

Noah Finkelstein

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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

Associate Professor (with tenure), Apr '08 – present
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 (University), 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 (University), 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

2009 Diversity & Excellence Award, University of Colorado, system-wide award, 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 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

- 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, 2009-2012
Studies ranging from the clinical to the controlled learning settings to study plausible mechanisms of stereotype threat. Studies examine the role of working memory as a mechanism of stereotype threat.
- Co-PI, NSF DUE Noyce, *STEM Colorado's Streamline to Mastery*, \$1,499,569, 2009-2015
A Noyce program to support early career teachers who are supported to become master teachers. Creating a continuum from the LA program, Noyce Fellows, CU Teach and now the Masters degree program.
- Co-PI, NSF I-3, *Towards a Center for Science Technology Engineering & Math Education*, \$998,600, 2009-2013
One of 6 of NSF's Institutional Innovation through Integration program. Umbrella grant funds 5 year to link existing efforts in STEM education research and reform at CU. The ultimate goal is a national-scale center.
- Co-PI: NSF: DUE CCLI, *Physics and Chemistry Education Technology Project*, \$498,765, 2008-2011.
Expanding the nationally award winning physics simulation to include chemistry and additional physics topics. NSF ~15% funding rate.
- 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, 2005-2010.
The NSF's "most prestigious award in support of the early career-development" (NSF website). This project supports the breadth my work, both theoretical and experimental studies of learning physics in context.
- Co-PI: NSF: DUE CCLI, *Using a Research-based Approach to Reform Upper-division Quantum I and E&M I*, \$150,000, 2008-2010.
Project designed to couple to CU's Science Education Initiative. One of the first attempts nationally to transform upper division physics courses based on the research within physics education research. NSF ~15% funding rate.
- Co-PI: NSF: DRL REESE: *STEM Educational Change Efforts in Higher Education*, \$198,379, 2007-2009.
A grant to support a synthesis of research on educational change in STEM education. The NSF funding rate on this line was ~9%.
- PI: American Physical Soc.: *Colorado PhysTEC: Physics Teacher Education Coalition*, \$424,576, 2004- 2008.
One of six initial national grants from the APS to improve physics education, the number of qualified physics teachers, and to research the effectiveness of these programs. This project has led to published work in *Science* (2006) and been written about in *Science* by the editors (2007).
- Co-PI: NSF: DUE CCLI, *Physics Education Technology Project*, \$499,767, 2005-2008.
Internationally recognized and award winning research project to develop computer simulations. The PhET project now averages 100,000 hits per day from all over the globe. The research on this program (which I have led) has led to publications in *Physical Review* and been cited by in popular and professional venues. NSF ~15% funding.
- Co-PI: NSF: SBE HSD, *Facilitating Change in Higher Education*, \$97,011, 2006-2008.
A grant to fund a conference in summer 2008. The conference will bring together national & international leaders in each of three fields (Science Education Research, Faculty Development, and Higher Education) to develop a model of change in STEM higher education. All funds support a conference, PI travel and preparation, and are run through Western Michigan University. Approx 25% of proposals were funded.
- PI: NSF: DUE, CCLI, *Implementing Tutorials Sustainably*, \$179,000, 2004-2007.
A project to study the replication of one of the best recognized reforms in introductory physics. This program has led to many publications including work in *Physical Review*, many invited talks at national venues. This effort has become regarded as a leading study of the process of scaling and the sustainability of educational reforms, and been referenced by the APS. Approx 12% of proposals were funded.
- 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, PFSMETE: Postdoctoral Fellowships in Mathematics, Science Engineering and 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.

Serving as a steering committee member, and one of the architects of the proposal, I will be helping lead this project which is directed at restructuring the science teacher certification program at the University of Colorado. In particular, this effort will heavily involve five science and mathematics departments with the school of education in the recruitment, preparation and placement of future science teachers.

Senior Personnel / Co-Author: NSF IGERT # 0801680, *Interdisciplinary Graduate Education in Computational Optical Sensing and Imaging*, \$600,000, 2008-2011.

This program award supports an interdisciplinary graduate education program in Computational Optical Sensing and Imaging (COSI) at the University of Colorado at Boulder. The goal is to educate the future workforce in this fast-developing area and in its technological and societal implications

Senior Personnel / Co-Author: NSF CCLI #0613426 *The CIRTl Network: Shaping, Connecting, and Supporting the Future National STEM Faculty*, \$5,085,698, 2008-2011.

Serving as a Co-Investigator, I am one of the leaders of the K12 Initiative, studying the impact of transformed educational practices on undergraduates and future teachers. I participate in the broader CIRTl network (of seven university including CU) which supports research and transformation of graduate preparation and future faculty practices.

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.

I am one of the authors and architects of this project to study the effectiveness of the Colorado Learning Assistant Model for educational transformation and teacher preparation. I serve on the executive committee in addition to helping lead one of the three research arms, on discipline-based education research. This project has received national acclaim, and been written about in *Science*.

Senior Personnel / Co-Author: NSF IIS # 0511965, *Collaborative Research: Telling the Story - Learning Math, Science and Engineering Through Animation*, \$584,821, 2006-2009.

A collaborative research program with Tufts University, Princeton University and University of Colorado. Initially I served to consult on research of educational impacts for this program that designs and studies innovative educational technologies. My role has expanded to include pilot studies, and future collaborative proposals, which are in review.

PROFESSIONAL SERVICE / ACTIVITIES

National Professional Boards/ Positions:

Board Member, Committee on Education, American Physical Society, 2009-

The main policy board of the American Physical Society that focuses on Education. Appointed position

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

A nationally elected position to one of the American Physical Society's largest units (comprising roughly 5,000 members). One of 10 voting members. APS FED Session program committee 2008, 2009, 2010.

Founding Council Member, Physics Education Research Leadership and Organizing Council, 2006-

A nationally elected position to the founding leadership group for the Physics Education Research Community (of over 600 members). One of 6 voting members.

Charter Member, Am. Assoc. of Physics Teachers, Public Policy Advisory Committee, national position, 2007-

Appointed by the AAPT Executive Director to advise on matters of public policy. One of 5 members.

Member, Advisory Committee to the Physics Teachers Education Coalition (PTEC), APS national position 2006-

Appointed by the APS Director of Education advise & supervise main educational initiative of the APS.

State Board Positions:

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, ASSET, Faculty Advisory Board, University of Colorado, Arts & Sciences, IT development, 2008-

Member, University of Colorado Flagship 2030 Faculty Task Force, 2007-2008

Member, Award Selection Committee, Boulder Faculty Assembly Teaching Award 2008, 2007-2008.

Member, Award Selection Committee McCray Scholar Award (undergraduate), 2008-

Member, Award Selection Committee, Program in Writing and Rhetoric, Science and Society (undergrad), 2008-

Advisor, NSF CAREER grants: Michael Hermele (CU), Meredith Betterton (CU), Heather Lewandowski (CU),

Advisor, Education and Outreach, JILA Physics Frontier Center, CU Boulder / NIST, 2006-

Member, Advisory Council in Educ, NSF EUV Center, CU Boulder, CO State U, UC Berkeley 2005-

Co-Chair, Strategic Advisory Committee on Information Technology, Campus Use of Technology-Enhanced Use of Spaces, Academic Technology, Univ. of Colorado Boulder 2006- 2007.

Member, Presidential Teaching Scholars Program, Faculty Teaching Excellence Program (FTEP), 2005-

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:

CAC, & Self-Study /Program review: Evaluation (2008-09), Diversity Committee (2007-09, chair 08-9),

Outcomes & Assessment (2006-2008), Dept Self-Study (07-08), Website Committee (07-08) Jr. Faculty

Committee (2003-2008), Holiday Committee (2003-2008)

External Advisor Grants / Agencies:

Advisor, Dept of Education IES, NSF ITEST, and NSF CSE grants, Center for Engineering Education and Outreach research programs, Tufts University, 2007-

Advisor, NSF ROLE Grant, Univ. of Maryland, Dept. of Physics, Developing conceptual and teaching expertise in physics graduate students: An integrated approach, 2005-2008.

Advisor, Dept. of Education Grant, FIPSE Comprehensive Program Project, Colorado School of Mines, Phys Dept, Physics 100 Online: Maximizing Learning Effectiveness in an Online Delivery Format, 2006-2008.

Advisor, NSF CAREER grant: Lincoln Carr, Colorado School of Mines

Chair, Leadership Council, Adventure Rabbi, Boulder CO, 2006-

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-Author: Proposal from the Physics Community to the National Academies: A Decadal Study in Physics Education, 2007 -2009

Director, Integrating STEM education for Colorado, an NSF i-3 funded effort to create a Center 2009-

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-

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.

National Meeting Organizer

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.

Advisor to the Conference Organizers for PERC 2007,2008, 2009 annual meetings.

National Meetings Session Organizer / Chair:

Broadening Our Lens: Socio-Cultural Perspective in PER (Part I Artifacts & Mediation), 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 Offered:

The Role of Disciplinary Departments in Teacher Prep, APLU, Science and Math Tch Imperative, May 2009.
The Balancing Act: multiple roles of professional & personal life, Faculty Tch Excellence Program, April 2009.
Facilitating Change in Undergraduate STEM: The Need to Problematize and Improve Our Approaches to Change Invited workshop, PTEC Annual Meeting, Pittsburgh, PA, Mar 13, 2009.
Making the Case: The Role of Data in Supporting Educational Innovations, Physics Teacher Education Coalition National Annual Meeting, Austin TX, Feb 2008
Phys. Teacher Education Coalition, Learning Assistant Workshop, Boulder, CO 2007
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.
Colorado Learning Assistant Program
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.
Physics Teacher Education Coalition National Annual Meeting, Boulder. CO, Mar 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
Interactive Engagement and Effective Teaching
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, Indigenous Alliance, University of Colorado, July 8, 2009.
Research Experience for Undergraduates, Physics and Liquid Crystals, Jun 30, 2009.
Research Experience for Teachers, EUV-Center, Boulder, CO, Jul 2 & 8, 2008.
Research Experience for Teachers, NREL Summer Program, 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.
The physics of light and color, U of Colorado, Baker / Kittredge honors programs Boulder CO, Mar 2007
Framing PER from the broadest perspectives, Frontiers of Physics Education Research Conference, Aug 2005.
Teaching Physics for a Socially Just Society, Am. Assoc. of Phys Teachers, Annual Mtg. Aug 2005.
Assessing Student Beliefs in our Physics Classrooms, PhysTEC National Conference, Mar 2005.
Attending to Students' Thinking, PhysTEC National Conference, Mar 2005.
Importance of Student's Views on Learning, PhysTEC National Conference, Mar 2005.
Teaching Physics with Purpose, Am. Assoc. of Phys. Teachers, Annual Meeting, Aug 2004.
What Every Physicist Should Know about Cognition, AAPT, Aug 2003.
Tools and Contexts for Physics Education, Center for Adaptive Optics, May 2003.
An Introduction to Physics Education Research, Center for Adaptive Optics, May 2001.

Reviewer:

Proceedings of the National Academies; Physical Review; Science; National Science Foundation (EHR division and MPS division); National Academies: NAS, NAE, IM, NRC; American Journal of Physics, Lawrence Erlbaum, Mind Culture and Activity; Journal of Geosciences Education; National Association of Research in Science Teaching Conference; American Educational Research Association, Conference; Journal of Teacher Education. FWF, Austrian Science Fund, Michigan State University (tenure cases)

STUDENTS MENTORED (in Physics unless specified)

Postdoctoral Advisor:

Laurel Mayhew (JILA Physics Frontier Center and PER group, current 2007-)

PhD Lead Advisor:

Patrick Kohl (PhD Aug 2007), now on the faculty at Colorado School of Mines (as of Sept 2007).

Noah Podolefsky (PhD May 2008), now a postdoc in PER group at Colorado, PhET project.

Chandra Turpen (current),

Benjamin Spike (current)

Charles Bailey (current),

Lauren Kost (co-advisor, current).

PhD Committee:

Danielle Harlow (School of Educ, PhD Aug 2007);

Wendy Adams (PhD Jan 2008, Postdoc and Research Scientist, SEI, University of Colorado);

Robert Nelson (PhD candidate physics 2009)

John Airey, (PhD candidate physics, 2009, Uppsala University, Sweden)

Vagezen Shekoyan, (PhD 2008, Physics Department Rutgers University)

MS Students:

Christopher Keller (Aug 2006)

Undergrad Honors Thesis Advisor:

Heather Demarest (*summa cum laude*, physics, 2004); Darren Tarshis (*summa cum laude*, physics, 2008)

Jessica Bartley (*cum laude*, physics, 2009).

Research Exp. for Undergraduates, REU Advisor:

Alex Fout (2009, CU Boulder), Heather Bankowski (2008, Simmons College), Turhan Carroll (2006, NCSU); Mindy Gratny (2005, KSU),

COURSES TAUGHT:

Sp09: PHYSICS: 1020 Physics of Everyday Life, 2nd Semester, 62 students, FCQ rating 5.8/6

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

Fa07: PHYSICS 2170: Modern Physics for physics majors, 85 students, FCQ rating: 5.8 /6

Sp07: PHYSICS 2130: Modern Physics for engineers, 174 students, FCQ rating: 5.9/6

Fa06: PHYSICS 2130: Modern Physics for engineers, 93 students, FCQ rating: 5.7/6

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: TEP118: 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

Fa01: PHY180/280: Teaching and Learning Physics, UC San Diego, 17 students

Fa00: PHY180/280: Teaching and Learning Physics, UC San Diego, 14 students

Fa99: PHY180/280: Teaching and Learning Physics, UC San Diego, 19 students

REFEREED JOURNAL ARTICLES:

1. C. Henderson, N. Finkelstein, & A. Beach A. (to appear). "Beyond Dissemination in College science teaching: An Introduction to Four Core Change Strategies." Submitted May 2009 to *Journal of College Science Teaching*.
2. N. Lasry, N. Finkelstein, E. Mazur, "Are most people too dumb for physics," *Physics Teacher*, 47, 418-422 (2009).
3. 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).
4. C. Baily*, and N.D. Finkelstein, "Development of quantum perspectives in modern physics," *Phys. Rev. ST Phys. Educ. Res.* 5, 010106 (2009).
5. L. Kost*, S.J. Pollock, and N. Finkelstein, "Characterizing the gender gap in introductory physics," *Physical Review ST: Phys Educ. Research*, 5, 010101 (2009).
6. S. Pollock and N. Finkelstein, "Sustaining Educational Reforms in Introductory Physics," *Phys. Rev. ST Physics Ed. Research* 4, 010110 (2008)
7. 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)
8. E. Price and N.D. Finkelstein, "Preparing Graduate Students to be Educators", *American Journal of Physics*, 76(7), pp. 684-690 (2008).
9. 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)
10. 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: Physics Education Research*. 3, 010109, 12 pgs, (2007).
11. P. Kohl,* N.D. Finkelstein, D. Rosengrant "Strongly and Weakly Directed Approaches to Teaching Multiple Representation Use in Physics," *Physical Review, Special Topics: Physics Education Research*, 3, 010108, 10 pgs, (2007).
12. 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).
13. N.D. Finkelstein, W. Adams,* C Keller,* K Perkins, C Wieman and the PhET Team, "High-Tech Tools for Teaching Physics: the Physics Education Technology Project," *Journal of Online Learning and Teaching*, 2(3), 109. 11pgs, (2006).
14. 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).
15. V. Otero, N.D. Finkelstein, R. McCray, and S. Pollock, "Who is Responsible for Preparing Science Teachers?" *Science*. 313(5786), 445-446 (2006).
16. 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).
17. 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).
18. 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, 010102, 8 pgs, (2006).
19. W.K. Adams,* K.K. Perkins, M. Dubson, N.D. Finkelstein, and C.E. Wieman, "A new instrument for measuring student beliefs about physics and learning physics: the Colorado Learning Attitudes about Science Survey" *Physical Review, Special Topics: Physics Education Research*. 2, 010101, 14 pgs, (2006).
20. K.K. Perkins, W. Adams,* N. D. Finkelstein, M. Dubson, R. LeMaster, S. Reid, and C.E. Wieman, "PhET: Interactive Simulations for Teaching and Learning Physics" *Physics Teacher* 44(1), 18-23, (2006)
21. N.D. Finkelstein, "Learning physics in context: a study of student learning about electricity and magnetism," *International Journal of Science Education*, 27, 1187-1210, (2005).
22. P. Kohl* and N.D. Finkelstein, "Student representational competence, self-assessment, and problem solving in physics" *Physical Review, Special Topics: Physics Education Research*. 1, 010104, 11pgs, (2005).
23. N.D. Finkelstein, K. Perkins, W. Adams,* K. Keller,* P. Kohl,* N. Podolefsky,* S. Reid, and R. LeMaster, "When learning about the real world is better done virtually: a study of substituting computer simulations for laboratory equipment," *Physical Review, Special Topics: Physics Education Research*, 1, 010103, 8 pgs, (2005).
24. N.D. Finkelstein and S.J. Pollock, "Replicating and Understanding Successful Innovations: Implementing Tutorials in Introductory Physics" *Physical Review, Spec Topics: Physics Education Research*, 1, 010101, 13 pgs, (2005).

25. N.D. Finkelstein, "Teaching and learning physics: A model for coordinating physics instruction, outreach, and research" *Journal of Scholarship of Teaching and Learning*, **4**(2), 1-14, (2004).
26. N.D. Finkelstein, "Coordinating Instruction in Physics and Education," *Journal of College Science Teaching*, **33**(1), 37-41 (2003).
27. R.B. Miles, Z. Tang, S. Zaidi, A. Yalin and N.D. Finkelstein, "High Signal-to-Noise Detection of Rotational Raman-Scattering Through Refluorescent and Dispersive Atomic Filters," *Journal of Raman Spectroscopy* **31**(8-9), 843-849, (2000).
28. N.D. Finkelstein, A.P. Yalin, and R.B. Miles, "A Dispersion Filter for Spectral and Spatial Resolution of Pure Rotational Raman Scattering," *Optics Letters*, **23**(20), 13 (1998).
29. J.H. Grinstead, N.D. Finkelstein, and W.R. Lempert, "Frequency-locked light scattering: real-time Doppler velocimetry with closed-loop feedback control," *Applied Optics*, **37**(9), 1617, (1998).
30. N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Rotational Raman Scattering Measurements with a Single Mode Laser Source and Narrow Passband Filter," *Optics Letters*, **22**(8), 537, (1997).
31. J.H. Grinstead, N.D. Finkelstein, and W.R. Lempert, "Doppler Velocimetry in a Supersonic Jet Using Frequency Modulated Filtered Light Scattering," *Optics Letters*, **22**(5), 331, (1997).
32. J.N. Forkey, N.D. Finkelstein, W.R. Lempert, and R.B. Miles, "Demonstration and Characterization of Filtered Rayleigh Scattering for Planar Velocity Measurements," *American Institute of Aeronautics and Astronautics Journal*, **34**(3), 442-448, (1996).

* Indicates Current or Former Graduate Advisee

REVIEWED BOOK CHAPTERS:

1. Froyd, J., Beach, A., Henderson, C., & Finkelstein, N. Improving Educational Change Agents' Efficacy in Science, Engineering, and Mathematics Education. In H. Hartman (ed.), *Integrating the Sciences and Society: Challenges, Practices, and Potentials*, Bingley, UK: JAI Press, pp. 227-256. (2008).
2. M. Gallego and N.D. Finkelstein, "When the classroom isn't in school: The construction of scientific knowledge in an after-school setting," in R. Yerrick & W-M Roth (Eds.) *Establishing Scientific Classroom Communities: Multiple voices of teaching and learning research*, Lawrence Erlbaum, Saddle River, NJ, 293-315, (2004).

PAPERS IN REVIEWED CONFERENCE PROCEEDINGS

1. L. Kost, S. Pollock, and N. Finkelstein, "Unpacking Gender Differences in Students' Perceived Experiences in Introductory Physics" *Proceedings of the 2009 Physics Education Research Conf.*, AIP Press (to appear).
2. C. Baily* and N. Finkelstein, "Understanding and Teaching Quantum Interpretations in Modern Physics Courses" *Proceedings of the 2009 Physics Education Research Conf.*, AIP Press (to appear).
3. C. Turpen*, N. Finkelstein, and S. Pollock, "Towards Understanding Classroom Culture: Students' Perceptions of Tutorials" *Proceedings of the 2009 Physics Education Research Conf.*, AIP Press (to appear).
4. J. Bartley*, M. Mayhew*, N. Finkelstein, "Reaching Students through Informal Science Education" *Proceedings of the 2009 Physics Education Research Conf.*, AIP Press (to appear).
5. L. Mayhew* and N. Finkelstein, "Learning to Teach Science through Informal Science Education Experiences" *Proceeding of the 2009 Physics Education Research Conf.*, AIP Press (to appear).
6. B. Spike* & N. Finkelstein, "A Study of Undergraduate and Graduate Student Conceptions of Teaching" *Proceedings of the 2009 Physics Education Research Conf.*, AIP Press (to appear).
7. N.D. Finkelstein and L. Mayhew*, "Acting in Our Own Self-Interest: Blending University and Community" *Proceedings of the 2008 Physics Education Research Conf.*, AIP Press. Melville NY, **1064**, (2008).
8. C. Turpen* and N.D. Finkelstein, "Institutionalizing Change: Case Studies & Institutional Analysis of Pedagogical Reform in Intro Phys" *Proceedings of the 2008 Physics Education Research Conf.*, AIP Press. Melville NY, **1064**, (2008).
9. N. Podolefsky* and N.D. Finkelstein, "How Abstract is Abstract? Signs, Salience, and Meaning in Physics" *Proceedings of the 2008 Physics Education Research Conf.*, AIP Press. Melville NY, **1064**, (2008).
10. C. Henderson, A. Beach and N.D. Finkelstein, "Facilitating Change in Undergraduate STEM: Preliminary Results from an Interdisciplinary Literature Review," *Proceedings of the 2008 Physics Education Research Conf.*, AIP Press. Melville NY, **1064**, (2008).
11. C. Baily* and N.D. Finkelstein, "Student Understanding of Quantum Measurement and Uncertainty" *Proceedings of the 2008 Physics Education Research Conf.*, AIP Press. Melville NY, **1064**, (2008).

12. L. Mayhew* and N.D. Finkelstein, "New Media and Models for Engaging Under-Represented Students in Science" *Proceedings of the 2008 Physics Education Research Conf*, AIP Press. Melville NY, **1064**, (2008).
13. L. Kost,* S. Pollock and N.D. Finkelstein, "The Persistence of the Gender Gap in Introductory Physics" *Proceedings of the 2008 Physics Education Research Conf*, AIP Press. Melville NY, **1064**, (2008).
14. A. Beach, C. Henderson, N.D. Finkelstein, "Facilitating Change in Undergraduate Science Instruction: Synthesis of Change Strategies across Disciplines," *Association for the Study of Higher Education*, 2008 **1064**, (2008).
15. P. Kohl* and N.D. Finkelstein, "Expert and Novice Use of Multiple Representations During Physics Problem Solving," *Proceedings of the 2007 Physics Education Research Conf*, AIP Press. Melville NY, **951** (2007).
16. C. Turpen* and N. Finkelstein, "Understanding Physics Faculty's Use of Peer Instruction," *Proceedings of the 2007 Physics Education Research Conference*, AIP Press. Melville NY, **951** (2007).
17. L. Kost,* S. Pollock, and N. Finkelstein, "Investigating the Source of the Gender Gap in Introductory Physics," *Proceedings of the 2007 Physics Education Research Conference*, AIP Press. Melville NY, **951** (2007).
18. N. Podolefsky* and N. Finkelstein, "Salience of Representations and Analogies in Physics," *Proceedings of the 2007 Physics Education Research Conference*, AIP Press. Melville NY, **951** (2007).
19. C. Keller,* N. Finkelstein, S. Pollock, C. Turpen,* "Research-based Practices For Effective Clicker Use," *Proceedings of the 2007 Physics Education Research Conference*, AIP Press. Melville NY, **951** (2007).
20. C. Keller,* N. Finkelstein, K. Perkins, and S. Pollock, "Studying the Use of Computer Simulations in Undergraduate Laboratory Environments" *Proceedings of the 2006 Physics Education Research Conference*, AIP Press. Melville NY, **883**, 121-124, (2007).
21. P. Kohl,* D. Rosengrant and N.D. Finkelstein, "Comparing Explicit and Implicit Teaching of Multiple Representation Use in Physics Problem Solving," *Proceedings of the 2006 Physics Education Research Conference*, AIP Press. Melville NY, **883**, 145-148, (2007).
22. S. J. Pollock and N.D. Finkelstein, "Sustaining Change: Instructor Effects in Transformed Large Lecture Courses," *Proc of the 2006 Physics Education Research Conf*, AIP Press. Melville NY, **883**, 109-112, (2007).
23. N.S. Podolefsky* and N.D. Finkelstein, "Reframing Analogy: framing, blending, and representations as mechanisms of learning by analogy," *Proceedings of the 2006 Physics Education Research Conference*, AIP Press. Melville NY, **883**, 97-100, (2007).
24. N. D. Finkelstein, C. Turpen,* S. Pollock, M. Dubson, S. Iona, C. Keller,* and V. Otero, "Evaluating a model of research-based practices for teacher preparation in a physics department: Colorado PhysTEC" *Proceedings of the 2005 Physics Education Research Conference*, AIP Press. Melville NY, **818**, 3-6, (2006).
25. 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," *Proceedings of the 2005 Physics Education Research Conference*, AIP Press. Melville NY, **818**, 109-112 (2006).
26. P.B. Kohl* and N.D. Finkelstein, "Representational Competence and Introductory Physics" *Proceedings of the 2005 Physics Education Research Conference*, AIP Press. Melville NY, **818**, 93-97, (2006).
27. 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" *Proceedings of the 2005 Physics Education Research Conference*, AIP Press. Melville NY, **818**, 137-141, (2006).
28. N.D. Finkelstein, K. K. Perkins, W. Adams,* P. Kohl,* and N. Podolefsky,* "Can Computer Simulations Replace Real Equipment in Undergraduate Laboratories?" *Proceedings of the 2004 Physics Education Research Conference*, AIP Publishing: Melville, NY, **790**. 101-104, (2005).
29. P. Kohl* and N.D. Finkelstein, "Representational Format, Student Choice, and Problem Solving in Physics," *Proceedings of the 2004 Physics Education Rsrch Conf*, AIP Publishing: Melville, NY, **790**. 121-124, (2005).
30. W. K. Adams,* K. K. Perkins, M. Dubson, N.D. Finkelstein, and C. E. Wieman "The Design and Validation of the Colorado Learning Attitudes about Science Survey," *Proceedings of the 2004 Physics Education Research Conference*, AIP Publishing: Melville, NY, **790**, 45-48, (2005).
31. K. K. Perkins, W. K. Adams, * S. J. Pollock, N.D. Finkelstein and C. E. Wieman "Correlating Student Attitudes With Student Learning Using The Colorado Learning Attitudes about Science Survey" *Proceedings of the 2004 Physics Education Research Conference*, AIP Publishing: Melville, NY, **790**. 61-64, (2005).
32. N.D. Finkelstein and E. Price "Seeding Change: The Challenges of Transfer and Transformation of Educational Practice & Research in Physics (Part I)" *Proc 2004 PER Conf*, AIP Pub: Melville, NY, **790**. 15-18, (2005).
33. E. Price and N.D. Finkelstein "Seeding Change: The Challenges of Transfer and Transformation of Educational Practice and Research in Physics (Part II)" *Proceedings of the 2004 Physics Education Research Conference*, AIP Publishing: Melville, NY, **790**, 19-22, (2005).

34. N.D. Finkelstein, "Bridging Critical Points: discontinuities in high school and university physics education," *Proceedings of the 2003 Physics Education Research Conference*. AIP Publishing, **720**, 19-22, (2004).
35. N.D. Finkelstein, "Context in the Context of Physics and Learning," *Proceedings of the 2001 Physics Education Research Conference*. PERC Publishing, NY, (2001).
36. R.B. Miles, J.N. Forkey, N.D. Finkelstein, and W.R. Lempert, "Precision Whole-Field Velocity Measurements with Frequency Scanned Filtered Rayleigh Scattering," *Proceedings of the 7th International Symposium on Applications of Laser Techniques to Fluid Mechanics*, Lisbon, Portugal, (1994).

* Indicates Current or Former Advisee or Postdoc

PAPERS IN REVIEW OR PREPARATION:

- C. Turpen and N. Finkelstein, The construction of different classroom norms during *Peer Instruction*: Students perceive differences, *Physical Review*, (in review Oct 2009).
- C. Bailey and N. Finkelstein, "Teaching and Understanding of Quantum Interpretations in Modern Physics Courses," *Physical Review* (in review, Sept 2009).
- R. Lucesay, B. Gravel, L. Mayhew, and N.D. Finkelstein, "Learning Science Informally: Movie-making and Community Partnerships", *Physics Education*, in preparation.

POPULAR WRITINGS / PRESS / NEWS IN PHYSICS EDUCATION:

- N. Finkelstein, moderator / commenter, *The Purpose of the Universe is to Create God*, 61st Conference on 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 Year Reunion, CU Foundation/ Alumni Association, University of Colorado, May 8, 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?" University of Colorado, Research Experience for Undergraduates 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 and N Finkelstein, "Graduating Educated Graduate Students," *Newsletter of the American Physical Society's Forum on Education*, Spring 2006.
- N Finkelstein, "The Role and Promise of Physics Education Research." *American Physical Society 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. S. Pollock, N Finkelstein, K Perkins, S Chasteen, M Dubson, S Goldhaber, C Turpen "When Top Down Meets Bottom Up: Supporting Educational Transformation in a Physics Department," 2009 Summer Meeting: Ann Arbor, Michigan, Jul 2009.
2. V. Otero, N. Finkelstein, P. Beale, T. Gleeson, M. Klykowsky, L. Shepard, M. Stade, "The Boulder Approach to STEM Education and Teacher Preparation," Association for Public and Land-grant Universities, Science & Mathematics Teacher Imperative Conference, Boulder, CO. May 17-18, 2009.
3. 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].
4. 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
5. 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.

6. M. Cole, R. Lecusay, and N.D. Finkelstein, "Using Cultural-Historical Theories of Activity to Promote Science in After- school Learning Environments" Third Springer Forum on Cultural Studies in Science Education Center for Research in Mathematics & Science Education San Diego State University, April 12, 2009
7. V. Otero and N.D. Finkelstein, "Transforming undergraduates physics course using Learning Assistants," 2009 Physics Teacher Education Coalition Conference, Pittsburgh, PA, Mar 13, 2009.
8. 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.
9. N. D. Finkelstein, "Understanding When and Why Education Works: the role of new technologies in physics education," Joint Annual Meetings National Society of Hispanic Physicists National Society of Black Physicist, Nashville, TN, 13 Feb 2009
10. C. Henderson and N.D. Finkelstein, "Facilitating Change in Undergraduate STEM: The Need to Problematize and Improve Our Approaches to Change," 2009 Physics Teacher Education Coalition Conference, Pittsburgh, PA, Mar 13, 2009.
11. N. Finkelstein, "Educating Scientifically: Tools, Practices, and Implications of Physics Education Research," AAPT Mexico National Conference, Monterrey Mexico, Dec 12, 2008. [invited keynote]
12. N. Finkelstein, "University Community Partnerships in Informal Science Education," Breaking through Walls, Service Learning Symposium, University of Colorado, Oct 29, 2008. [invited]
13. N. Finkelstein, "Learning Assistants at CU-Boulder," Physics Teacher Education Coalition and NW Regional Meeting of the AAPT, Oct 10, 2008 [invited plenary]
14. N. Finkelstein, "Acting in Our Own Self-Interest: Blending University and Community" Physics Education Research Conference 2008, Edmonton CA, July 24, 2008. [invited]
15. N. Finkelstein, "Recognizing the Political Role of Physicists and Physics Teachers," Am. Assoc. of Physics Teachers Annual Meeting, Edmonton, CA, July 23, 2008, [invited]
16. 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, [invited]
17. C. Turpen and N.D. Finkelstein "Case Studies and Institutional Analysis of the Implementation of a Pedagogical Reform in Introductory Physics," Facilitating Change in STEM Education, Augusta, MI, Jun, 2008 [invited]
18. Henderson, C., Beach, A., Finkelstein, N., & Larson, R. S.. Preliminary Categorization of Literature on Promoting Change in Undergraduate STEM. *Paper presented at the Facilitating Change in Undergraduate STEM symposium*, Augusta, MI. Jun 2008 [invited].
19. 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 [invited]
20. 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 [invited]
21. 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 [invited]
22. 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. [invited]
23. 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. [invited]
24. 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. [invited]
25. 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 [invited]
26. K. Perkins and N.D. Finkelstein, "Assessing Virtual Environments," Am. Assoc. of Physics Teachers Annual Meeting, Syracuse, NY, Jul 2006 [invited]
27. 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 [invited]
28. 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. [invited]
29. N.D. Finkelstein, "Colorado PhysTEC and The Learning Assistant Model for Transforming Undergraduate Science Education," AAPT Annual Chair's Meeting, Washington DC, Jun 2006. [invited]
30. N.D. Finkelstein, "Reconsidering Tools and Contexts of Student Learning" NAS/NSF Invitational Workshop, Reconsidering the Textbook, Washington DC, May 2006 [invited]
31. N.D. Finkelstein, "Learning About the Physical World Virtually" Annual Meeting of the Physics Teacher Education Coalition (PTEC), Fayetteville AK, Mar 2006 [invited]

32. N.D. Finkelstein, "Sustainable and Scalable Reforms in Physics Education: Research studies from Colorado PhysTEC" American Physical Society Annual Meeting, Baltimore MD Mar 2006 [invited]
33. 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. [invited]
34. 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. [invited]
35. 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]
36. N. D. Finkelstein, C. Turpen, S. Pollock, M. Dubson, S. Iona, C. Keller, and V. Otero, "Colorado PhysTEC: a model of of research-based practices for teacher preparation," Physics Education Research Conference 2005, Aug 11-12, 2005 [invited]
37. N.D. Finkelstein, "Supporting Hybrid Worlds in Science and Education," Knowles Science Teaching Foundation, Annual Fellows Meeting, Colorado Springs, CO, Aug 2004. [invited]
38. 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 [invited]
39. N.D. Finkelstein, "The Context of Graduate Student Preparation in Physics," American Physical Society, Annual Meeting, Denver CO, May 2004 [invited]
40. N.D. Finkelstein, "Graduate Students Leading the Way: PER training in a traditional university department," Am. Assoc. of Physics Teachers, Miami Beach, Jan '04 [invited]
41. N.D. Finkelstein, "What Do We Know About Classroom Practices and Cognition in Physics?" Am. Assoc. of Physics Teachers, Miami Beach, Jan '04 [invited]
42. N.D. Finkelstein, "Graduating Professionals in Physics," Big 12 Physics Education Research Conference, Manhattan KS, Nov 2003. [invited]
43. N.D. Finkelstein, "Context in the Context of Physics and Learning," Physics Education Research Conference, Rochester, NY, July 26, 2001. [invited]
44. 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. [invited]
45. 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]

INVITED COLLOQUIA and UNIVERSITY TALKS:

1. N.D. Finkelstein, "Theories of Representation and Analogy Use by Students in Learning Physics," Rutgers University, Department of Physics, Sep 4, 2009.
2. Finkelstein, N., "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. (Outreach to Sate-Level Policy Makers)
3. N.D. Finkelstein, " Reconsidering Tools in STEM Education: The Use of Analogy and Representation," Department of Mathematics and Science Education, School of Engineering and Sciences, Clemson University, April 24, 2009. [invited]
4. N.D. Finkelstein, "Scholarly Education: Implications of Physics Education Research" GAANN Retreat, School of Engineering, University of Colorado, Apr 16, 2009. [invited]
5. N.D. Finkelstein, " Educating Scientifically: Tools, Practices, and of Physics Education Research," Physics Department, Uppsala University, Uppsala, Sweden, Feb 26, 2009. [invited]
6. N.D. Finkelstein, "Representations, Analogies and Learning Physics," University of California San Diego and San Diego State, MSED program, Oct 21, 2008. [invited]
7. N.D. Finkelstein, "Analogical Scaffolding, Representations and Meaning in Physics," University of Maryland, Physics Education Research Group Meeting, April 25, 2008. [invited]
8. N.D. Finkelstein, "Unpacking Representations, Meaning and How Students Use Analogies To Learn Physics," University of Illinois, Physics Education Group Meeting, April 24, 2008. [invited]
9. 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. [invited]
10. N.D. Finkelstein, "Making a Science N.D. Finkelstein, "Making a Science out of Science Education: Implications of Physics Education Research for Science Teaching" Astrophysics and Planetary Sciences Dept. Colloquium, Univ. Colorado, Jan 14, 2008.

11. 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.
12. 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.
13. N.D. Finkelstein, "Understanding the Tools Students Use to Learn Physics: Representation, Analogy, and Computer Sims" Joint Colloquium Center for Engineering Education and Outreach, Education Department, and Department of Physics, Tufts University, Medford, MA, Oct 18, 2007.
14. N.D. Finkelstein, "Educating Scientifically: Advances in Physics Education Research," Fermi National Accelerator Lab Colloquium, Batavia, IL, May 2007. [invited]
15. N.D. Finkelstein, "Applying Physics Education Research to the next generation of classroom practice" Department of Physics Colloquium, Emory University, Atlanta, GA, Apr 2007. [invited]
16. N.D. Finkelstein, "Advances in PER: New Directions and Findings in Physics Education" Physics Colloquium, University of Northern Colorado, CO, Apr 2007. [invited]
17. 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. [invited]
18. N.D. Finkelstein, "A Science of Science Education: studies of transforming undergraduate physics," Department of Physics Colloquium, Rutgers University, New Brunswick, NJ, Feb 2007. [invited]
19. 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 [invited]
20. N.D. Finkelstein, "Researching Reform: studies of transforming undergraduate physics," Departmental Colloquium, Department of Physics, University of Arizona, Tucson, AZ, Oct 2006 [invited]
21. 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 [invited]
22. N.D. Finkelstein, "The GK12: Educating Scientifically," CIRES GK12, Boulder, CO, Mar 2006 [invited]
23. N.D. Finkelstein, "Recent advances in Physics Education Research: examining contexts of student learning," Kansas State University, Department of Physics, Colloquium, Nov 29, 2005 [invited]
24. N.D. Finkelstein, "A Science of Science and Engineering Education," Tufts University, School of Engineering, Center for Engineering Education Outreach, Colloquium, Oct 24, 2005. [invited]
25. N.D. Finkelstein, "Thinking Scientifically about Science Education" Colorado School of Mines, Physics Department Colloquium, Sept 27, 2005. [invited]
26. 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 [invited]
27. N.D. Finkelstein, "The GK12 and discipline based education research at the university: a quick tour" CIRES GK12 Seminar, April 20, 2005. [invited]
28. 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. [invited]
29. N.D. Finkelstein, "Physics Education Research @ Colorado: Tutorials, Attitudes and Context," University of Washington, Physics Education Group, May 2004 [invited]
30. M. Dancy and ND Finkelstein, "A Discussion of PER, Economics, Politics, and Reform," University of Washington, Physics Education Group, May 2004 [invited]
31. N.D. Finkelstein, "Physics Education Research at Colorado: tools and implication for non-major astronomy classes," Departmental Colloquium, Astrophysical and Planetary Sciences, Feb 2004 [invited]
32. N.D. Finkelstein, "Realizing Our Potential: Making Tools and Contexts for Physics Education," Center for Adaptive Optics, University of California, Santa Cruz, May 2003. [invited]
33. N.D. Finkelstein, "Creating Hybrid Worlds in Science and Education," Departmental Colloquium, Department of Education, U.C., Santa Cruz, Mar 2003 [invited]
34. N.D. Finkelstein, "Physics Education Research: tools and contexts for educating students in physics," Physics Dept. Colloquium, University of Colorado, Boulder Feb 2003. [invited]
35. N.D. Finkelstein, "Physics Education Research and implications for educating at the university," Physics Departmental Colloquium, U.C., San Diego, Nov. 2002. [invited]
36. N.D. Finkelstein, "Preparing Future Physics Faculty: engaging physics graduate students in education," Two Year College Physics Conference, Palomar College, April 20, 2002 [invited]
37. 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. [invited]

38. 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.[invited]
39. 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 [invited]
40. N.D. Finkelstein, "Bridging Studies of Physics and Education," Colloquium Address, Graduate School of Education, U.C. Berkeley, May 2001. [invited]
41. N.D. Finkelstein, "Teaching Physics in Context: a model for coordinating education, outreach, and research," Physics Education Research Seminar, Department of Physics, University of Maryland, College Park, MD, March 30, 2000. [invited]
42. N.D. Finkelstein, "Technology in Education: a means of bridging text and context?" Teacher Education Program, University of California, San Diego, March 7, 2000. [invited]
43. 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. [invited]
44. N.D. Finkelstein, "Subverting Physics," Center for Research in Educational Equity Assessment and Teaching Excellence (CREATE), University of California, San Diego, Nov 3, 1999. [invited]
45. 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. [invited]
46. N.D. Finkelstein, "Stimulating and Exciting Light Activities: Lasers, Princeton and the Future," Sigma Xi public lecture series, Princeton University, Nov 9, 1997. [invited]

CONTRIBUTED PAPERS, POSTERS AND TALKS at NATIONAL CONFERENCES

1. 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.
2. C. Baily* and N. Finkelstein, "Understanding and Teaching Quantum Interpretations in Modern Physics Courses" Physics Education Research Conf. Ann Arbor MI, Jul, 2009
3. C. Turpen*, N. Finkelstein, and S. Pollock, "Towards Understanding Classroom Culture: Students' Perceptions of Tutorials" Physics Education Research Conf. Ann Arbor MI, Jul, 2009
4. J. Bartley*, M. Mayhew*, N. Finkelstein, "Reaching Students through Informal Science Education" Physics Education Research Conf. Ann Arbor MI, Jul, 2009.
5. L. Mayhew and N. Finkelstein, "Learning to Teach Science through Informal Science Education Experiences" Physics Education Research Conf. Ann Arbor MI, Jul, 2009.
6. B. Spike* & N. Finkelstein, "A Study of Undergraduate and Graduate Student Conceptions of Teaching" Physics Education Research Conf. Ann Arbor MI, Jul, 2009.
7. 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.
8. 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.
9. 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.
10. B. Spike, and N Finkelstein, "Research on Training Undergraduate and Graduate Student Instructors in Tutorials," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
11. 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.
12. L. Mayhew and N. Finkelstein, "Informal Science Teaching Experience Informs Formal Science Teaching Training," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
13. 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.
14. L. Kost, S. Pollock, and N Finkelstein, "Unpacking the Gender Gap in Introductory Physics," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
15. C. Baily and N. Finkelstein, "Varying Quantum Interpretations and Implications in Modern Physics Instruction," 2009 Summer Meeting AAPT: Ann Arbor, MI, Jul 2009.
16. C. Turpen and N. Finkelstein, "Instructional choices in the implementation of research-based physics educational materials," APS April Meeting, Denver, CO, May 4, 2009

17. L. Kost, S. Pollock and N.D. Finkelstein, "Examining the Gender Gap in Introductory Physics," APS April Meeting, Denver, CO, May 4, 2009
18. 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
19. 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.
20. N. Finkelstein and N. Podolefsky, "Analogical Scaffolding: The Use of Analogy and Representation to promote and understand conceptual learning in physics," Studying Conceptual Understanding in Physics" NARST 2009, Orange County, CA, Apr 2009
21. 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.
22. B. Gravel, N.D. Finkelstein, R. Lecusay, L. Mayhew, "Educational Technology Demonstrations: SAM" 2009 AAPT / AAAS Winter Meeting, Chicago IL, Feb 2009.
23. 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.
24. R. A Lecusay, B. Gravel, N. Finkelstein, L. Mayhew, "Using Telementoring to support afterschool education," 2009 AAPT / AAAS Winter Meeting, Chicago IL, Feb 2009.
25. 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
26. 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.
27. C. Henderson, A. Beach, N. Finkelstein, & R.S. Larson, "Facilitating Change in Undergraduate STEM: Preliminary Results from an Interdisciplinary Literature Review", Michigan Section of AAPT 2008 Fall Meeting, Port Huron, MI, Oct 11, 2008.
28. 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.
29. 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
30. 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.
31. C. Baily* and N.D. Finkelstein, "Student Understanding of Quantum Measurement and Uncertainty" 2008 Physics Education Research Conference, Edmonton, CA Jul 2008
32. 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.
33. 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.
34. 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.
35. C Henderson, A Beach, N Finkelstein, R. S Larson, "Facilitating Change in Undergraduate STEM: Preliminary Results from an Interdisciplinary Literature Review" *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.
36. 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.
37. 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.
38. 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.
39. 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.
40. 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.
41. C Baily,* N Finkelstein "Student Understanding of Measurement and Uncertainty in Quantum Physics," *American Association of Physics Teachers National Meeting*, Edmonton, Canada, Jul 2008.

42. 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.
43. 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.
44. 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.
45. 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
46. 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.
47. C. Turpen, N. Finkelstein, C. Keller, "Understanding Faculty Use of Peer Instruction," Physics Education Research Conference, Greensboro, NC, Aug 2007
48. 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
49. K. Perkins, C. Turpen, N. Finkelstien, and C. Keller, "Using Clickers in Upper-division Physics Courses: What do students think?" Physics Education Research Conference, Greensboro, NC, Aug 2007
50. 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
51. P. Kohl, and N. Finkelstien, "Expert and novice use of multiple representations in physics problem solving," Physics Education Research Conference, Greensboro, NC, Aug 2007
52. C. Keller, N. Finkelstein, S. Pollock, and C. Turpen, "Research-based Practices For Effective Clicker Use," Physics Education Research Conference, Greensboro, NC, Aug 2007
53. 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.
54. N. Podolefsky, N. Finkelstein, "How to teach with analogy - a research based approach," American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
55. 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.
56. 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.
57. 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.
58. 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.
59. 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.
60. 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.
61. C. Turpen, C. Keller, N. Finkelstein, "Understanding Faculty use of Peer Instruction," American Association of Physics Teachers National Meeting, Greensboro, NC, 2007.
62. N. Podolefsky, N. Finkelstein, "Teaching physics with analogies - an example from electromagnetic waves," American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
63. 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.
64. C Turpen, E Quinty, T Carroll, N. Finkelstein, "Engaging & Encouraging Children In Science and Assessing Success," American Association of Physics Teachers National Meeting, Greensboro, NC, Aug 2007.
65. E. Price and N. Finkelstein, "Preparing graduate students to be educators" American Physical Society National March Meeting Denver CO, Mar 2007
66. P. Kohl and N. Finkelstein, "The role of representation when solving physics problems" American Physical Society National March Meeting Denver CO, Mar 2007
67. 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
68. S. Pollock and N. Finkelstein, "Sustaining Educational Innovation: engaging traditional faculty in transformed practices" American Physical Society National March Meeting Denver CO, Mar 2007
69. E J. Quinty, 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

70. 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
71. 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.
72. 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.
73. 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.
74. 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.
75. 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.
76. 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.
77. 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.
78. 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.
79. 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.
80. S.J. Pollock and N.D. Finkelstein, "Sustaining Change: Instructor Effects in Transformed Large Lecture Courses," Physics Education Research Conference, Syracuse NY, Jul 2006.
81. 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.
82. 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
83. S.J. Pollock and N.D. Finkelstein, "Replicating and Maintaining Successful Teaching Innovations," American Association of Physics Teachers National Meeting, Syracuse, NY, Jul 2006
84. P.B. Kohl, D. Rosengrant, and N.D. Finkelstein, "Multiple Representations and Problem Solving I: Student Performance in Different Environments," American Association of Physics Teachers National Meeting, Syracuse, NY, Jul 2006
85. 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
86. 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
87. N.S. Podolefsky and N.D. Finkelstein, "Teaching EM Waves via Analogies," American Association of Physics Teachers National Meeting, Syracuse, NY, Jul 2006
88. 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
89. 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
90. 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.
91. 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]
92. 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
93. 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]
94. 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.
95. 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.

96. 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.
97. S. Pollock and N.D. Finkelstein, "Replicating Reforms: Characterizing a Successful Secondary Implementation of Tutorials In Introductory Physics," International Society for the Scholarship of Teaching and Learning, Annual Conference, Vancouver Oct 2005.
98. 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.
99. 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.
100. P.B. Kohl and N.D. Finkelstein, "Representational Competence and Introductory Physics" Physics Education Research Conference 2005, Aug 11-12, 2005.
101. 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.
102. 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.
103. 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," American Association of Physics Teachers National Meeting, Aug 6-10, 2005.
104. 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.
105. 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.
106. 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.
107. 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.
108. K. Perkins, W. Adams, S.J. Pollock, N.D. Finkelstein, C.E. Wieman, "Correlating Students' Beliefs About Physics with Learning, Retention, and Recruitment," American Association of Physics Teachers National Meeting, Aug 6-10, 2005.
109. W. Adams, K. Perkins, N. Podolefsky, N.D. Finkelstein, C.E. Wieman, "Men and Women Know Experts' Beliefs About Science, but Disagree," American Association of Physics Teachers National Meeting, Aug 6-10, 2005.
110. 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.
111. 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.
112. 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,
113. N.D. Finkelstein and S. Rosenberg "When the Classroom Isn't School: PER for Social Inclusion in the Sciences" Meeting: 2005 American Association of Physics Teachers National Meeting Albuquerque, NM, Jan 2005.
114. 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.
115. K. Perkins, W. Adams, N.D. Finkelstein, S. Reid, R. LeMaster, M.Dubson, N. Podoolefsky, and C.E. Wieman, "Incorporating PhET Simulations into Courses and Impacts on Student Learning" American Association of Physics Teachers National Meeting, Albuquerque, NM, Jan 2005.
116. 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.
117. N.D. Finkelstein, K. Perkins, W. Adams, N. Podolefsky, "Can Computer Simulations Replace Real Lab Equipment?" Physics Education Research Conference. Sacramento CA, Aug 2004.
118. N.D. Finkelstein, "Constructing Reality: Contexts Supporting (and Inhibiting) Students' Representing the World Through Physics," American Association of Physics Teachers National Meeting, Sacramento, CA, Aug 2004.

119. W Adams, ND Finkelstein, C Wieman, "Using the Colorado Learning Attitudes About Science Survey to Probe Students' Attitudes and Beliefs About Reality," American Association of Physics Teachers National Meeting, Sacramento, CA, Aug 2004.
120. K Perkins, W Adams, ND Finkelstein, C Wieman, "Learning Physics with Simulations: The Role of Interactivity, Animation, and Context," American Association of Physics Teachers National Meeting, Sacramento, CA, Aug 2004.
121. 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.
122. 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," American Association of Physics Teachers National Meeting, Sacramento, CA, Aug 2004.
123. 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.
124. 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.
125. 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.
126. K. Perkins, W Adams, ND Finkelstein, C Wieman, "Incorporating Simulations in the Classroom: A Survey of Research Results from the PhET Project," American Association of Physics Teachers National Meeting, Sacramento, CA, Aug 2004.
127. 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.
128. 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.
129. 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.
130. 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.
131. 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.
132. 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
133. 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.
134. N.D. Finkelstein, "Evaluation of Contextual Factors in Learning Physics," National Association for Research in Science Teaching, St. Louis, MO, Mar, 2001.
135. 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.
136. N.D. Finkelstein, "Bridging Studies of Physics and Education," Physics Education Research Conference, Guelph, ON, Aug, 2000.
137. N.D. Finkelstein, "Contextual Dependence of Physics Learning," Physics Education Research Conference, Guelph, ON, Aug. 2000.
138. N.D. Finkelstein, "Coordinating Science Education, Outreach, and Research," National Association for Research in Science Teaching Annual Conference, New Orleans, LA, Apr 2000.
139. N.D. Finkelstein, "Teaching, Research, and Outreach - Science Education," Gordon Conference: Innovations in College Chemistry Teaching, New London CT, Jun 1999.
140. 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.
141. A. Yalin, N.D. Finkelstein, and R.B. Miles, "UltraViolet Rotational Raman Spectroscopy with Atomic Resonance Filters," paper 98-0311, American Institute of Aeronautics and Astronautics, 36th Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan 1998.
142. 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.

143. 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.
144. 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.
145. 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.
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