interactivity, Animation, and Context," Am Assoc. of Phys Tchr National Meeting, Sacramento, CA, Aug 2004.
233. W Adams, M Dubson, ND Finkelstein, C Wieman, "The Design and Validation of the Colorado Learning Attitudes About Science Survey," AAPT National Meeting, Sacramento, CA, Aug 2004.
234. W Adams, K Perkins, ND Finkelstein, R LeMaster, S Reid, M Dubson, N Podolefsky, and C Wieman, "Research-Based Design Features of Web-Based Interactive Simulations," AAPT, Sacramento, CA, Aug 2004.
235. K.K. Perkins, W.K. Adams, N.D. Finkelstein, R. LeMaster, S. Reid, M. Dubson, N. Podolefsky, K. Beck and C.E Wieman, "The Physics Education Technology Project: A New Suite of Physics Simulations," American Association of Physics Teachers National Meeting, Sacramento, CA, Aug 2004.
236. N.D. Podolefsky, WK Adams, and ND Finkelstein, "Analogical Scaffolding of Abstract Ideas in Physics" American Association of Physics Teachers National Meeting, Sacramento, CA, Aug 2004.
237. I Doxas, ND Finkelstein, S Dennis, W Kintsch, C Willis, "Using Latent Semantic Analysis to Identify (Mis)Conceptions," American Association of Physics Teachers National Meeting, Sacramento, CA, Aug 2004.
238. K. Perkins, W Adams, ND Finkelstein, C Wieman, "Incorporating Simulations in the Classroom: A Survey of Research Results from the PhET Project," AAPT National Meeting, Sacramento, CA, Aug 2004.
239. P. Kohl and N.D. Finkelstein, "Are Students Good at Choosing Representational Formats for Problem Solving in Physics?" American Association of Physics Teachers National Meeting, Sacramento, CA, Aug 2004.
240. N.D. Finkelstein, "Another Perspective On Preservice Teacher Training: bringing physics majors into education," American Association of Physics Teachers National Meeting, Madison WI, Aug 2003.
241. KP Perkins, W Adams, N Finkelstein, R LeMaster, S Reid, M Dubson, and C Wieman, "The Physics Education Technology Project: Web-Based Interactive Applets to Support Student Learning "American Association of Physics Teachers National Meeting, Madison, WI, Aug 2003.
242. N.D. Finkelstein, "Educational Discontinuities: Coordinating Physics Instruction in Pre-college and University in the U.S.," Enrico Fermi Summer School in Research in Physics Education, Varenna, Italy, July 2003.
243. N.D. Finkelstein and E. Price, "Building a culture of education into physics: training physics graduate students and post-docs in education," American Association of Physics Teachers National Meeting, Boise, ID Aug 2002.
244. N.D. Finkelstein, O. Clay, and D.Evers, "Blurring Lines: combining school, community and university to promote physics American Association of Physics Teachers National Meeting, Philadelphia, PA, Jan 2002
245. N.D. Finkelstein, "The Central Role of Context: A study of Student Learning in Electricity and Magnetism," American Association of Physics Teachers National Meeting, Rochester, NY, Jul 2001.
246. N.D. Finkelstein, "Evaluation of Contextual Factors in Learning Physics," National Association for Research in Science Teaching, St. Louis, MO, Mar, 2001.
247. N.D. Finkelstein, "Physics Understanding in Context: a case study of student learning electricity and electric circuits," American Association of Physics Teachers, San Diego, CA, January 6-9, 2001.
248. N.D. Finkelstein, "Bridging Studies of Physics and Education," Physics Education Research Conference, Guelph, ON, Aug, 2000.
249. N.D. Finkelstein, "Contextual Dependence of Physics Learning," PER Conference, Guelph, ON, Aug, 2000.
250. N.D. Finkelstein, "Coordinating Science Education, Outreach, and Research," National Association for Research in Science Teaching Annual Conference, New Orleans, LA, Apr 2000.
251. N.D. Finkelstein, "Teaching, Research, and Outreach - Science Education," Gordon Conference: Innovations in College Chemistry Teaching, New London CT, Jun 1999.
252. A. Yalin, N.D. Finkelstein, and R.B. Miles, "UltraViolet Rotational Raman Spectroscopy with a Dispersive Atomic Resonance Filter," CLEO post-deadline paper, Optical Society of America, Conference on Lasers and Electro-Optics, San Francisco, CA, May 7, 1998.
253. A. Yalin, N.D. Finkelstein, and R.B. Miles, "UltraViolet Rotational Raman Spectroscopy with Atomic Resonance Filters," paper 98-0311, AIAA, 36th Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan 1998.
254. W.R. Lempert, P. Wu, N. Finkelstein, and R. Miles, "Imaging Fluid Phenomena with Atomic and Molecular Vapor Filters," 97-2520, American Inst of Aero and Astronautics, 32nd Thermophysics Conference, Aug 1997.

255. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Narrow Linewidth Passband Filter and UV Laser Source for Rotational Raman Imaging," SPIE paper 3172-88, Annual Meeting: Optical Science, Engineering and Instrumentation, San Diego, CA, Jul 1997.
256. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Mercury Vapor Filter Technology and UltraViolet Laser Source for Flowfield Imaging," paper 97-0172, American Institute of Aeronautics and Astronautics, 35th Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan 1997.
257. N.D. Finkelstein, "Recent Advances in Applied Physics- Novel Light Sources and Imaging Capabilities," Photonics and Opto-Electronics Materials Center, Annual Review, Princeton NJ, Jan, 1997.
258. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Filter and Laser Technology for Advanced Imaging Diagnostics," Optical Society of America paper WG7, 80th, Annual Meeting, Rochester, NY, Oct 1996.
259. R.B. Miles, W.R. Lempert, J.N. Forkey, and N.D. Finkelstein, "Optical Diagnostics for Flows with Density Variations," IUTAM Symposium on Variable Density Low Speed Turbulent Flows, Institut de Recherche sur les Phénomènes Hors Equilibre, Marseille, France, Jul 1996.
260. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "A Narrow Passband, Imaging, Refluorescence Filter for Non-Intrusive Flow Diagnostics," 96-2269, American Institute of Aeronautics and Astronautics, 19th Advanced Measurement and Ground Testing Technology Conference, New Orleans, LA Jun 1996.
261. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Cavity Locked, Injection Seeded Titanium: Sapphire Laser and Application to UltraViolet Flow Diagnostics," paper 96-0177, American Institute of Aeronautics and Astronautics, 34th Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan 1996.
262. J.H. Grinstead, N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Frequency-Modulated Filtered Rayleigh Scattering (FM-FRS): A New Technique for Real-Time Velocimetry," paper 96-0302, American Institute of Aeronautics and Astronautics, 34th Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan 1996
263. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Mercury-Vapor Filter and UV Laser System for Rayleigh LIDAR," CLEO paper CFH4, CLEO, Baltimore MD, OSA Technical Digest Volume 15, May 1995.
264. W.R. Lempert, J.H. Grinstead, N.D. Finkelstein, and R.B. Miles, "Frequency Modulated Filtered Rayleigh Scattering (FM-FRS): A New Velocimetry Technique," CLEO '95 post-deadline paper, Conference on Lasers and Electro Optics, Baltimore MD, May 1995.
265. J.N. Forkey, N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Control of Experimental Uncertainties in Filtered Rayleigh Scattering Measurements," paper 95-0298, American Institute of Aeronautics and Astronautics, 33rd Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan 1995.
266. R.B. Miles, W.R. Lempert, J.N. Forkey, N.D. Finkelstein, and P. Erbland, "Quantifying High Speed Flows by Light Scattering From Air Molecules," paper 94-2230, American Institute of Aeronautics and Astronautics, 25th Fluid Dynamics Conference, Colorado Springs CO, Jun 1994.
267. N.D. Finkelstein, J. Gambogi, W. Lempert, R. Miles, G. Rines, A. Finch, and R. Schwarz, "The Development of a Tunable Single frequency UltraViolet Laser Source for UV Filtered Rayleigh Scattering," paper 94-0492, AIAA, 32rd Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan 1994.

PROFESSIONAL SERVICE / ACTIVITIES

National Professional Boards/ Positions:

Member, National Academies Roundtable on Systemic Change in Undergraduate STEM Education, ~30 national organization leaders, 2017-

Councilor, American Physical Society, main governing board, 2017-

Member, American Physical Society, Taskforce on Effective Practices Physics Preparation, 2017-

Founding Exec Board Member, STEM DBER-Alliance, (with APLU AAAS), 2016-

Co-Director, National Network of STEM Education Centers (NSEC), APLU, 2015-

Board of Trustees, Higher Learning Commission, North Central Administration, accreditation board, 2014-

Chair, Accreditation Sub-committee, 2016-, Executive Committee Member 2016-

Advisory Board, American Association for the Advancement of Science, Educational mission, 2015-2017

Board of Advisors, Accelerating Systemic Change Network, 2015-

Education Director, STROBE Imaging Science Center, NSF STC, *UCBoulder*, *UCLA*, *UCBerkeley*, 2015-2017

Advisory Board & Campus Lead, Bay View Alliance, national alliance of 9 universities transforming, 2013-

Past Chair, *Inaugural*, Topical Group in Physics Education Research, American Physical Society, 2014-2016

Chair (2013, 2015, 2016) & Founding Board member (2013), APS Education Policy committee, 2013-

Chair (2011 & 2012) and Board Member, Committee on Education, American Physical Society, 2009-2012

Counselor, American Physical Society, elected 2016, 2017-2020

Architect & Author By-Laws (2013): Topical Group in PER, American Physical Society, G-PER, 2013- 2014

Vice Chair ('09-'10), Founding Member, Physics Education Research Leadership & Organizing Council, '06-'11

Chair (2010-) and Charter Member, Am. Assoc. of Physics Teachers, Public Policy Advisory Committee, 2007-

Board Member, Member at Large, American Physical Society, Forum on Education, 2006-2009.

APS FEd Session program committee 2008, 2009, 2010.

Member, Advisory Committee to the Physics Teachers Education Coalition (PTEC), APS nat'l position 2006-11/

Member, Public Policy Committee, American Physical Society, 2011-2012

Member, APS Taskforces for: teacher certification, the physics major (joint APS/AAPT), distance education, development of the topical group in physics education research

Member, Technical Advisory Board, AAU, Initiative for Improving Undergraduate STEM Education 2011-

Effort to improve undergrad STEM teaching & learning at major U.S. research universities. The 9 person board includes: PCAST

Member, American Institute of Physics Congressional Fellowship Selection Committee, 2011-

Advisor, Stakeholder, Achieve, Next Generation Science Standards, 2012-2015

Expert Witness, U.S. Congress, House of Representatives, Science and Technology Committee, Sub-committee on Research and Education, "Strengthening Undergraduate and Graduate STEM Education." Feb 4, 2010.

State / Regional Board Positions:

Advisory Board, Community Board, Rocky Mountain Public Broadcasting (RMPBS), 2014-

Executive Board, Colorado Education Initiative, STEM Education Framework, 2013-2017

Chair, Higher Education leadership committee, 2015-2017

Expert Witness, Colorado General Assembly, Joint Education Committee, Senate and House of Representatives, "STEM Education, Research Universities and the Future of Colorado," Feb 29, 2012.

Committee Member, Governor's Task Force on STEM Education, Ad Hoc Committee, Jun 2012-2013

Subcommittee member: Great Workforce and Great Experiences, for Education Leadership Council rec's

Committee Member, and *Chair of Sub-Committee* on Hard to Staff Subjects, Colorado Dept of Education's ARRA/ Race to the Top Proposal. 2009. Governor's committee to propose to the US Dept of Education.

University of Colorado Advisor / Board Member:

Member & Sub-committee chair, Provost Taskforce to design a Center for Teaching and Learning, 2016-2018.

Member, Provost's Taskforces on Persistence, University of Colorado Boulder, 2015-2016

Member, Spaces Advisory Group, Office of the Provost, 2015-2016

Member, Educational Innovation Group, Office of the Provost, 2015- 2016

Advisor, Faculty Mentor, CU Leadership Institute, 2014-

Member, Learning Spaces Committee, Vice Chancellor Educational Innovation, 2015-2017

Faculty Director, Office of Information Technology, 2015-2017

Member, CU Boulder, Technology Taskforce Initiative, campus representation, strategic work, 2012-

Member, Executive Advisory Board, CU Engage, University of Colorado Boulder, 2014-

Member and architect, Core Curriculum Taskforce, College Media Communication & Information, 2014-'16

Member, CU System, Task Force for New Technology, University of Colorado system 2012-2014

Member, Executive Advisory Board, Institute for Ethical and Civic Engagement, 2012-2013

Campus lead, Am. Assoc. of Universities' STEM Education Initiative, 2011-

Member, Graduate Award Committee, Dissertation and Chancellor Graduate Grad College, 2011-2015

Member, Engineering for Society Task Force, College of Engineering and Applied Sciences, 2012-2014
Member, CU Boulder Office of Faculty Affairs, mid-career faculty working group, 2012-2015
Member, ASSET, Faculty Advisory Board, University of Colorado, Arts & Sciences, IT development, 2008-11
Member, University of Colorado Flagship 2030 Faculty Task Force, 2007-2008
Member, Award Selection Committee, Chancellor's Awards, Excellence in STEM Education, 2009-
Member, Award Selection Committee, Boulder Faculty Assembly Teaching Award 2008, 2007-2008.
Member, Award Selection Committee McCray Scholar Award (undergraduate), 2008- 2016
Member, Award Selection Committee, Program in Writing and Rhetoric, Science and Society (ug), '08-'14
Advisor, Education and Outreach, JILA Physics Frontier Center, CU Boulder / NIST, 2006-
Co-Chair, Strategic Advisory Committee on IT, Campus Use of Technology- Colorado Boulder, 2006- 2007.
Advisor, Presidential Teaching & Learning Collaborative, Faculty Teaching Excellence Program, 2005- 2016
Advisor / Speaker: Faculty Research Opportunities Program, CU Boulder 2004-2006
Fellow, ATLAS, Alliance for Technology, Learning, and Society, CU Boulder, 2004-
Member, Provost's Seminar Committee, Center for Teaching and Learning, CU, Boulder 2003- 2005.
Advisory Committee, Service Learning Program, CU Boulder, 2003-2006.

Physics Departmental Committees:

Executive Committee (2018-), Research Strategic Planning (2016-2018); PR committee (2017-); Mentoring (2011-'14),
 Grad Committee (2010-11), CAC, & Self-Study /Program review (2009): Eval (2008-09, 2012-14), Diversity Committee
 (2007-09, chair 08-9, 2010-), Outcomes & Assessment (2006-2008), Dept Self-Study (07-08), Website (07-08) Jr. Faculty
 Committee (2003-2008), Holiday Cmmttee (2003-2008), Comp Exams (2005-); Bartlett Award Selection Committee (2010-
 pres); Faculty Adv., TOPIT student group (2012-2018), Fac. Advisor, CU'grad program (2013-)

External Advisor Grants / Agencies:

Advisor, APS iGEMs, ~\$10M NSF INCLUDES program, 2018-
Board of Directors, Center for Research on Lifelong STEM Learning, Oregon State University, 2013-
Advisor, Wisconsin Center for Education Research, University of Wisconsin 2013-2016
Advisor NSF / IUSE: Team-based change, Western Michigan 2016-
Advisor/ External Reviewer, Department of Physics and Astronomy, Uppsala University, Sweden, 2016-
Advisor, Dept of Education IES, NSF ITEST, and NSF CSE grants, CEEO Tufts University, 2007- 2016.
Advisor, COSI-IGERT, NSF (Piestun, PI), 2009-2015
Advisor, NSF funded WIDER, Science Faculty with Education Specialties, 2013-
Member, Advisory Council in Educ, NSF EUV Center, CU Boulder, CO State U, UC Berkeley 2005-2014
Advisor, NSF CAREER grant: L. Benson, Clemson University, Gopinath CU (proposed), Lewandowski CU (2009-), Michael Hermele
 (CU), Meredith Betterton (CU), Hazari (Clemson), Eaves (CU), DeWolfe (CU) , Caballero (MSU), Sawtelle (MSU)
Advisor, NSF ROLE Grant, Univ. of Maryland, Dept. of Physics, Grad Prf. Dvmt, 2005-2008.
Advisor, proposed NSF grants 2010-2012: Z. Hazari (Clemson), M. Dancy (CU), A. Griswald (Harvard).
Advisor, Dept. of Education Grant, FIPSE Comprehensive Program Project, Colorado School of Mines, Phys.
Chair, Leadership Council, Adventure Rabbi, Boulder CO, 2006-2016; *Board of Directors*, Hillel of San Diego, 2000-2003.;
Member, Solana Beach Coalition for Community and Education 1998-2001.

Director / Lead / Organizer of Professional Programs:

Co-Director, Center for STEM Learning, CU Boulder, 2012-
Co-Director, Colorado Academic Pathways project, 2016-
Faculty Lead / Advisor: CU ' Grad student program, Teachers of Physics in Training, 2013-
Founding Director, Boulder Area STEM Education Coalition, a coalition to promote STEM Education in Boulder
 County region, includes rep from gov't, business, media, nat'l labs, university, K12 and community.
Co-Author: Proposal to the National Academies: *A Decadal Study in Physics Education (2010)*, NSF funded 2011
Director & Co-PI, Integrating STEM education for CO, an NSF i-3 funded effort to create a Center 2009-2012
Director/ Faculty Advisor, Partnerships in Informal Science Education in the Community (PISEC), 2006-
Director / Organizer, Preparing Future Physics Faculty Program, Univ. Colorado Boulder 2004-
Director, Colorado Physics Teacher Education Coalition, CO PhysTEC, 2004-
Director, Colorado Student Teacher Outreach Mentorship Program, CU STOMP, 2005-2006 (now PISEC)
Organizer / Lead: reading group in Physics Education Research; Faculty Seminar in Education Issues
Member / Organizer: Physics Education Research Group, Dept of Physics, University of Colorado, 2003-
Steering Committee, Preparing Future Physics Faculty, U. C. San Diego 1999-2003.
Founder and Director, UCSD Science and Technology Club 1998-2003.

Regional and National Meeting Organizer

National Meeting, Network of STEM Education Centers, Columbus OH, Jun 6-8 2017.
National Workshop, Communicating the work and value of STEM education and centers, NSEC, Jun 6, 2018.
National Meeting, Network of STEM Education Centers, New Orleans, LA, Jun 22-23, 2017.
National Workshop, Building and Sustaining National Networks, New Orleans LA, Jun 21, 2017.
National Workshop, Addressing Diversity in STEM Education, SMTI/NSEC/ASCN, Jun 24, 2017
National Workshop, Designing Building STEM DBER Alliance, Howard Hughes Med Inst., May 7-10, 2017
Statewide Summit, Creating Academic Pathways in STEM, Boulder CO, Feb 10, 2017
National Workshop, Building a STEM DBER Alliance, APLU/ AAAS/NSEC, Wash. DC Nov 18-19.2016.
National Conference, Co-Organizer, National Network of STEM Educ Cnts, San Antonio, TX, Jun 8-10, 2016.
National Workshop, Designing a Toolkit for STEM education Centers, San Antonio, TX, Jun 11, 2016.
National Workshop, co-Organizer, Intersection of Center for Teaching & Learning and STEM Education Centers, San Francisco, CA, Nov 2015.
National Conference, Co-Organizer, Science and Mathematics Teaching Imperative, Towards a national network of STEM education, *New Orleans Jun 2015*.
National Workshop, Co-Director/Organizer: APLU/Sloan Foundation, Reaching the Middle 50%: Engaging traditional, senior faculty in STEM education transformation,” New Orleans, LA, Jun 2015
National Workshop, Co-Organizer White House Office of Science & Technology Policy, STEM Education: College Opportunities, Boulder CO Sept 2014.
National Workshop, Co-Director/Organizer: APLU/Sloan Towards a national network of STEM Education centers, Indianapolis, IN, Oct 2014.
National Workshop, Co-Director/Organizer: APLU/Sloan workshop on the role and promise of STEM education centers: towards a national network. St. Louis, MO Sept 15-16 2013.
Conference Co-organizer, APS, Distance Education and Online Learning in Physics Workshop, Jun 2013.
National Workshop, Co-organizer, APS/AIP PhysTEC, Learning Assistant Nat’l Wkshp, Boulder, Oct 2010.
Conference Co-organizer, NSF-Sponsored, Facilitating Change in Undergraduate STEM: An Invitational Symposium Integrating Multiple Perspectives, Western Michigan, Jun 16-18, 2008.
Conference Co-organizer, Phys. Teacher Education Coalition, Learning Assistant Workshop, Boulder, CO 2007
Conference co-organizer, Physics Education Research Conference, Boise ID, 2002.
Supervisor / Advisor to the Conference Organizers for PERC 2007- 2012 annual mtgs.

National Meetings Session Organizer / Chair:

Plenary Symposium, AAPT Nat’l Meeting, *Physics Education & Policy*, 2012,2013,2014,2015, 2016
AAPT Symposium on Education Policy (featuring Cong. Ehlers), AAPT Nat’l meeting, , 2011, 12,13,14,15,16-
Invited Session, PERC Nat’l Meeting, *That’s Cool: the Nature Of Aesthetics in Physics*, Portland, OR, Jul 2013.
Taking responsibility for the hidden curriculum Physics Education Research Conf, Portland OR, Jul 2010.
The Kavli Foundation Joint Plenary Session, Re-Energizing America’s Focus on STEM Education, A joint session of the APS, AAPT, PTEC, NSBP and NSHP national meetings, Washington DC, Feb 13, 2010.
Broadening Our Lens: Socio-Cultural Perspective in PER, PERC meeting, Ann Arbor MI, August 2009
Broadening Our Lens: (Part II: Communities & Social Interaction, PERC National Meeting, August 2009
Physics Education Research session, April National Meeting, American Physical Society, Denver, May 2009.
Physics Education Research, APS National March Meeting, 2007
Studying physics education from different perspectives: Why Bother? AAPT, July 2006.
Goals and Assessment of the PhysTEC Project, PERC, Aug 2005.
Beyond Student Transfer, Professional Development in PER, PERC, Aug 2004.
Multiple Goals of Physics Education, AAPT, Jan 2004.
Social, Political, & Historical Perspectives on Physics Education, PERC, Aug 2003.
Action Research Session, Am. Assoc. of Physics Teachers Conf, Aug 2002.

Professional and Academic Workshops (sample):

Faculty Development:

- Transforming upper division courses in physics and chemistry, Sloan/APLU workshop, Jun 2015*
- Teaching Large Classes, FTEP, Oct 2013, Oct 2014.*
- Effective Teaching and Learning Practices, LEAP, New Faculty Workshop, Jun 2012.*
- Time Management and Faculty Life: LEAP New Faculty Workshop, Colorado, May 2011.*
- The Balancing Act: multiple roles of professional & personal life, Faculty Tch Excellence Program, April 2009.*

Facilitating Change in Undergraduate STEM:

- Symposium / Workshop, PhysTEC /NMSI National Meeting, Austin TX 2011*
- The Role of Disciplinary Departments in Teacher Prep, APLU, Science and Math Tch Imperative, May 2009.*
- Invited workshop, PTEC Annual Meeting, Pittsburgh, PA, Mar 13, 2009.*
- The Physics of Light and Color, Kittridge Honors Program Mar 2007.*

Making the Case: The Role of Data in Supporting Educational Innovations,

- National Learning Assistant Workshop, Boulder CO, Oct 2011, Oct 2012, Oct 2013, Oct 14*
- Physics Teacher Education Coalition, Austin TX, Feb 2008, Ontario CA, Feb 2012.*
- National Math Science Initiative / PhysTEC joint meeting, Austin TX, May 2011*
- Phys. Teacher Education Coalition, Learning Assistant Workshop, Boulder, CO 2007*
- Attending to Students' Thinking, PhysTEC National Conference, Mar 2005.*

Issues of inclusion, privilege & framing: Addressing gender disparity in undergraduate physics,

- Physics Teacher Education Coalition National Annual Meeting, Boulder CO, Mar 2007*
- University of Texas College of Arts and Sciences New Faculty Workshop, Oct 2006.*
- LEAP (NSF-Advance Program), Faculty Workshop, University of Colorado, Boulder, April 2006.*
- GTP (Grad Teacher Program), Graduate / Postdoctoral Student workshop, CU Boulder, Oct 2006.*
- Teaching Physics for a Socially Just Society, Am. Assoc. of Phys Teachers, Annual Mtg. Aug 2005.*
- Teaching Physics with Purpose, Am. Assoc. of Phys. Teachers, Annual Meeting, Aug 2004.*

Colorado Learning Assistant Program

- Science and Mathematics Teacher Imperative, APLU, Washington DC, Jun 2012.*
- PhysTEC /NMSI National Meeting, , Boulder. CO, Mar 2007, Austin TX 2011.*
- Math Association of America, Rocky Mountain Section Meeting, Apr 2011.*
- PTEC / AAPT NW Regional Meeting, Seattle, WA, Oct 2008.*
- NSF Robert Noyce Scholarship Principal Investigators' Meeting, Washington, DC, Jun 2008.*
- Nat'l Assoc. of Science Teachers regional meeting, Denver, Nov, 2007.*
- Am. Assoc. of Physics Teachers, National Meeting, Greensboro, NC, Jul 2007*
- PTEC National Workshop, Boulder CO, Oct 2007*

Attending to More than Content: assessing student beliefs.

- Intl Society for the Scholarship of Teaching and Learning, Annual Conference, Vancouver Oct 2005.*
- University of Texas College of Arts and Sciences New Faculty Workshop, Oct 2006.*
- Physics Teacher Education Coalition National Annual Meeting, Boulder. CO 2007*
- Assessing Student Beliefs in our Physics Classrooms, PhysTEC National Conference, Mar 2005.*
- Importance of Student's Views on Learning, PhysTEC National Conference, Mar 2005*

Interactive Engagement and Effective Teaching

- University of New Mexico, Success in the Classroom Symposium, Feb 2012.*
- Pearson Canada, National STEM Education Workshop, Toronto, CA, May 2011.*
- LEAP Faculty Workshop, University of Colorado, May 2010*
- School of Law, University of Colorado, November 2008.*
- Boulder Area Physics Teachers, Boulder High School, Sept 2007.*
- University of Texas College of Arts and Sciences New Faculty Workshop, Oct 2006.*

Physics Education Research, Why it's important, and cutting edge research,

- Engineering Education Research Cabal, School of Engineering and Applied Sciences, University of Colorado, Nov 2012*
- Women in Engineering, School of Engineering and Applied Sciences, University of Colorado, Oct 2012.*
- Research Experience for Undergraduates, Physics and Liquid Crystals, Jul, 2011, 2012*
- Colorado STEM Educators Network, quarterly meeting, Boulder CO, May 2011.*
- Graduate K12 program, University of Colorado, Jan 13, 2010.*
- Indigenous Alliance, University of Colorado, July 8, 2009.*
- Research Experience for Undergraduates, Physics, Liquid Crystals, Jun 30, 2009.*
- Research Experience for Teachers, EUV-Center, Boulder, CO, Jul 2 & 8, 2008. & NREL, Golden, CO, Jul 1 2008.*
- Presidential Teaching Scholars Program, University of Colorado (system), Denver, May 2008.*
- Society of Physics Students, University of Colorado at Boulder, Boulder CO, Dec 2006, May 2008.*
- Framing PER from the broadest perspectives, Frontiers of Physics Education Research Conference, Aug 2005.*
- What Every Physicist Should Know about Cognition, AAPT, Aug 2003.*
- Tools and Contexts for Physics Education, Center for Adaptive Optics, May 2003.& CFAO May 2001.*