David R. Sokoloff

Curriculum Vita

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David Sokoloff is Professor of Physics, Emeritus at the University of Oregon, Eugene, Oregon. He earned his Ph.D. in AMO Physics at the Massachusetts Institute of Technology in 1972 under Ali Javan. For over three decades, he has studied students' conceptual understandings, and developed active learning approaches (with NSF and FIPSE support) including *RealTime Physics: Active Learning Laboratories (RTP)* and *Interactive Lecture Demonstrations (ILDs)* (both published by Wiley). He has conducted numerous international, national and local institutes and workshops to disseminate these active learning approaches to secondary and university faculty. Since 2004, he has been part of a UNESCO team presenting active learning workshops in developing countries, *Active Learning in Optics and Photonics (ALOP)*—presented to date in over 30 countries in Africa, Asia, Latin America and Eastern Europe/EurAsia. He is contributor to and editor of the *ALOP Training Manual.* He has been honored by the 2020 AAPT Hans Christian Oersted Medal for his "outstanding, widespread, and lasting impact on the teaching of physics," the 2020 GIREP Medal, the 2007 AAPT Robert A. Millikan Medal, the 2010 APS Excellence in Physics Education Award, the 2011 SPIE Educator Award, the 2011 Latin American Physics Education Network (LAPEN) Medal, and 2011 and 2018 Fulbright Senior Specialist Grants in Argentina and Japan. He served as President of AAPT in 2011 and is currently a member of IUPAP Commission 14—Physics Education.

EDUCATION:

Ph.D., Massachusetts Institute of Technology, Cambridge, 1972.

B.A., Queens College of the City University of New York, Flushing, New York, 1966.

PROFESSIONAL EXPERIENCE:

Adjunct Professor of Physics, Portland State University, July 1, 2015 – June 30, 2019.

President, American Association of Physics Teachers, 2011. (Vice President, 2009; President-elect, 2010; Past President, 2012).

Visiting Scholar, Faculty of Engineering and Industrial Sciences, Swinburne University of Technology, Hawthorn, Victoria, Australia, October 9-16, 2006 and February 12-19, 2007.

Visiting Professor, Departamento de Fisica, Fac. de Cs.Fis.Mat.y Naturales, Universidad Nacional de San Luis, San Luis, Argentina, September 26-October 7, 2006.

Professor of Physics, Emeritus, University of Oregon, June, 2003 –

Professor of Physics, University of Oregon, September, 1998 – May, 2003

Associate Professor of Physics and Associate Chair, University of Oregon, July, 1980 - September, 1998.

Visiting Research Professor and Acting Associate Director, Center for Science and Mathematics Teaching, Tufts University, September, 1993 - August, 1994.

Visiting Research Professor, Center for Science and Mathematics Teaching, Tufts University, April - September, 1989, July - August, 1990, July - August, 1991.

Visiting Scholar, Center for Science and Mathematics Teaching, Tufts University, June-September, 1988 and June - September, 1987.

Visiting Professor of Physics, California Polytechnic State University, San Luis Obispo, September, 1986 - June, 1987.

Science Director, Willamette Science and Technology Center, September, 1980 - February, 1982.

Assistant Professor of Physics and Assistant to the Chairman, University of Oregon, May, 1978 - July, 1980.

Assistant Professor of Physics, University of Michigan-Dearborn, 1972 -1978.

Assistant Professor of Physics, Western Illinois University, 1971 - 1972.

Part-time teaching assistant, Massachusetts Institute of Technology, 1969 - 1971.

Physicist, University of California Lawrence Radiation Laboratory, Livermore, California, June 1967 - September, 1967.

FELLOWSHIPS, AWARDS, MEMBERSHIPS, ETC.:

American Institute of Physics Oral History. Niels Bohr Library link: https://www.aip.org/history-programs/niels-bohr-library/oral-histories/47457

GIREP Medal, Groupe International de Recherche sur l'Enseignement de la Physique, 2020.

Hans Christian Oersted Medal, American Association of Physics Teachers, 2020.

Fulbright Senior Specialist Grant, J. William Fulbright Foreign Scholarship Board, (Niigata, Takamatsu and Tokyo, Japan), August 6-20, 2018.

Member Commission on Physics Education (IUPAP Commission 14), 2018 –

Fellow of the American Association of Physics Teachers Fellow, selected 2014.

Fulbright Senior Specialist Grant, J. William Fulbright Foreign Scholarship Board, (San Luis and Cordoba, Argentina), May 13-27, 2011.

SPIE Educator Award, 2011, SPIE (with the Active Learning in Optics and Photonics team).

Latin American Physics Education Network (LAPEN) Medal, 2011.

Excellence in Physics Education Award, American Physical Society, 2010 (with Priscilla Laws, Ronald Thornton and the Activity Based Physics Group).

Robert A. Millikan Award, American Association of Physics Teachers, 2007.

Distinguished Service Citation, American Association of Physics Teachers, 1997.

Duane Marshall Award, Oregon Science Teachers' Association, 1992.

Appointed member, State of Oregon Mathematics, Science and Technology Council, 1992 - 94.

Appointed member of American Association of Physics Teachers Research in Physics Education Committee, 1992 - 95.

Member, American Association of Physics Teachers.

Member, National Science Teachers Association.

Member, Society for College Science Teachers.

National Science Foundation Graduate Fellowship (1966-1971).

Lawrence Radiation Laboratory Summer Research Appointment (1967).

Phi Beta Kappa.

GRANTS:

1. July 1, 2015-June 30, 2018, National Science Foundation DUE, “Distance-Learning Labs for Introductory Physics,” Co Principal Investigator with Erik Bodegom and Erik Jensen, $192,460.
2. May 15, 2007-April 30, 2012, National Science Foundation, Course, Curriculum and Laboratory Improvement, Phase I, “Adapting *Interactive Lecture Demonstrations* (ILDs) for Use with Personal Response Systems (PRS),” $149,996. Co Principal Investigator Ronald Thornton.
3. October 1, 2004 – September 30, 2010, National Science Foundation, Course, Curriculum and Laboratory Improvement National Dissemination Grant (CCLI-ND), “The Activity Based Physics Faculty Institutes,” $492,952 to conduct summer faculty institutes for 160 two-year college, college and university faculty on the use of *Physics Suite* materials to implement active learning. Principal Investigator. Co-Principal Investigators are Priscilla Laws, Ronald Thornton and Patrick Cooney.
4. January 1, 2005 – December 31, 2008, National Science Foundation, Course, Curriculum and Laboratory Improvement Educational Materials Development Grant (CCLI-EMD), “Web-Delivered *Interactive Lecture Demonstrations* (Web*ILD*): Creating an Active Science Learning Environment Over the Internet,” $249,917 to extend the development of Web-delivered *Interactive Lecture Demonstrations* to areas of physics beyond mechanics. Co-Principal Investigator with Ronald Thornton.
5. November 1, 2001 – October 31, 2005, U.S. Department of Education, Fund for the Improvement of Post-Secondary Education, “Creating an Active Learning Environment over the Internet,” $497,148 (with Ronald Thornton).
6. January 1 – December 31, 2002, National Science Foundation grant from Peer-Led Team-Learning: National Dissemination by the Workshop Project, "CP/PLTL Curriculum Development Project," $13,873 develop collaborative, peer-led tutorials for PLTL workshops.
7. December, 2000 - December, 2001, extension of U.S. Department of Education, Fund for the Improvement of Post-Secondary Education, “*RealTime Physics* and *Interactive Lecture Demonstrations* Dissemination Project,” $10,172.

8. August 15, 2000 - August 31, 2001, National Science Foundation grant from Peer-Led Team-Learning: National Dissemination by the Workshop Project, "Peer-Led Learning Workshop in General Physics at the University of Oregon," $7,497 to institute peer-led workshops as part of PHYS 201,202,203 during the 2000-2001 academic year.
9. September, 1999 - August, 2003, National Science Foundation Teacher Enhancement (TE) grant, "Teacher Leader Institutes to Support the Dissemination of Activity-Based Physics Teaching Methods," $982,555 to plan, design and prepare materials, and conduct 8 Summer institutes at the University of Oregon and Dickinson College. Co-Principal Investigator with Priscilla Laws, Patrick Cooney, Ronald Thornton, John Garrett and Maxine Willis.
10. August 1, 1999 - July 31, 2002, National Science Foundation Course, Curriculum and Laboratory Improvement (CCLI) grant, "Activity-Based Physics Suite," $99,963 to design and test *Interactive Lecture Demonstrations* in topic areas beyond mechanics. Co-Principal Investigator with Priscilla Laws and Ronald Thornton.
11. October, 1998 - December, 2000, U.S. Department of Education, Fund for the Improvement of Post-Secondary Education, "*RealTime Physics* and *Interactive Lecture Demonstrations* Dissemination Project," $179,686 for dissemination of active learning curricula to Hunter College, U.S. Naval Academy, University of Massachusetts, Dartmouth, Salt Lake Community College, Pacific University and California State Polytechnic University, San Luis Obispo. Principal Investigator.
12. July, 1997 - June, 2002, National Science Foundation "Oregon Collaborative for Excellence in the Preparation of Teachers (OCEPT)," $4,999,777, to direct State of Oregon activities for the improvement of undergraduate science, math and technology education and training of teachers. Co-Principal Investigator with Marj Enneking, et. al.
13. May, 1995 - July, 1999, National Science Foundation, Course and Curriculum Development (CCD) grant, "Activity Based Physics: Curricula, Computer Tools, and Apparatus for Introductory Physics Courses," $1,775,000. To continue research and development of introductory laboratory curricula, *Interactive Lecture Demonstrations*, to adapt materials for use in science teacher preparation and enhancement, and to run an enhancement program for in-service high school physics teachers. Co-Principal Investigator with Priscilla Laws, Ronald Thornton, Patrick Cooney and Joe Redish.
14. September, 1995 - August, 1996, U.S. Department of Education, Secretary's Fund for Innovation in Education, "Student Oriented Science: MBL for High School Teachers," $25,518 UO subcontract. Director of Regional Outreach Center. Funding to present two workshops during 1995-96 for high school physics teachers, science administrators and university faculty involved in teacher preparation.
15. September, 1994 - August, 1997, National Science Foundation, Instrumentation and Laboratory Improvement (ILI) Leadership in Laboratory Development grant, "*RealTime Physics* II: Active University Laboratories Based on Workshop Physics and Tools for Scientific Thinking," Co-Principal Investigator with Priscilla Laws and Ronald Thornton, $100,000 (UO subcontract $35,814). To research and develop student laboratory activity guides in thermodynamics and light and optics for interactive teaching of physics at the introductory college level.
16. September, 1994- August, 1995, U.S. Department of Education, Secretary's Fund for Innovation in Education, "Student Oriented Science: MBL for High School Teachers," $24,655 UO subcontract. Director of Regional Outreach Center. Funding to present two workshops during 1994-95 for high school physics teachers, science administrators and university faculty involved in teacher preparation.
17. September, 1993-August, 1994, U.S. Department of Education, Secretary's Fund for Innovation in Education, "Student Oriented Science: MBL for High School Teachers," $15,235 subcontract. Director of Regional Outreach Center. Funding to present a workshop during 1993-94 for high school physics teachers, science administrators and university faculty involved in teacher preparation.
18. Howard Hughes Medical Institute Undergraduate Biological Sciences Education Program, Director of Physics Curriculum Development and Outreach programs, $1,000,000 ($453,000 Physics Department share) over 1992-97 for introductory physics course development and outreach programs for middle school, secondary and community college teachers.
19. University of Oregon Strategic Planning funds, $18,500 to implement interactive learning through interactive tutorials in the general physics course, 1992.
20. September, 1991 - March, 1994, National Science Foundation, Instrumentation and Laboratory Improvement (ILI) Leadership in Laboratory Development grant, "The Workshop Physics Laboratory Featuring Tools for Scientific Thinking," Co-Principal Investigator with Priscilla Laws and Ronald Thornton, $86,008 ($25,944 UO subcontract). To research and develop student laboratory activity guides for interactive teaching of physics at the introductory college level.
21. July, 1991 , U.S. Department of Education Dwight D. Eisenhower Mathematics and Science Education Improvement Program, "Oregon Teachers' Institute for Interactive Physical Science (TIIPS)," Principal Investigator, $31,768. To train 16 Lane County middle school teachers during 1991-93 in the use of hands-on, interactive discovery-based materials to teach physical science concepts.

22. October, 1990, U.S. Department of Education Dwight D. Eisenhower Mathematics and Science Education Improvement Program, "Oregon Scientific Thinking: Implementation and Research (STIR)," Principal Investugator, $31,083. To train 14 Oregon high school teachers during 1991-92 in the use of microcomputer-based laboratories (MBL) to teach physics and physical science, distribute MBL equipment and curriculum, sponsor regional teacher workshops on MBL and continue a research study on the effectiveness of the MBL materials.
23. March, 1990, Apple, Inc., $9,594 in equipment (matched by $9,701 from College of Arts and Sciences) for development of Microcomputer-Based Laboratory and Interactive Physics laboratory exercises and lecture demonstrations.
24. November, 1989 , U.S. Department of Education Dwight D. Eisenhower Mathematics and Science Education Improvement Program, "Oregon Scientific Thinking: Implementation and Research (STIR)," Principal Investigator, $29,968. To train 15 Oregon high school teachers during 1990-91 in the use of microcomputer-based laboratories (MBL) to teach physics and physical science, distribute MBL equipment and curriculum, sponsor regional teacher workshops on MBL and continue a research study on the effectiveness of the MBL materials.
25. Co-Director of LabNet, Center for Science and Mathematics Teaching, Tufts University, July 13 - August 10, 1990 and July 10 - August 11, 1989 (with Ronald Thornton). National Science Foundation sponsored program to introduce project-based learning into physics instruction at the secondary level using microcomputer-based tools and telecommunications.
26. August, 1988, U.S. Department of Education Title II, "Oregon Scientific Thinking--Implementation and Research (STIR)," Principal Investigator, $29,466. (Supplemented by a $1500 grant from Lane Education Service District.) To train 17 Oregon high school teachers during 1988-90 in the use of microcomputer-based laboratories (MBL) to teach physics and physical science, distribute MBL equipment and curriculum and conduct a research study on the effectiveness of the MBL materials.
27. Principal instructor of National Microcomputer-Based Laboratory Institute for High School Physics Teachers, Tufts University, summer 1987 and summer 1988. Sponsored by the U.S. Department of Education, Secretary's Discretionary Fund. Also Director of Western Regional Follow-up Center for this program.
28. National Science Foundation, "Oregon Science and Mathematics Institute for Teaching Excellence (SMITE)," Principal Investigator, $143,000. For institute and follow-up activities for exemplary science and mathematics teachers in Washington, Oregon, Idaho, Montana and Nevada, 1984-86.
29. U.S. Department of Energy Faculty Development Program, $15,319 to conduct a Summer Energy Workshop for middle school teachers, "Energy Production and Use in the Pacific Northwest," Summer, 1982 (Co-Principal Investigator with Dr. Alan Hughes, Energy Education Consultant, Eugene Water and Electric Board).
30. U.S. Department of Energy Faculty Development Program, $19,458 to conduct a Summer Energy Workshop for middle school teachers, "Energy Production and Use in the Pacific Northwest," Summer, 1981 (Co-Principal Investigator with Dr. Alan Hughes, EWEB).
31. U.S. Department of Energy Faculty Development Program, $23,571 to conduct a Summer Energy Workshop for middle school teachers, "Energy Production and Use in the Pacific Northwest," Summer, 1980 (Co-Principal Investigator with Dr. Alan Hughes, EWEB).
32. Grants as Science Director of Willamette Science and Technology Center (WISTEC): The Donald R. Barker Foundation, $12,500 for general operating support, November, 1981. The Oregon Community Foundation, $2,500 for construction of a solar telescope, July, 1981. City of Eugene Room Tax Fund, $1,250 for half-price admissions, November, 1981. Symonds Charitable Trust, $5,000 for general operating support, December, 1981. Northwest College and University Association for Science, $2000 to deliver energy workshops, October, 1979.

INVITED LECTURES, SEMINARS, WORKSHOPS AND COURSES:

1. "Home-Adapted Interactive Lecture Demonstrations (ILDs): Active Learning at Home," Oregon AAPT Meeting, Salem, OR, March 9, 2024.
2. "Interactive Lecture Demonstrations (ILDs): A Research-Validated Strategy to Improve Learning in Introductory Physics Lecture *(and Virtually)*, *Physics Today*: Education Workshop Series, January 18, 2024.
3. "Interactive Lecture Demonstrations: A Research-Validated Strategy to Improve Learning in Introductory Physics," invited talk, American Association of Physics Teachers Summer Meeting, July 18, 2023.
4. "Fun, Engaging, Effective, Research-Validated Introductory Labs and Demos, Including Virtual Learning Options," invited workshop, American Association of Physics Teachers Summer Meeting, July 15, 2023.
5. "Introduction to Active Learning in Optics and Photonics (ALOP), workshop, GIREP Conference 2023, July 6, 2023, Kosice, Slovakia.
6. " Home-Adapted Interactive Lecture Demonstrations: Active Learning at Home," workshop, GIREP Conference 2023, July 4, 2023, Kosice, Slovakia.

7. Invited 3-session minicourse "Active Learning Strategies for Lab, Lecture and Home," as part of the XXX Puebla International Workshop--New Trends in Physics Teaching, Benemérita Universidad Autónoma de Puebla, Facultad de Ciencias Físico-Matemáticas, Puebla, Mexico, May 25-28, 2023.
8. "Active Learning of Optics and Photonics Including Virtual Options," invited talk at Education and Training in Optics and Photonics (ETOP), Cocoa Beach, FL, May 17, 2023.
9. "Introduction to Active Learning in Optics and Photonics (ALOP)," workshop at Education and Training in Optics and Photonics (ETOP), Cocoa Beach, FL, May 17, 2023.
10. "Adapting Interactive Lecture Demonstrations (ILDs) for Home Use," Invited virtual talk, Reunión Annual: SMF División de Enseñanza División de Enseñanza de la Física (Mexican Physical Society Education Division), Mexico City, MX, April 27, 2023.
11. "Using Available Multimedia to Adapt Interactive Lecture Demonstrations (ILDs) for Home Use," invited talk, American Association of Physics Teachers Winter Meeting, Portland, OR, January 17, 2023.
12. "Interactive Lecture Demonstrations: A Research-Validated Strategy to Improve Learning in Introductory Physics," invited lecture, American Association of Physics Teachers Winter Meeting, Portland, OR, January 17, 2023.
13. "Fun, Engaging, Effective, Research-Validated Introductory Labs and Demos, Including Virtual Learning Options," invited workshop, American Association of Physics Teachers Winter Meeting, Portland, OR, January 14, 2023.
14. "Active Learning in Optics and Photonics (ALOP): A Virtual Workshop," International Conference on Physics Education (ICPE), University of New South Wales, Sydney, Australia, December 6-7, 2022.
15. "Interactive Lecture Demonstrations (ILDs): A Research-Validated Strategy for Active Learning in Lecture," and "Going Deeper with ILDs," invited in person presentations, APS/AAPT New Faculty Workshop, July 26, 2022.
16. "Fun, Engaging, Effective, Research-Validated Introductory Labs and Demos, Including Virtual Learning Options," invited virtual workshop, American Association of Physics Teachers Summer Meeting, July 16, 2022.
17. "Interactive Lecture Demonstrations: A Research-Validated Strategy to Improve Learning in Introductory Physics," invited virtual workshop, American Association of Physics Teachers Summer Meeting, July 16, 2022.
18. Home-Adapted ILDS—Interactive Lecture Demonstrations Adapted for Active Virtual Learning," invited virtual workshop, GIREP Conference 2022, University of Ljubljana, Slovenia, July 4, 2022.
19. "Multimedia Resources, Physics Education Research (PER) and the Development of Activities for Virtual Learning," Frontiers of Fundamental Physics conference (FFP16), University of Istanbul, Turkey, May 25, 2022. (Virtual) YouTube link: https://www.youtube.com/watch?v=MGQo8gAs5OY
20. "Active Learning in Optics and Photonics (ALOP): A Virtual Workshop," World Conference on Physics Education (WCPE3), Hanoi National University of Education, Hanoi, Vietnam, December 15-16, 2021.
21. "Interactive Lecture Demonstrations (ILDs): A Research-Validated Strategy for Active Learning in Lecture," virtual APS/AAPT New Faculty Workshop, November 12, 2021.
22. "Physics Education Research and the Development of Research-Validated Active Learning Strategies," virtual plenary talk, Japan Society for Science Education, October 2, 2021.
23. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," virtual plenary talk, Faculty Development Program on Optics and Photonics, Department of Photonics, Rajarshi Shahu Mahavidyalaya (Autonomous), Latur, Maharashtra India, September 20, 2021.
24. "Active Learning in Optics and Photonics: Enhancing Physics Learning Through Active Engagement of Students," invited workshop as part of Inter-American Teacher Education Network Virtual Seminar, Organization of American States, August 27, 2021.
25. "Interactive Lecture Demonstrations (ILDs): A Research-Validated Strategy for Active Learning in Lecture," virtual APS/AAPT New Faculty Workshop, June 29, 2021.
26. "Adapting Research-Validated *Interactive Lecture Demonstrations (ILDs)* and *RealTime Physics (RTP)* for Active Distance Learning," virtual colloquium, University of Delaware, February 24, 2021.
27. "Interactive Lecture Demonstrations (ILDs) and RealTime Physics (RTP) Adapted for Active Distance Learning," invited virtual workshop, American Association of Physics Teachers, January 17, 2021.
28. "Adapting Interactive Lecture Demonstrations (ILDs) for Home Use," Virtual Plenary, Chilean Society of Physics national meeting, November 24, 2020.
29. "Exploring Multimedia to Adapt Interactive Lecture Demonstrations (ILDs) for Home Use," Plenary, GIREP Webinar, Malta, November 16, 2020.
30. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," plenary, Faculty Development Program on Optics and Photonics, Department of Photonics, Rajarshi Shahu Mahavidyalaya (Autonomous), Latur, Maharashtra India, November 2, 2020.

31. "Adapting Research-Validated Interactive Lecture Demonstrations (ILDs) for Active Distance Learning," virtual talk, Oregon AAPT meeting, October 17, 2020.
32. "Home Adapted Interactive Lecture Demonstrations (ILDs) for Active Distance Learning", virtual outreach workshop, University of Pittsburgh, August 5, 2020.
33. "Interactive Lecture Demonstrations (ILDs) and RealTime Physics (RTP) Adapted for Active Distance Learning," invited virtual workshop, American Association of Physics Teachers, July 11, 2020.
34. "If Opportunity Doesn't Knock, Build a Door: My Path to Active Dissemination of Active Learning," invited plenary talk for award of Oersted Medal, American Association of Physics Teachers Winter Meeting, Orlando, FL, January 21, 2020.
35. "Interactive Lecture Demonstrations: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Winter Meeting, Orlando, FL, January 21, 2020.
36. "Fun, Engaging and Effective Labs and Demos with Clickers, Video Analysis and Computer-Based Tools," half-day workshop, Association of Physics Teachers Winter Meeting, Orlando, FL, January 19, 2020.
37. "Active Learning with Optics Magic," presentation to high school teachers and students, at Lila Poonawalla Foundation school, Pune, India, December 14, 2019.
38. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop plus training of assistant facilitators, Pune, India, December 9-13, 2019.
39. "Active Learning with Interactive Lecture Demonstrations," and "Going Deeper with ILDs," invited sessions at New Faculty Workshop, American Association of Physics Teachers, College Park, MD, November 15, 2019.
40. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop plus training of assistant facilitators, Bandung, Indonesia, October 4-10, 2019.
41. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Lima, Peru, August 18-21, 2019, part of the OAS ITEN Workshop Program.
42. "Engaging Students in Learning About Optics: UNESCO Active Learning in Optics and Photonics (ALOP)," plenary, OAS ITEN Seminar, Lima, Peru, August 22, 2019.
43. "Interactive Lecture Demonstrations: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Summer Meeting, Provo, UT, July 22, 2019.
44. "Fun, Engaging and Effective Labs and Demos with Clickers, Video Analysis and Computer-Based Tools," half-day workshop, Association of Physics Teachers Summer Meeting, Provo, UT, July 21, 2019.
45. "Research-Based Active Learning in Introductory Physics—NEW: Including RealTime Physics 3rd Edition, Clicker Interactive Lecture Demos and Video Analysis," Active Learning Short Course, July 15-17, 2019, Vernier Software and Technology, Portland, OR (with Ronald Thornton).
46. "Active Dissemination—Over Three Decades of Faculty Development in Active Learning," plenary, GIREP-ICPE-EPEC-MPTL Conference, Budapest, Hungary, July 3, 2019.
47. "Using Research-Validated *Interactive Lecture Demonstrations (ILDs)* to Improve Students' Conceptual Understanding—Including the Use of Clickers, workshop, GIREP-ICPE-EPEC-MPTL Conference, Budapest, Hungary, July 4, 2019.
48. "Active Learning with Interactive Lecture Demonstrations," and "Going Deeper with ILDs," invited sessions at New Faculty Workshop, American Association of Physics Teachers, College Park, MD, June 25, 2019.
49. "Interactive Lecture Demonstrations: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Winter Meeting, Houston, TX, January 13, 2019.
50. "Fun, Engaging and Effective Labs and Demos with Clickers, Video Analysis and Computer-Based Tools," half-day workshop, Association of Physics Teachers Winter Meeting, Houston, TX, January 13, 2019.
51. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Guayaquil, Ecuador, November 12-16, 2018.
52. "Engaging Students with Research-Validated Uses of Technology: Computer Data Acquisition, Video Analysis, Personal Response Systems and Distance Learning," Physics Colloquium, Hamilton College, October 29, 2018.
53. "Active Learning with Interactive Lecture Demonstrations," and "Going Deeper with ILDs," invited sessions at New Faculty Workshop, American Association of Physics Teachers, College Park, MD, October 26, 2018.
54. "Adapting *RealTime Physics* for Distance Learning with IOLab—a Model for Effective Curriculum Development," invited plenary talk, International Conference on Physics Education, Johannesburg, South Africa, October 1, 2018.
55. *"Interactive Lecture Demonstrations* – A Research-Validated Strategy for Making Learning in a Large (or Small) Lecture More Active," invited workshop, International Conference on Physics Education, Johannesburg, South Africa, October 5, 2018.

56. "Using Research-Validated *Interactive Lecture Demonstrations (ILDs)* to Improve Students' Conceptual Understanding of Heat and Temperature and Electric Circuits," invited workshop, August 16, 2018 Tokyo Gakugei University, Tokyo, Japan, (part of Fulbright project, August 6-20, 2018.)
57. "Using Research-Validated *Interactive Lecture Demonstrations (ILDs)* to Improve Students' Conceptual Understanding—Including the Use of Clickers," invited workshop, August 14, 2018 Tokyo City University, Tokyo, Japan, (part of Fulbright project, August 6-20, 2018.)
58. "Using Research-Validated *Interactive Lecture Demonstrations (ILDs)* to Improve Students' Conceptual Understanding," invited workshop at The Physics Education Society of Japan Conference, Kagawa University, Takamatsu, Japan, August 12, 2018, (part of Fulbright project, August 6-20, 2018.)
59. "Using Research-Validated *Interactive Lecture Demonstrations (ILDs)* to Improve Students' Conceptual Understanding," invited Active Learning Workshop, August 8-10, 2018, University of Niigata, Niigata, Japan, (part of Fulbright project, August 6-20, 2018.)
60. "Interactive Lecture Demonstrations: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Summer Meeting, Washington, DC, July 30, 2018.
61. "Fun, Engaging and Effective Labs and Demos with Clickers, Video Analysis and Computer-Based Tools," half-day workshop, American Association of Physics Teachers Summer Meeting, Washington, DC, July 29, 2018.
62. "IOLab—Computer-Based Distance Learning Laboratories in Mechanics Based on *RealTime Physics*," invited workshop, GIREP/MPTL/EPEC Conference, San Sebastian, Spain, July 10, 2018.
63. "Active Learning with Optics Magic," Scuola Estiva Nazionale per Studenti sulla Fisica Moderna 2018 (SENS-FM18), Universita Degli Studi di Udine, June 29, 2018.
64. "Active Learning with Interactive Lecture Demonstrations," and "Going Deeper with ILDs," invited sessions at New Faculty Workshop, American Association of Physics Teachers, College Park, MD, June 26, 2018.
65. "Research-Based Active Learning in Introductory Physics—NEW: Including RealTime Physics 3rd Edition, Clicker Interactive Lecture Demos and Video Analysis," Active Learning Short Course, July 19-21, 2018, Vernier Software and Technology, Portland, OR (with Ronald Thornton).
66. "Adapting RealTime Physics for Distance Learning with IOLab—a Final Report," Oregon AAPT, Lane Community College, Eugene, OR, March 10, 2018 (with Erik Jensen and Erik Bodegom).
67. "Active Learning in Optics and Photonics," active learning workshop, National Initiative for Undergraduate Science, Homi Bhabha Centre for Science Education, Mumbai, India, January 10-11, 2018.
68. "Interactive Lecture Demonstrations (ILDs): An Effective Strategy for Lectures," invited review paper, epiSTEME-7 Conference, Homi Bhabha Centre for Science Education, Mumbai, India, January 7. 2018.
69. "Active Learning with Interactive Lecture Demonstrations," invited session at New Faculty Workshop, American Association of Physics Teachers, College Park, MD, November 3, 2017.
70. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Kiev, Ukraine, October 23-27, 2017.
71. "Interactive Lecture Demonstrations: Active Learning in Lecture," invited lecture, 18th International Young Scientists Conference, Kiev, Ukraine, October 26, 2017.
72. "Research-Based Active Learning in Introductory Physics—NEW: Including RealTime Physics 3rd Edition, Clicker Interactive Lecture Demos and Video Analysis," Active Learning Short Course, July 29-31, 2017, Vernier Software and Technology, Portland, OR (with Ronald Thornton).
73. "Interactive Lecture Demonstrations: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Summer Meeting, Cincinnati, OH, July 25, 2017.
74. "Research Validated Distance Learning Labs for Introductory Physics Using IOLab," invited poster, American Association of Physics Teachers Summer Meeting, Cincinnati, OH, July 25, 2017.
75. "Fun, Engaging and Effective Labs and Demos with Clickers, Video Analysis and Computer-Based Tools," half-day workshop, American Association of Physics Teachers Summer Meeting, Cincinnati, OH, July 23, 2017.
76. "The Flipped Classroom," Symposium Organizer and Moderator, GIREP/ICPE/EPEC Conference, Dublin, Ireland, July 4, 2017.
77. "Active Learning with Interactive Lecture Demonstrations," invited session at New Faculty Workshop, American Association of Physics Teachers, College Park, MD, June 13, 2017.
78. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Bandung, Indonesia, May 15-19, 2017.
79. "Research Validated Distance Learning Labs for Introductory Physics Using IOLab," invited talk, American Association of Physics Teachers Winter Meeting, Atlanta, GA, February 19, 2017.
80. "Interactive Lecture Demonstrations: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American

Association of Physics Teachers Winter Meeting, Atlanta, GA, February 19, 2017.

81. "Fun, Engaging and Effective Labs and Demos with Clickers, Video Analysis and Computer-Based Tools," half-day workshop, American Association of Physics Teachers Winter Meeting, Atlanta, GA, February 18, 2017.
82. "Engaging Students with Research-Validated Uses of Technology: Computer Data Acquisition, Video Analysis, Personal Response Systems and Distance Learning," invited plenary, *Simposio Nacional de Ensino de Física* (SNEF), Sao Carlos, Brazil, January 23, 2017.
83. "Active Learning with *Interactive Lecture Demonstrations,"* short course, *Simposio Nacional de Ensino de Física* (SNEF), Sao Carlos, Brazil, January 24, 2017.
84. "*Interactive Lecture Demonstrations* and *RealTime Physics*," invited presentation, National Society of Black Physicists (NSBP) Fall meeting, Fermilab, Batavia, IL, October 29, 2016.
85. "Engaging Students with Research-Validated Uses of Technology: Computer Data Acquisition, Video Analysis, Personal Response Systems and Distance Learning," International Symposium on Physics Education, Peking University, Beijing, China, September 9, 2016.
86. "Research Validated Distance Learning Labs for Introductory Physics Using IOLab," Groupe International de Recherche sur l'Enseignement de la Physique (GIREP) Seminar, Krakow, Poland, September 1, 2016.
87. "*Interactive Lecture Demonstrations (ILDs)* an Effective Learning Strategy for Lecture," National Conference on Physics Education, Physical Education Society of Japan, Niigata University, Niigata Japan, August 6, 2016.
88. "*Interactive Lecture Demonstrations (ILDs)* an Effective Learning Strategy for Lecture," Special Seminar, Tokyo University, Tokyo, Japan, August 5, 2016.
89. "Research-Based Active Learning in Introductory Physics—NEW: Including *RealTime Physics* 3rd Edition, Clicker Interactive Lecture Demos and Video Analysis," Active Learning Short Course, July 28-30, 2016, Vernier Software and Technology, Portland, OR (with Ronald Thornton).
90. "Modeling the Physical World with *RealTime Physics,*" American Association of Physics Teachers Summer Meeting, Sacramento, CA, July 20, 2016.
91. "*Interactive Lecture Demonstrations*: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Summer Meeting, Sacramento, CA, July 19, 2016.
92. "Fun, Engaging and Effective Labs and Demos with Clickers, Video Analysis and Computer-Based Tools," half-day workshop, American Association of Physics Teachers Summer Meeting, Sacramento, CA, July 16, 2016.
93. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Jhapa, Nepal, Keynote Talk (via Skype) June 17, 2016.
94. "Active Learning with *Interactive Lecture Demonstrations*," invited course, International Winter School of Physics Education, CICATA-IPN, January 27-29, 2016, Mexico City, MX. Session 1: Introduction to *Interactive Lecture Demonstrations* (*ILDs*) and Examples in Mechanics; Session 2: *ILDs* using video analysis, Optics *ILDs* and *ILDs* using clickers; Session 3: *ILDs* in Electricity and Magnitism and Heat and Thermodynamics.
95. "Aprendizaje Activo De Óptica Y Fotónica," UNESCO sponsored active learning workshop, Panama City, Panama, January 18-22, 2016.
96. "*Interactive Lecture Demonstrations*: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Winter Meeting, New Orleans, LA, January 11, 2016.
97. "Fun, Engaging and Effective Labs and Demos with Clickers, Video Analysis and Computer-Based Tools," half-day workshop, American Association of Physics Teachers Winter Meeting, New Orleans, LA, January 10, 2016.
98. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Islamabad, Pakistan, Keynote Talk (via Skype) December 7, 2015.
99. "Aprendizaje Activo De Óptica Y Fotónica," UNESCO sponsored active learning workshop, Cochabamba, Bolivia, November 23-27, 2015.
100. "Engaging Students with Research-Validated Active Learning Strategies," keynote talk at 1ra Conferencia de Aprendizaje Activo," Universidad Interamericana de Puerto Rico, Arecibo, October 30, 2015.
101. "Active Learning Strategies for Introductory Science," workshop at 1ra Conferencia de Aprendizaje Activo, Universidad Interamericana de Puerto Rico, Arecibo, October 30, 2015.
102. "Engaging Students with Research-Validated, Technology-Enabled Active Learning Strategies," International Physics Education Conference, Kirovograd State Pedagogical University, Ukraine, October 15, 2015 (via Skype).
103. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Port Elizabeth, South Africa, September 7-11, 2015.

104. "Engaging Students with Research-Validated Uses of Technology: Computer Data Acquisition, Video Analysis, Personal Response Systems and Distance Learning," Plenary Talk, International Conference on Physics Education, Beijing, China, August 13, 2015.
105. "*Interactive Lecture Demonstrations*: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Summer Meeting, College Park, MD, July 27, 2015.
106. "Fun, Engaging and Effective Labs and Demos with Clickers, Video Analysis and Computer-Based Tools," half-day workshop, American Association of Physics Teachers Summer Meeting, College Park, MD, July 26, 2015.
107. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Réduit, Moka, Mauritius, July 20-24, 2015.
108. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, June 23, 2015.
109. "Research-Based Active Learning in Introductory Physics—NEW: Including *RealTime Physics* 3rd Edition, Clicker Interactive Lecture Demos and Video Analysis," Chautauqua Short Course, June 18-20, 2015, Vernier Software and Technology, Portland, OR (with Ronald Thornton).
110. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, San Luis Potosi, Mexico, June 8-12, 2015.
111. "Engaging Students in Learning About Light: Optics Magic in the International Year of Light," Colloquium, Universidad Tecnica Federico Santa Maria (USM), Valparaiso, Chile, April 13, 2015.
112. Active Learning in Introductory Physics, Workshop, Universidad Tecnica Federico Santa Maria Valparaiso, Chile April 8-9, 2015.
113. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Jakarta, Indonesia, March 23-27, 2015.
114. "Strategies for Active Learning in the High School Physics Classroom," AAPT eMentoring Webinar, March 9, 2015.
115. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," invited talk at Oregon Section AAPT, Eugene, OR, March 7, 2015.
116. "Active Learning in Optics: Magic Tricks, *Interactive Lecture Demonstrations* and *RealTime Physics*", workshop at Oregon Section AAPT, Eugene, OR, March 7, 2015.
117. "*Interactive Lecture Demonstrations*: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Winter Meeting, San Diego, CA, January 5, 2015, Summer Meeting, Minneapolis, MN, July 28, 2014.
118. "New RTP and ILD Tools and Curricula: Video Analysis, Clickers and E&M Labs," half-day workshop, American Association of Physics Teachers Winter Meeting, San Diego, CA, January 4, 2015, Summer Meeting, Minneapolis, MN, July 27, 2014.
119. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, November 14, 2014 and June 24, 2014.
120. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Tbilisi, Georgia, September 8-12, 2014.
121. "Active Learning of Introductory Optics," Invited Workshop, GIREP (International Research Group on Physics Teaching) Conference, Palermo, Italy, July 7, 2014.
122. "Research-Based Active Learning in Introductory Physics—NEW: Including *RealTime Physics* 3rd Edition, Clicker Interactive Lecture Demos and Video Analysis," Chautauqua Short Course, June 15-17, 2014, Vernier Software and Technology, Portland, OR (with Ronald Thornton and Priscilla Laws).
123. "Strategies for Active Learning in the High School Physics Classroom," Online Presentation, Wiley Faculty Network, April 14, 2014.
124. "*Interactive Lecture Demonstrations*: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Winter Meeting, Orlando, FL, January 7, 2014.
125. "New RTP and ILD Tools and Curricula: Video Analysis, Clickers and E&M Labs," half-day workshop, American Association of Physics Teachers Winter Meeting, Orlando, FL, January 5, 2014.
126. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Addis Ababa, Ethiopia, November 18-22, 2013.
127. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, November 9, 2013.
128. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," Physics Colloquium, University of Oregon, October 31, 2013.

129. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Chiang Mai, Thailand, October 21-25, 2013.
130. "Engaging Students in Lecture with *Interactive Lecture Demonstrations* Including Those Using Clickers," Journalism 463, University of Oregon, October 16, 2013.
131. "Active Learning of Introductory Optics: Optics Magic Tricks and *Interactive Lecture Demonstrations*," Plenary, Optical Society of America (OSA) EDay, Orlando, FL, October 9, 2013.
132. "Active Learning in Introductory Physics Using Computer-Based Tools," Plenary, New Zealand Institute of Physics Conference, Nelson, New Zealand, September 28, 2013.
133. "Active Learning of Introductory Optics: Optics Magic Tricks and *Interactive Lecture Demonstrations*," Invited Workshop, New Zealand Institute of Physics Conference, Nelson, New Zealand, September 29, 2013.
134. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," Colloquium, University of Auckland Department of Physics, September 26, 2013.
135. "Active Learning of Introductory Optics: *Interactive Lecture Demonstrations* and Optics Magic Tricks," Invited Workshop, International Conference on Physics Education, Prague, Czech Republic, August 5, 2013.
136. "*Interactive Lecture Demonstrations*: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Summer Meeting, Portland, OR, July 16, 2013.
137. "New RTP and ILD Tools and Curricula: Video Analysis, Clickers and E&M Labs," half-day workshop, American Association of Physics Teachers Summer Meeting, Portland, OR, July 14, 2013.
138. "2.5 Decades of Active Learning Professional Development," Plenary, Inter-American Conference on Physics Education, Guayaquil, Ecuador, July 3, 2013.
139. "Research-Based Active Learning in Introductory Physics—NEW: Including *RealTime Physics* 3rd Edition, Clicker Interactive Lecture Demos and Video Analysis," Chautauqua Short Course, June 21-23, 2013, Vernier Software and Technology, Portland, OR (with Ronald Thornton and Priscilla Laws).
140. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, June 18, 2013.
141. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," colloquium, Universidad Tecnica Federico Santa Maria (USM), Valparaiso, Chile, January 22, 2013.
142. "Active Learning in Introductory Physics" workshop, Universidad Tecnica Federico Santa Maria (USM), Valparaiso, Chile, January 18-21, 2013.
143. "*Interactive Lecture Demonstrations*: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Winter Meeting, New Orleans, LA, January 8, 2013.
144. "New RTP and ILD Tools and Curricula: Video Analysis, Clickers and E&M Labs," full day workshop, American Association of Physics Teachers Winter Meeting, New Orleans, LA, January 5, 2013.
145. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Yerevan, Armenia, November 19-23, 2012.
146. "Some Thoughts on the American Association of Physics Teachers (AAPT)," panel presentation as part of "Week of Physics Education," Universidad Autonoma de Colombia, Bogota, Colombia, October 24, 2012.
147. "Active Learning in Introductory Physics with *Interactive Lecture Demonstrations (ILDs),"* workshop, Universidad Distrital Francisco José de Caldas, Bogota, Colombia, October 23-24, 2012.
148. "Active Learning in Science and Engineering," invited talk, Universidad Autonoma de Colombia, Bogota, Colombia, October 23, 2012.
149. "Active Learning in Introductory Physics," keynote talk for the Universidad Distrital Francisco José de Caldas "Week of Physics Education," Bogota, Colombia, October 23, 2012.
150. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," Physics Colloquium, University of Idaho, October 1, 2012.
151. "Active Learning in Introductory Physics," workshop, National University of San Luis, Argentina, September 7, 2012.
152. "Disciplinary Science Education Research and the Active Learning Revolution," keynote talk at Jornadas 30º Aniversario Instituto de Matemática Aplicada San Luis, National University of San Luis, Argentina, September 6, 2012.
153. "Enhancing Learning in Lecture with *Interactive Lecture Demonstrations* (ILDs) Using Computer-Based Data Acquisition Tools, Personal Response Systems (Clickers) and Interactive Video Analysis," Teachers' Inventions Fair #17, Department of Physics, Charles University, Prague, Czech Republic, August 31, 2012.
154. "*RealTime Physics*: Creating an Active Learning Environment in the Introductory Physics Laboratory," Keynote Talk, Teachers'

Inventions Fair #17, Department of Physics, Charles University, Prague, Czech Republic, August 31, 2012.

155. "Active Learning Strategies for Lecture and Laboratory Using Microcomputer-Based Tools," The China-United States Advanced Forum on Physics Education, Tsinghua University, August 6, 2012.

156. "*Interactive Lecture Demonstrations*: Active Learning in Lecture Including Clickers and Video Analysis," invited talk, American Association of Physics Teachers Summer Meeting, Philadelphia, PA, August 1, 2012.

157. "New RTP and ILD Tools and Curricula: Video Analysis, Clickers and E&M Labs," full day workshop, American Association of Physics Teachers Summer Meeting, Philadelphia, PA, July 28, 2012.

158. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, June 27, 2012.

159. "Research-Based Active Learning in Introductory Physics—NEW: Including *RealTime Physics* 3rd Edition, Clicker Interactive Lecture Demos and Video Analysis," Chautauqua Short Course, June 22-24, 2012, Vernier Software and Technology, Portland, OR (with Ronald Thornton and Priscilla Laws).

160. "Engaging Students in Lecture with *Interactive Lecture Demonstrations* Including Those Using Clickers," Journalism 463, University of Oregon, April 13, 2012.

161. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," Physics Colloquium, University of Washington, April 9, 2012.

162. "Active Learning in Optics and Photonics, Follow-up Training," UNESCO sponsored active learning workshop, CENAFFE, Carthage, Tunisia, April 24-28, 2012.

163. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," invited talk, American Association of Physics Teachers Winter Meeting, Ontario, CA, February 6, 2012.

164. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Dhulikhel, Nepal, December 17-21, 2011.

165. "Active Learning of Introductory Optics: *Interactive Lecture Demonstrations* and Optics Magic Tricks, mini-workshop, National Science Teachers Association (NSTA), Seattle, WA, December 9, 2011.

166. "*RealTime Physics* and Interactive Lecture Demonstrations," invited session at New Faculty Workshop, American Association of Physics Teachers, November 19, 2011.

167. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Kigali, Rwanda, November 14-18, 2011.

168. "Insegnare i concetti della fisica impegnando gli studenti nell'osservare e analizzare le *Interactive Lecture Demonstrations – ILDs* (Dimostrazioni Interattive in classe), tra cui quelle che richiedono l'uso di dispositivi di risposta individuali (Personal Response Systems)," plenary talk, 50° Congresso Nazionale A.I.F. (Italian Association of Physics Teachers), Collegio Alberoni, Piacenza, Italy, October 20, 2011.

169. "Active Learning in Lecture with Interactive Lecture Demonstrations (ILDs) Using Microcomputer Assisted Data Acquisition Tools,_Personal Response_Systems (Clickers) and Interactive Video Analysis," plenary talk, International Conference on Multimedia in Physics Teaching and Learning (MPTL16), Faculty of Computer and Information Science, University of Ljubljana, Ljubljana, Slovenia, September 17, 2011.

170. "Sensors Online for Learning in Secondary Schools," invited workshop, International Conference on Multimedia in Physics Teaching and Learning (MPTL16), Faculty of Computer and Information Science, University of Ljubljana, Slovenia, September 15, 2011.

171. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," keynote talk, International Conference on Physics Education (ICPE), Mexico City, Mexico, August 18, 2011.

172. "PhysTEC: Successful U.S. Teacher Recruitment and Preparation Model from AAPT and APS," keynote talk, International Conference on Physics Education (ICPE), Mexico City, Mexico, August 17, 2011.

173. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," invited talk, American Association of Physics Teachers Summer Meeting, Omaha, NE, August 2, 2011.

174. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, June 29, 2011.

175. "Promoting Active Learning in Introductory Physics Courses," Chautauqua Short Course, June 11-13, 2011, Vernier Software and Technology, Portland, OR (with Ronald Thornton and Priscilla Laws).

176. "Aprendizaje Activo de la Fisica: Termodinámica y Fluídos," invited workshop, La Falda, Argentina, May 22-27, 2011.

177. "Aprendizaje Activo en Física Básica Universitaria con Clases Interactivas Demostrativas," invited workshop, National University of San Luis, Argentina, May 20, 2011.

178. "Aprendizaje Activo en Física Básica Universitaria con *RealTime Physics:* Laboratorios de Aprendizaje Activo," invited seminar, National University of Cordoba, Argentina, May 16, 2011.
179. "Engaging students in the learning process in the introductory physics course," and "Computer based tools for active learning in the introductory physics course," invited mini-workshop, Meeting of Modern Science and School Physics: College for School Teachers of Physics in ICTP, Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, April 27-28, 2011.
180. "Enhancing Student Understanding of Electric Circuit Concepts with Active Learning Strategies Supported by Microcomputer-Based Tools," Physics Seminar, Università di Udine, Italy, April 26, 2011.
181. "Engaging Students in Lecture with *Interactive Lecture Demonstrations* Including Those Using Clickers," Journalism 463, University of Oregon, April 22, 2011.
182. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," Plenary Talk, Michigan AAPT Section, Grand Valley State University, Allendale, MI, April 16, 2011.
183. "Active Learning in Lab and Lecture Using Microcomputer-Based Tools," workshop, Michigan AAPT Section, Grand Valley State University, Allendale, MI, April 16, 2011.
184. "Engaging Students in Lecture with *Interactive Lecture Demonstrations* Including Those Using Clickers," Physics Colloquium, Grand Valley State University, Allendale, MI, April 15, 2011.
185. "Optique Géométrique," module from Active Learning in Optics and Photonics (ALOP), for trainers of the Académies Régionales d'Education et de Formation (AREF), Marrakech, Morocco, February 22-23, 2011.
186. "Introduction à l'Apprentissage Actif," introduction to workshop for trainers of the Académies Régionales d'Education et de Formation (AREF), Marrakech, Morocco, February 22, 2011.
187. "Apprentissage Actif en Mécanique," informal workshop for Faculty of Sciences, Cadi Ayyad University, Marrakech, Morocco, February 20-21, 2011.
188. "Active Learning in Lab and Lecture Using Microcomputer-Based Tools," workshop, British Columbia Association of Physics Teachers, Vancouver, BC, February 5, 2011.
189. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," Physics Colloquium, Simon Fraser University, February 4, 2011.
190. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," Physics Colloquium, University of British Columbia, February 3, 2011.
191. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," invited talk, American Association of Physics Teachers Winter Meeting, Jacksonville, FL, January 11, 2011.
192. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Quezon City, The Philippines, November 15-19, 2010.
193. "Apprentissage Actif en Electricité et Magnétisme," Faculty of Sciences, Cadi Ayyad University, Marrakech, Morocco, September 16-17, 2010.
194. "Adapting *Interactive Lecture Demonstrations* for Use with Personal Response Systems (clickers), invited talk, American Association of Physics Teachers Summer Meeting, Portland, OR, July 20, 2010.
195. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," invited talk, American Association of Physics Teachers Summer Meeting, Portland, OR, July 20, 2010.
196. "Enhancing Student Understanding of Electric Circuit Concepts with Active Learning Strategies Supported by Microcomputer-based Tools invited talk, American Association of Physics Teachers Summer Meeting, Portland, OR, July 19, 2010.
197. "Using Research-Based Curricula and Tools to Revitalize Your Introductory Course," full day workshop, American Association of Physics Teachers Summer Meeting, Portland, OR, July 17, 2010.
198. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, June 30, 2010.
199. "Promoting Active Learning in Introductory Physics Courses," Chautauqua Short Course, June 19-21, 2010, Dickinson College, Carlisle, PA (with Ronald Thornton and Priscilla Laws).
200. "Aprendizaje Activo en Ciencia e Ingeniería," invited plenary paper, Latin American and Caribbean Consortium of Engineering Institutions (LACCEI) Conference, Arequipa, Peru, June 4, 2010.
201. "Active Learning in Optics and Photonics," UNESCO and LACCEI sponsored workshop, Arequipa, Peru, Chile, June 1-4, 2010.
202. "Aprendizaje Activo de la Fisica: Electricidad y Magnetismo," workshop, La Falda, Argentina, May 24-28, 2010.
203. "Engaging Students in Lecture with *Interactive Lecture Demonstrations* (including the use of "clickers" or personal response systems)," Physics Colloquium, Wright State University, April 9, 2010.

204. "Active Learning in Lab and Lecture Using Microcomputer-Based Tools," workshop, Southern Ohio Section of AAPT, University of Cincinnati, Clarement, April 10, 2010.
205. "Active Learning in Lab Using Microcomputer-Based Tools, workshop, Department of Physics, Wright State University, April 9, 2010.
206. "Engaging Students in Lecture with *Interactive Lecture Demonstrations* (including the use of "clickers" or personal response systems)," Physics Colloquium, University of Cincinnati, April 8, 2010.
207. "Active Learning in Lab Using Microcomputer-Based Tools, workshop, Department of Physics, University of Cincinnati, April 8, 2010.
208. "Apprentissage Actif en Mécanique," workshop, A.R.E.F., Rabat, Morocco, March 15-16, 2010.
209. "Apprentissage Actif en Mécanique," Faculty of Sciences, Cadi Ayyad University, Marrakech, Morocco, March 11-13, 2010.
210. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," invited talk, American Association of Physics Teachers Winter Meeting, Washington, DC, February 15, 2010.
211. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Santiago, Chile, January 11-16, 2010.
212. "Active Learning in Introductory Physics," AAPT Mexican Section meeting, December 11, 2009.
213. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, November 14, 2009.
214. "*Interactive Lecture Demonstrations* Using Personal Response Systems," International Conference on Physics Education, October 20, 2009, Bangkok, Thailand.
215. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," tutorial, American Association of Physics Teachers Summer Meeting, Ann Arbor, MI, July 25, 2009.
216. "Using Research-Based Curricula and Tools to Revitalize Your Introductory Course," full day workshop, American Association of Physics Teachers Summer Meeting,Ann Arbor, MI, July 28, 2009.
217. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, June 27, 2009.
218. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Bogota, Colombia, June 22-27, 2009.
219. "Second Regional South Cone Workshop on Active Learning in Mechanics, La Falda, Argentina, June 2-5, 2009.
220. "Engaging Students with *Interactive Lecture Demonstrations*," Colloquium, Department of Natural Sciences, Northeastern Illinois University, April 14, 2009.
221. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," tutorial, American Association of Physics Teachers Winter Meeting, Chicago, IL, February 15, 2009.
222. "Using Research-Based Curricula and Tools to Revitalize Your Introductory Course," full day workshop, American Association of Physics Teachers Winter Meeting, Chicago, IL, February 13, 2009.
223. "Active Learning in Mechanics," Faculty of Sciences, University of Tunis, El Manar, Tunisia, January 9-11, 2009
224. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Douala, Cameroon, December 1-7, 2008.
225. "Active Learning of Introductory Optics: *Interactive Lecture Demonstrations* and Optics and Magic Tricks." National Science Teachers Association Area Conference, Portland, OR, November 21, 2008.
226. "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," Center for Optics Seminar, Florida Atlantic University, November 13, 2008.
227. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, November 8, 2008.
228. "Formation de Formateurs: Apprentissage Actif en Optique et Photonique," l'Académie Régionale d'Education et de Formation (AREF), Rabat, Morocco, October 22-26, 2008.
229. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Lusaka, Zambia, September 22-26, 2008.
230. "Active Learning in Science and Engineering," invited workshop, Swinburne University of Technology, Kuching, Sarawak, Malaysia, July 8-10, 2008 (with Alex Mazzolini).
231. "*RealTime Physics* and Interactive Lecture Demonstrations," invited session at New Faculty Workshop, American Association of Physics Teachers, June 27, 2008.
232. "Aprendizaje Activo de Óptica y Fotónica," Active Learning Workshop, La Falda, Argentina, May 12-16, 2008.

233. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," tutorial, American Association of Physics Teachers Winter Meeting, Baltimore, MD, January 21, 2008.
234. "Using Research-Based Curricula and Tools to Revitalize Your Introductory Course," full day workshop, American Association of Physics Teachers Summer Meeting, Baltimore, MD, January 20, 2008.
235. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, San Luis Potosi, Mexico, December 6-11, 2007.
236. "Active Learning in Optics Using Magic," invited workshop, International Conference on Physics Education, Marrakech, Morocco, November 14, 2007.
237. "Active Learning in Lecture with *Interactive Lecture Demonstrations*: Second Semester Topics, invited plenary lecture, International Conference on Physics Education, Marrakech, Morocco, November 13, 2007.
238. "*RealTime Physics* and *Interactive Lecture Demonstrations*," invited session at New Faculty Workshop, American Association of Physics Teachers, November 9, 2007.
239. "The development of conceptual evaluation tests based on physics education research," invited plenary lecture, Workshop on Sustaining the Active Learning Method in Physics Teaching, Ateneo de Manila University, Loyola Heights, Quezon City, Philippines. October 24, 2007.
240. "Analysis of students' pre-conceptions and conceptual models from the results of conceptual evaluation tests," invited workshop, Workshop on Sustaining the Active Learning Method in Physics Teaching, Ateneo de Manila University, Loyola Heights, Quezon City, Philippines. October 24, 2007.
241. "Building a New, More Exciting Mousetrap is Not Enough!" colloquium, Department of Physics, University of Central Florida, October 1, 2007.
242. "Using Research Based Curricula and Tools to Promote Active Learning in Introductory Physics Courses," short course, Tecnológico de Monterrey, August 23-25, 2007.
243. "Building a New, More Exciting Mousetrap is Not Enough!" invited Robert A. Millikan Lecture, American Association of Physics Teachers Summer Meeting, Greensboro, NC, July 30, 2007.
244. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," tutorial, American Association of Physics Teachers Summer Meeting, Greensboro, NC, July 29, 2007.
245. "Using Research-Based Curricula and Tools to Revitalize Your Introductory Course," full day workshop, American Association of Physics Teachers Summer Meeting, Greensboro, NC, July 28, 2007.
246. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, University of Sao Paulo, Sao Paulo, Brazil, July 22-27, 2007.
247. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, University of Dar es Salaam, Dar es Salaam, Tanzania, July 22-27, 2007.
248. "Using Research-Based Curricula and Tools to Promote Active Learning in Introductory Courses," Chautauqua Short Course, Course II, Vernier Software and Technology, June 9-11, 2007.
249. "Active Learning of Introductory Optics: *Interactive Lecture Demonstrations* and Optics Magic Tricks," invited lecture, ETOP 2007, Ottawa, Canada, June 5, 2007.
250. "Active Learning in Physics Lecture," invited lecture, POGIL National Meeting, Washington University, St. Louis, May 21, 2007.
251. "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," Physics Colloquium, Simon Fraser University, May 8, 2007.
252. "Active Learning in Laboratory and Lecture Using Microcomputer-Based (MBL) Tools," workshop, Simon Fraser University, May 8, 2007.
253. "Active Learning in Science and Engineering," invited workshop, Swinburne University of Technology, Melbourne, Australia, February 13-16, 2007 (with Alex Mazzolini).
254. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," tutorial, American Association of Physics Teachers Winter Meeting, Seattle, WA, January 7, 2007.
255. "Using Research-Based Curricula and Tools to Revitalize Your Introductory Course," full day workshop, American Association of Physics Teachers Winter Meeting, Seattle, WA, January 6, 2007.
256. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, University of Delhi, Delhi, India, November 6-11, 2006.
257. "*Interactive Lecture Demonstrations*," Plenary Session, New Faculty Workshop, American Association of Physics Teachers, College Park, MD, October 28, 2006.

258. "Enhancing Learning in Science and Engineering with *Interactive Lecture Demonstrations*," Seminar, Swinburne University of Technology, Hawthorn, Victoria, Australia, October 13, 2006.
259. "*Interactive Lecture Demonstrations* Workshop," Departamento de Fisica, Fac. de Cs.Fis.Mat.y Naturales, Universidad Nacional de San Luis, San Luis, Argentina, September 30, 2006.
260. "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," Plenary Session, 91° Reunión Nacional de la Asociación Física Argentina, Villa de Merlo, San Luis, Argentina, September 28, 2006.
261. "Active Learning in Lecture with *Interactive Lecture Demonstrations*," invited workshop, International Conference on Physics Education (ICPE), Tokyo, Japan, August 15, 2006
262. "Active Learning in Lecture and Laboratory Using IT (Microcomputer-Based) Tools," invited workshop at Asian Physics Education Network (ASPEN) conference, Kagawa University, Takamatsu, Japan, August 10, 2006.
263. "*Interactive Lecture Demonstrations*—Physics Suite Materials that Enhance Learning in Lecture," tutorial, American Association of Physics Teachers Summer Meeting, Syracuse, NY, July 24, 2006.
264. "Using Research-Based Curricula and Tools to Revitalize Your Introductory Course," full day workshop, American Association of Physics Teachers Summer Meeting, Syracuse, NY, July 23, 2006.
265. "Activity Based Physics Faculty Institutes, "NSF-sponsored summer institutes for two-year college, four year college and university faculty, Dickinson College, June 18-23 and June 25-30, 2006 (with Priscilla Laws and Patrick Cooney).
266. "Using Research-Based Curricula and Tools to Promote Active Learning in Introductory Courses, "Chautauqua Short Course, Course I, Vernier Software and Technology, June 4-6, 2006 and Course II, Tufts University, June 10-12, 2006.
267. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Marrakech, Morocco, April 23-28, 2006.
268. "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," Invited paper, Joint Meeting of the National Associations of Black Physicists and Hispanic Physicists, San Jose, CA, February 18, 2006.
269. Invited Member, U.S. Delegation, World Conference on Physics and Sustainable Development, Durban, South Africa, October 31-November 2, 2005. Also poster: "*Interactive Lecture Demonstrations*: Active Learning of Physics in Lecture."
270. "Active Learning of Introductory Optics: *Interactive Lecture Demonstrations*, *RealTime Physics* Labs and Magic," Invited Workshop and Poster, ETOP 2005, Marseille, France, October 26, 2005.
271. "Active Learning of Introductory Optics: *Interactive Lecture Demonstrations*, *RealTime Physics* Labs and Magic," Invited Workshop at Oregon Chapter AAPT meeting, Clark College, October 15, 2005.
272. "The Magic of Physics; the Physics of Magic," Invited presentation, GIREP Seminar, Ljubljana, Slovenia, Septamber 5, 2005.
273. "Science Centers and Teacher Training: What Works? The Oregon Teachers' Institute for Interactive Physical Science (TIIPS)," Invited Paper, GIREP Seminar, Ljubljana, Slovenia, September 7, 2005."
274. "Promoting Active Learning in Introductory Physics Courses, NSF-sponsored Chautauqua Short Course, Course II, June 2-4, 2005, and Course I, June 3-5, 2004, and May 9-11, 2002, Dickinson College (with Ronald Thornton and Priscilla Laws).
275. "Active Learning with *RealTime Physics*, *Interactive Lecture Demonstrations* and the Physics Suite," full day workshop, American Association of Physics Teachers Summer Meeting, Salt Lake City, UT, August 7, 2005, Winter Meeting, Miami, FL, January 25, 2004.
276. "Active Learning of Optics in the Physics Classroom—Introductory High School and College-Level," invited workshop, 50th Anniversary Annual Meeting, International Society for Optical Engineering (SPIE), San Diego, CA, August 2, 2005.
277. "Tutorial: *Interactive Lecture Demonstrations*: Physics Suite materials that Enhance Learning in Lecture," American Association of Physics Teachers Summer Meeting, Salt Lake City, UT, August 8, 2005, Winter Meeting, Albuquerque, NM, January 10, 2005, Summer Meeting, Sacramento, CA, August 2, 2004, Winter Meeting, Miami, FL, January 26, 2004..
278. "*Interactive Lecture Demonstrations*: Research Based Active Learning in Lecture and on the Web," workshop as part of New Trends in Physics Teaching, May 26-30, 2005, Autonomous University of Puebla, Puebla, Mexico.
279. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, Monastir, Tunisia, March 22- April 2, 2005.
280. "Active Learning in Lecture and Over the Web with *Interactive Lecture Demonstrations*," Colloquium, Department of Physics, Central Michigan University, February 1, 2005.
281. "Technology Rich Active Learning in Lab, Lecture and on the Web," invited talk, American Association of Physics Teachers Winter Meeting, Albuquerque, NM, January 11, 2005.
282. "Active Learning in Optics and Photonics," UNESCO sponsored active learning workshop, University of Cape Coast, Cape Coast, Ghana, November 15-19, 2004

283. "Promoting Active Learning in Introductory Physics Courses I, NSF-sponsored Chautauqua Short Course, March 11-13, 2004, Inter American University of Puerto Rico Bayamon, Puerto Rico.

284. "*Interactive Lecture Demonstrations*: Active Learning in Lecture and on the Web," Colloquium, Department of Physics, Western Illinois University, November 14, 2003.

285. "*Interactive Lecture Demonstrations*: Active Learning in Lecture and on the Web," Oregon AAPT Fall Meeting, October 18, 2003, Portland, OR.

286. "Activity Based Physics Institutes: In-Service Teacher Professional Development with Computer Supported Tools and Pedagogy," Plenary Paper at the Second International GIREP Seminar on Quality Development in Teacher Education and Training, September 1-6, 2003, University of Udine, Italy.

287. "*Interactive Lecture Demonstrations* II: Active Learning of Electricity and Magnetism, Electric Circuits and Optics in Lecture," American Association of Physics Teachers half-day workshop, Madison, WI, August 3, 2003 and Boise, ID, August 4, 2002 (with Priscilla Laws and Ronald Thornton).

288. "*RealTime Physics* II: Activity-Based Learning of Electric Circuits and Optics in Lab," American Association of Physics Teachers half-day workshop, Madison, WI, August 3, 2003 and Boise, ID, August 4, 2002 (with Priscilla Laws and Ronald Thornton).

289. Interactive Session: "Enhancing Physics Learning in Lecture Beyond Newton's Laws with *Interactive Lecture Demonstrations*," American Association of Physics Teachers Summer Meeting, Madison, WI, August 4, 2003, Winter Meeting, Austin, TX, January 14, 2003 and Summer Meeting, August 5, 2002, Boise, ID (with Priscilla Laws and Ronald Thornton).

290. "Promoting Active Learning in Introductory Physics Courses, NSF-sponsored Chautauqua Short Course, Course I, June 5-7, 2003 and May 10-12, 2001, Dickinson College (with Ronald Thornton and Priscilla Laws).

291. Promoting Active Learning in Introductory Physics Courses II, NSF-sponsored Chautauqua Short Course, March 17-19, 2003, University of Puerto Rico, Rio Piedras (with Ronald Thornton and Priscilla Laws).

292. "Recent Developments in Physics Education Research—*Interactive Lecture Demonstrations* Beyond Mechanics and Web-Based *Interactive Lecture Demonstrations*, keynote address and mini-workshop at UNESCO, ASPEN Regional Workshop on Active Learning in Physics, University of Peradeniya, Sri Lanka, December 2-5, 2002.

293. *Interactive Lecture Demonstrations*: Second Semester Topics, Mini-Workshop, Department of Physics, University of Minnesota, September 24, 2002.

294. "Assessing Active Learning," Seminar, Department of Physics, University of Minnesota, September 24, 2002.

295. "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," Colloquium, Department of Physics, University of Minnesota, September 25, 2002.

296. "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," Colloquium, Department of Physics, University of Nevada, Las Vegas, September 19, 2002.

297. "Enhancing Learning in Lecture with *Interactive Lecture Demonstrations*," American Council on Education STEM Conference, Washington, DC, June 25, 2002.

298. "*Interactive Lecture Demonstrations*—Active Conceptual Learning with Just One Computer," Keynote Address at PT3 Math and Science Conference "Inspiration in the Introduction of Technology into Your Teaching," George Fox University Portland Center, April 20, 2002.

299. NSF-Sponsored "MBL Physics Workshop for the 21st Century," 3-day two-year college workshop at Vernier Software and Technology, Portland, OR, April 18-20, 2002 (with Ronald Thornton).

300. Interactive Session: "Enhancing Physics Learning in Lecture Beyond Newton's Laws with *Interactive Lecture Demonstrations*," American Association of Physics Teachers Winter Meeting, January 21, 2002, Philadelphia, PA PA (with Priscilla Laws and Ronald Thornton).

301. "*Interactive Lecture Demonstrations* I: Active Learning of Mechanics and Thermodynamics in Lecture," American Association of Physics Teachers half-day workshop, Winter Meeting, January 20, 2002, Philadelphia, PA (with Priscilla Laws and Ronald Thornton).

302. "*RealTime Physics* I: Activity-Based Learning of Mechanics and Thermodynamics in Lab," American Association of Physics Teachers half-day workshop, Winter Meeting, January 20, 2002, Philadelphia, PA (with Priscilla Laws and Ronald Thornton).

303. "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," Colloquium, Brigham Young University, November 6, 2001.

304. "*Interactive Lecture Demonstrations*--High School Active Learning with One Computer," invited talk, AAPT Summer Meeting, Rochester, NY, July 23, 2001 (with Ronald Thornton).

305. Interactive Session: "Enhancing Physics Learning in Lecture Beyond Newton's Laws with *Interactive Lecture Demonstrations*," American Association of Physics Teachers Summer Meeting, July 23, 2001, Rochester, NY (with Priscilla Laws and Ronald Thornton).

306. "*Interactive Lecture Demonstrations* II: Active Learning of Electricity and Magnetism, Electric Circuits and Optics in Lecture," American Association of Physics Teachers half-day workshop, Rochester, NY, July 22, 2001 (with Priscilla Laws and Ronald Thornton).

307. "*RealTime Physics* II: Activity-Based Learning of Electric Circuits and Optics in Lab," American Association of Physics Teachers half-day workshop, Rochester, NY, July 22, 2001 (with Priscilla Laws and Ronald Thornton).

308. "Workshop on IT-Based Physics Education," Chonbuk National University, Chonju, S. Korea, July 12-16, 2001, sponsored by UNESCO, KOSEF (Korean Science and Engineering Foundation), Seoul National University and Chonbuk National University (with Ronald Thornton and Priscilla Laws).

309. "*Interactive Lecture Demonstrations*: Active Learning with One Computer," Project QuarkNet workshop, Snowmass Village, CO July 5, 2001.

310. "Enhancing Student Learning in Lecture with *Interactive Lecture Demonstrations*," Colloquium, Department of Physics, University of Central Florida, April 12, 2001.

311. "*RealTime Physics* and *Interactive Lecture Demonstrations*: Activity-Based Learning in Lab and Lecture," American Association of Physics Teachers full-day workshop, San Diego, January 7, 2001, Orlando, January 16, 2000 (with Priscilla Laws and Ronald Thornton).

312. Interactive Session: "Enhancing Physics Learning in Lecture Beyond Newton's Laws with *Interactive Lecture Demonstrations*," American Association of Physics Teachers Winter Meeting, January 8, 2001, San Diego.

313. "*RealTime Physics* and *Interactive Lecture Demonstrations*: Activity-Based Learning in Lab and Lecture," special workshop, Hunter College, November 6, 2000.

314. Interactive Session: "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations* (Beyond Newton's Laws)," American Association of Physics Teachers Summer Meeting, July 31, 2000, Guelph, Ontario; Winter Meeting, January 17, 2000, Orlando; Summer Meeting, August 5, 1999, San Antonio (with Priscilla Laws and Ronald Thornton).

315. "Seminar-Workshop on Multimedia Physics Education: Promoting Active Learning in Introductory Physics Courses," Chonbuk National University, Chonju, S. Korea, July 9-15, 2000, sponsored by UNESCO, KOSEF (Korean Science and Engineering Foundation), Seoul National University and Chonbuk National University (with Ronald Thornton and Priscilla Laws).

316. "Promoting Active Learning in Introductory Physics Courses II," NSF-sponsored Chautauqua Short Course, June 5-7, 2000, Dickinson College (with Ronald Thornton and Priscilla Laws).

317. "Enhancing Student Learning in Lecture with *Interactive Lecture Demonstrations*," Colloquium, Department of Physics, University of New Mexico, April 21, 2000.

318. "Promoting Active Learning in Introductory Physics Courses I," NSF-sponsored Chautauqua Short Course, March 16-18, 2000, University of Puerto Rico, Mayaguez, Puerto Rico (with Ronald Thornton and Priscilla Laws).

319. "Enhancing Student Learning in Lecture with *Interactive Lecture Demonstrations*," Colloquium, Department of Physics, California Polytechnic State University, San Luis Obispo, March 2, 2000.

320. "Assessing of Conceptual Learning in Laboratory and Lecture Using Conceptual Evaluation Tests," colloquium, School of Sciences, Southern Oregon University, January 21, 2000.

321. "Keynote address: Active Learning of Physics Concepts—A Brief Overview," and "Improving Conceptual Learning in Lecture with *Interactive Lecture Demonstrations*," UNESCO, ASPEN Workshop on Physics Demonstrations and Classroom Innovations (ASPEN '99), Hanoi University of Science, Vietnam, November 11-14, 1999.

322. "Active Learning in Large Enrollment Courses," FIPSE Project Directors' Meeting, Washington, DC, October 9, 1999.

323. "*RealTime Physics* II: Activity-Based Labs in Heat and Thermodynamics, Electric Circuits and Light and Optics," American Association of Physics Teachers full-day workshop, August 4, 1999 (San Antonio), January 10,1999 (Anaheim), January 4, 1998 (New Orleans), August 12, 1997 (Denver).

324. Interactive Session: "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," American Association of Physics Teachers Winter Meeting, Anaheim, January 11, 1999, Winter Meeting, New Orleans, January 5, 1998, Summer Meeting, Denver, August 14, 1997, Winter Meeting, Phoenix, January 7, 1997, Summer Meeting, College Park, MD, August 8, 1996, and Winter Meeting, Reno, January 16, 1996 (with Priscilla Laws and Ronald Thornton).

325. "The Role of Science Faculty in the Content Preparation of Teachers," OCEPT Workshop, University of Portland, July 28, 1999.

326. "Addressing & Assessing Misconceptions: Physics as a Model," OCEPT Workshop, University of Portland, July 20, 1999.

327. "Promoting Active Learning in Introductory Physics Courses I," NSF-sponsored Chautauqua Short Course, June 3-5, 1999, Dickinson College, Carlisle, PA (with Ronald Thornton and Priscilla Laws).

328. "Enhancing Student Learning in Lecture with *Interactive Lecture Demonstrations*," American Physical Society, Northwest Section Meeting, Vancouver, BC, May 21, 1999.

329. "The Role of Science Faculty in the Content Preparation of Teachers," Project Kaleidoscope Workshop, Opening Plenary Paper, George Fox University, Newberg, OR, May 7, 1999.

330. "Engaging Students with *Interactive Lecture Demonstrations*," Oregon AAPT Meeting, April 24, 1999, Portland State University.

331. "Enhancing Student Learning in Lecture with *Interactive Lecture Demonstrations*," Colloquium, Department of Physics, Hunter College of the City University of New York, April 19, 1999.

332. "Enhancing Student Learning in Lecture with *Interactive Lecture Demonstrations*," Seminar, Science Division, Salt Lake Community College, March 8, 1999.

333. "Enhancing Student Learning in Lecture with *Interactive Lecture Demonstrations*," Seminar, Department of Physics, University of Massachusetts, Dartmouth, March 1, 1999.

334. "Active Learning--How Do We Know It Works," Seminar, College of Engineering, University of Massachusetts, Dartmouth, March 1, 1999.

335. "Promoting Active Learning in Introductory Physics Courses," NSF-sponsored Chautauqua Short Course, January 27-29, 1999, Swinburne University of Technology, Melbourne, Australia (with Ronald Thornton and Priscilla Laws).

336. "Promoting Active Learning in Introductory Physics Courses," NSF-sponsored Chautauqua Short Course, January 20-22, 1999, University of Sydney, Sydney, Australia (with Ronald Thornton and Priscilla Laws).

337. "Does Lecturing Equal Learning?" presentation as part of *Integrating Active Educational Techniques More Fully into the Classroom*, Pacific University College of Optometry Faculty Development Workshop, January 5, 1999.

338. "Assessment of Conceptual Learning in Laboratory and Lecture Using Conceptual Evaluation Tests," Seminar, Department of Physics, Portland State University, November 4, 1998.

339. "Two-Year College Microcomputer-Based Laboratory II Workshop," Forsyth Technical Community College, Winston-Salem NC, September 24-26, 1998 (with Ronald Thornton and Priscilla Laws).

340. "*RealTime Physics* Workshop," U.S. Naval Academy, August 21, 1998 (with Ronald Thornton and Priscilla Laws).

341. "Assessing and Addressing Student Understandings of Physics Concepts," mini-workshop at OCEPT Summer Institute, July 27, 1999, Central Oregon Community College, Bend.

342. "Promoting Active Learning in Introductory Physics Courses I," NSF-sponsored Chautauqua Short Course, June 11-13, 1998, Kapi'olani Community College, Honolulu, HI (with Ronald Thornton and Priscilla Laws).

343. "Promoting Active Learning in Introductory Physics Courses II," NSF-sponsored Chautauqua Short Course, May 28-30, 1998, Dickinson College, Carlisle, PA (with Ronald Thornton and Priscilla Laws).

344. "Active Learning in Lecture and Laboratory Using Microcomputer-Based Tools," Sigma Xi Colloquium, Pacific University, Forest Grove, OR, April 8, 1998.

345. "Two-Year College Microcomputer-Based Laboratory I Workshop," Maple Woods Community College, Kansas City, MO, March 12-14, 1998, (with Ronald Thornton and Priscilla Laws).

346. "Two-Year College Microcomputer-Based Laboratory I Workshop," Joliet Junior College, Joliet, IL, October 9-11, 1997 (with Ronald Thornton and Priscilla Laws).

347. "Two-Year College Microcomputer-Based Laboratory II Workshop," Green River Community College, Auburn, WA, September 18-20, 1997 (with Ronald Thornton and Priscilla Laws).

348. "Assessing of Conceptual Learning in Laboratory and Lecture Using Conceptual Evaluation Tests," invited paper, American Association of Physics Teachers Summer Meeting, Denver, CO, August 13, 1997, AAPT Announcer **27: 2**, 85 (July, 1997).

349. Department of Physics, Universidad Iberoamericana, Mexico City, Mexico, three days of workshops on activity based learning for college faculty, March 15-20, 1997.

350. "Active Learning in the Physics Classroom," workshop sponsored by Central California Science Teachers Association, Fresno County Office of Education, California State University--Fresno and Fowler Unified School District, Fowler High School, Fresno, CA, February 8, 1997.

351. "Active Learning in Introductory Physics Classes Using Microcomputer-Based Tools," colloquium, Department of Physics, California State University—Fresno, February 7, 1997.

352. "*RealTime Physics* Heat and Thermodynamics," invited paper, American Association of Physics Teachers Winter Meeting, Phoenix, AZ, January 7, 1997, AAPT Announcer **26: 4**, 64 (December, 1996).

353. "*RealTime Physics*: A New Introductory Laboratory Program," American Association of Physics Teachers full-day workshop, January 5, 1997 (Phoenix), August 6, 1996 (College Park), January 14, 1996 (Reno), August 8, 1995 (Spokane), January 15, 1995 (Orlando), August 9, 1994 (Notre Dame), January 4, 1994 (San Diego), August 8, 1993 (Boise) and January 3, 1993 (New Orleans) (with Ron Thornton and Priscilla Laws).

354. "Two-Year College Microcomputer-Based Laboratory I Workshop," Mira Costa College, Oceanside, CA, November 14-16, 1996 (with Ronald Thornton and Priscilla Laws).

355. "Two-Year College Microcomputer-Based Laboratory II Workshop," Jamestown Community College, Jamestown, New York, September 26-29, 1996 (with Ronald Thornton and Priscilla Laws).

356. "*RealTime Physics*," invited workshop at the International Conference on Undergraduate Physics Education (ICUPE), sponsored by American Institute of Physics, College Park, MD, August 1, 1996 (with Ronald Thornton).

357. "*Interactive Lecture Demonstrations*," invited workshop at the International Conference on Undergraduate Physics Education (ICUPE), sponsored by American Institute of Physics, College Park, MD, August 2, 1996 (with Ronald Thornton).

358. "*RealTime Physics* Workshop," Department of Physics, University of San Francisco, July 1, 1996.

359. Summer Seminar on Activity Based Physics, director of high school teacher program, Dickinson College, June 16-28, 1996.

360. "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," invited presentation at Two Year College Introductory Physics Conference, Joliet, IL, June 13, 1996.

361. Interactive Workshop: "Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," Joint American Physical Society/American Association of Physics Teachers Meeting, Indianapolis, May 4, 1996.

362. "Active Learning in Introductory Physics Courses Using Microcomputer-Based Tools," colloquium, Department of Physics, Washington State University, April 11, 1996.

363. "Two-Year College Microcomputer-Based Laboratory Followup Workshop," Seminole Community College, Sanford, Florida, November 30-December 2, 1995 (with Ronald Thornton and Priscilla Laws).

364. "Working Tutorial on Enhancing Physics Learning in Lecture with *Interactive Lecture Demonstrations*," American Association of Physics Teachers Summer Meeting, Spokane, August 12, 1995 (with Priscilla Laws).

365. "Teaching About Newton's Third Law: A New Approach," AAPT/PTRA Workshop, August 2, 1995, Spokane.

366. "*RealTime Physics* Workshop," Department of Physics, University of San Francisco, June 30, 1995.

367. "*Interactive Lecture Demonstrations*," invited talk as part of Physics Summer Seminar, Department of Physics, Dickinson College, June 9, 1995.

368. "Practical Aspects of Instituting Active Learning in a University Setting: A Tongues-on Workshop," as part of Physics Summer Seminar, Department of Physics, Dickinson College, June 9, 1995.

369. "Enhancing Physics Learning in Lecture with Interactive, Microcomputer-Based Demonstrations," invited paper, Joint American Physical Society/American Association of Physics Teachers Spring Meeting, Washington, DC, April 18, 1995, Bulletin of the American Physical Society **40: 1**, 917 (1995).

370. "Enhancing Physics Learning in Lecture with Interactive, Microcomputer-Based Demonstrations," invited paper, American Association of Physics Teachers Winter Meeting, Orlando, January 17, 1995, AAPT Announcer **24: 4**, 63 (1994).

371. "Active Learning in Introductory Physics Courses," colloquium, Department of Physics, Portland State University, November 28, 1994.

372. "Two-Year College Microcomputer-Based Laboratory Followup Workshop," Lee College, Baytown, Texas, November 17-19, 1994 (with Ronald Thornton and Priscilla Laws).

373. "Active Learning in Introductory Physics Courses," colloquium, Department of Physics, Oregon State University, November 7, 1994.

374. "Engaging Students with *Interactive Lecture Demonstrations*," invited talk at *From Science Made to Science in the Making*--colloquium on restructuring undergraduate science, Portland State University, October 11-12, 1994. (Also poster session on microcomputer-based tools and curricula.)

375. Invited participant in Workshop on Issues in Physics Education Research, Department of Physics, North Carolina State University, September 30-October 1, 1994.

376. "Two-Year College Microcomputer-Based Laboratory Workshop," Chaffee College, Rancho Cucamonga, CA, September 22-24, 1994 (with Priscilla Laws).

377. "Using the Good Stuff When There is Only One Computer Available," American Association of Physics Teachers working tutorials, August 10, 1994 (Notre Dame) (with Priscilla Laws).

378. "Promoting Active Learning in Introductory Physics Courses," NSF-sponsored Chautauqua Short Course, June 23-25, 1994, Center for Science and Mathematics Teaching, Tufts University (with Ronald Thornton and Priscilla Laws).

379. "Active Learning in the Science Classroom Using Microcomputer-Based Tools," workshop at National Educational Computing Conference, Boston, June 14, 1994.

380. "*Interactive Lecture Demonstrations*," invited talk as part of Interactive Physics Seminar, Department of Physics, Dickinson College, June 10, 1994.

381. "Practical Aspects of Instituting Active Learning in a University Setting: A Tongues-on Workshop," as part of Interactive Physics Seminar, Department of Physics, Dickinson College, June 10, 1994.

382. "Active Learning in the Introductory Physics Course Using Microcomputer-Based Tools," colloquium, Department of Physics, Northeastern University, May 25, 1994.

383. "Active Learning of Physics Using Microcomputer-Based Tools," mini workshops for secondary school and university faculty, Department of Physics, University of Naples, April 28 and May 2, 1994.

384. "Active Learning of Physics Using Microcomputer-Based Tools," seminar, Department of Physics, University of Pavia, Italy, April 27, 1994.

385. "*RealTime Physics* Laboratories," seminar, Department of Physics, University of Padua, Italy, April 26, 1994.

386. "Active Learning in the Introductory Physics Course Using Microcomputer-Based Tools," special seminar, Department of Physics, University of Udine, Italy, April 22, 1994.

387. "Active Learning in the Introductory Physics Course Using Microcomputer-Based Tools," colloquium, Department of Physics, California Polytechnic State University, San Luis Obispo, April 5, 1994.

388. "Promoting Active Learning in Introductory Physics Courses," NSF-sponsored Chautauqua Short Course, March 31-April 2, 1994, California State University, Fullerton (with Ronald Thornton).

389. "Student Oriented Science Microcomputer-Based Laboratories," workshop for high school physics teachers, Center for Science and Mathematics Teaching, Tufts University, March 18-19, 1994 (with Ronald Thornton).

390. "Active Learning in Introductory Physics Using Microcomputer-Based Tools," invited mini-workshop at Instructional Technology Colloquium, University of Massachusetts, Boston, February 25, 1994.

391. "Active Learning in the Introductory Physics Course Using Microcomputer-Based Tools," colloquium, Dudley Wright Center for Science Education, Tufts University, February 17, 1994.

392. "Active Learning in the Introductory Physics Course Using Microcomputer-Based Tools," invited talk at Statewide Conference and Dissemination of Exemplary Mathematics and Science Programs for Minorities, Clark Atlanta University, November 4, 1993.

393. "Active Learning in the Introductory Physics Lab," invited talk, Michigan Chapter of the American Association of Physics Teachers, Traverse City, October 30, 1993.

394. "Active Learning in the Introductory Physics Course," colloquium, Department of Natural Sciences, University of Michigan, Dearborn, October 29, 1993.

395. "Active Learning in the Introductory Physics Course," colloquium, Department of Physics, University of Michigan, Flint, October 28, 1993.

396. "Two-Year College Microcomputer-Based Laboratory Followup Workshop," Joliet Jr. College, Joliet, IL, September 23-25, 1993 (with Ron Thornton and Priscilla Laws).

397. "*RealTime Physics*: Active Learning in the Introductory Laboratory," invited lecture, Lab Focus '93 Conference, August, 1993.

398. "Teaching About Dynamics: A New Approach to Understanding Newton's Laws," AAPT/PTRA Workshop, August 4-5, 1993, Boise.

399. Invited lecture and workshop, Department of Physics, Dickinson College, "Practical Aspects of Instituting Active Learning in a University Setting," June 11, 1993.

400. "*RealTime Physics*: A New Interactive Introductory Laboratory Program," invited workshop at the Conference on the Introductory Physics Course, Rensselaer Polytechnic Institute, May 23, 1993 (with Ronald Thornton).

401. "*RealTime Physics*: A New Interactive Introductory Laboratory Program," invited talk at Pacific Northwest Association for College Physics meeting, April 16, 1993.

402. "Active Learning in Introductory Physics" and "No More Lectures," invited exhibit and workshop at National Science Foundation Invitational Conference, "Beyond National Standards and Goals: Excellence in Mathematics and Science Education K-16," Washington, D.C., February 9-11, 1993 (with Ron Thornton and Priscilla Laws).

403. "*RealTime Physics* Mechanics: Using MBL Tools in a New Mechanics Laboratory Sequence," invited talk, American Association of Physics Teachers Winter Meeting, New Orleans, January 4, 1993, AAPT Announcer **22**, 38 (1992).

404. "Teaching Electric Circuit Concepts Using Microcomputer-Based Current and Voltage Probes," invited talk, NATO Advanced Research Workshop--Microcomputer-Based Laboratories, Amsterdam, November 9-13, 1992. Also poster session, "*RealTime Physics* Mechanics Sequence."

405. "Engaging Students with Microcomputer-Based Laboratories and *Interactive Lecture Demonstrations*," invited talk to Instructional Innovations panel, National Science Foundation Workshop on the Role of Faculty from the Scientific Disciplines in the Undergraduate Education of Science and Mathematics Teachers, November 4-6, 1992.

406. Invited lecture and workshop, Department of Physics, Dickinson College, "Adapting Interactive Teaching Techniques to a University Environment," June 19, 1992.

407. "Active Learning of Physics Concepts Using Microcomputer-Based Tools," Physics Colloquium, Ohio State University, April 20, 1992.

408. "Practical Aspects of Initiating Active Learning in the Laboratory," invited seminar, Biology Department, University of Oregon, November 14, 1991.

409. "Engaging Students with Interactive Introductory Laboratories," invited lecture, American Association of Physics Teachers Summer Meeting, Vancouver, B.C., June 26, 1991, AAPT Announcer **21**, 48 (1991).

410. Invited American Association of Physics Teachers full-day workshops "Mastering Physics Concepts Using Microcomputer-Based Laboratories," and "Teaching Physics as a Workshop Course--Using Pedagogy, Apparatus and Computer Tools," at AAPT Summer Meeting, Orono, Maine, August 10-15, 1992, AAPT Summer Meeting, Vancouver, B.C., June 23-29, 1991, AAPT Winter Meeting, San Antonio, January 19-24, 1991, AAPT Summer Meeting, Minneapolis, June 25-30, 1990, AAPT Winter Meeting, Atlanta, January 20 - 26, 1990 and at AAPT Summer Meeting, San Luis Obispo, California, June 26-July 1, 1989 (with Ronald Thornton and Priscilla Laws).

411. Invited lecture and workshop, Department of Physics, Dickinson College, "Workshop Physics in a University Environment," June 7, 1991.

412. "Practical Aspects of Initiating Active Learning in the Laboratory," Physics Seminar, University of Washington, May 23, 1991.

413. Invited member of "Physics 2000" panel, John Wiley, Inc., May 14, 1991.

414. "Active Learning of Force and Motion Concepts Using Microcomputer-Based Laboratories," Physics Colloquium, North Carolina State University, April 15, 1991.

415. "Active Learning of Physics Concepts Using Microcomputer-Based Laboratories," Physics Colloquium, Reed College, February 13, 1991.

416. "Workshop Physics--Learning from Doing Real Physics," invited presentation as part of the panel "Physics--The Development of a Lean, Lively, Lab-Rich Curriculum," at the Project Kaleidoscope National Colloquium, Washington, DC, February 4-5, 1991.

417. "Microcomputer-Based Laboratory Tools for Macintosh Computers," North Central Regional Education Laboratory's (NCREL) Tech Expo and Conference 1990, Chicago, October 20-22, 1990.

418. "Active Learning of Physics Concepts Using Microcomputer-Based Laboratories," Physics Colloquium, University of Oregon, May 10, 1990.

419. Invited lecture, Department of Physics, Dickinson College, "Adapting Workshop Physics to a New Environment," June 8, 1990.

420. "Active Learning of Physics Concepts Using Microcomputer-Based Laboratories," invited poster session, Apple MacEquations, University of Oregon, May 11, 1990.

421. "Active Learning of Heat and Temperature Concepts Using Microcomputer-Based Laboratory Tools," invited paper at NATO Advanced Study Workshop "Student Development of Physics Concepts: The Role of Educational Technology," Pavia, Italy, October 4-7, 1989.

422. "Active Learning of Everyday Physics: The Microcomputer-Based Laboratory Approach," Physics Colloquium, Northeastern University, August 23, 1989.

423. "Constructing Student Knowledge in Science Using Microcomputer-Based Laboratory Tools," invited paper at Conference "Improving Teaching and Learning in Introductory Courses," Salem State College, May 5, 1989.

424. "Microcomputer-Based Introductory Physics Laboratories", Physics Colloquium, California Polytechnic State University, San Luis Obispo, California, May 7, 1987.

425. "Teaching Physics Using Microcomputer-Based Laboratories," invited workshop at Lane Education Service District, February 7, 1989.
426. "The Magic of Physics; the Physics of Magic," invited optics magic show at Willamette Science and Technology Center, March 25, 1989.
427. Invited American Association of Physics Teachers full-day workshop: "Using Microcomputer-Based Laboratories to Teach Physical Intuition,", AAPT Winter, 1989 Meeting (San Francisco), AAPT Summer, 1988 Meeting (Ithaca), AAPT Winter, 1988 Meeting (Washington), AAPT Winter, 1987 Meeting (San Francisco) (with Ronald Thornton).
428. "Using Microcomputer-Based Laboratories to Teach Physical Intuition", workshop at AAPT Oregon Chapter Meeting, University of Oregon, October 24, 1987.
429. Lecture and workshop on holography as part of Oregon Summer Science Experience, Summer 1984, 1985, 1986.
430. "A Hologram is Worth a Million Words!", invited talk at the Oregon Science Teachers Association meeting, Monmouth, Oregon, October, 1985.
431. "The Magic of Physics; the Physics of Magic," invited talk at the Pacific Northwest Association for College Physics (PNACP) Meeting, March 29-30, 1985.
432. "A Hologram is Worth a Million Words", invited public lecture on holography, Willamette Science and Technology Center, February 27, March 5 and May 22, 1981.
433. Workshops on use of the Department of Energy, Energy Environment Simulator in the classroom, November 11 and 19, 1981 (sponsored by WISTEC), February 27 and March 3, 1980 (sponsored by EWEB and Lane E.S.D.), August 27, 1980 at Bethel School District Teacher Energy Workshop (sponsored by EWEB and Lane E.S.D.).
434. Lilly Endowment Workshop on the Liberal Arts, June 17-July 4, 1979.
435. Over 58 Energy Workshops to a variety of groups in the Detroit area during 1976-78

PUBLICATIONS:

1. David R. Sokoloff, "Active Learning of Optics and Photonics Including Virtual Options," Proceedings Volume 12723, Seventeenth Conference on Education and Training in Optics and Photonics: ETOP 2023. https://doi.org/10.1117/12.2669304
2. David R. Sokoloff, "Applications of Technology to Promote Active Learning with Examples from Acceleration and Gravity," chapter in *New Challenges and Opportunities in Physics Education* Marilena Streit-Bianchi, et. al. eds., ,(Springer 2023). https://doi.org/10.1007/978-3-031-37387-9
3. David R. Sokoloff, "Multimedia Resources, Physics Education Research (PER) and the Development of Activities for Virtual Learning," chapter in *Proceedings of Frontiers of Fundamental Physics (FFP16) Virtual International Symposium*, Istanbul University, May 23-25, 2022, to be published by Springer.
4. David R. Sokoloff and Tuğba Yüksel, "Physics Education Research and the Development of Active Learning Strategies in Introductory Physics," chapter in *The International Handbook of Physics Education Research: Learning Physics*, Mehmet Fatih Taşar and Paula R. L. Heron, eds., 23-1 to 23-6 (AIP Publishing, 2023). https://aip.scitation.org/doi/10.1063/9780735425477
5. David R. Sokoloff, "Exploring Multimedia to Adapt Interactive Lecture Demonstrations for Home Use," chapter in *Physics Teacher Education What Matters?* Joan Borg Marks, Pauline Galea, Suzanne Gatt and David Sands, eds. 3-13 (Springer, 2022). https://doi.org/10.1007/978-3-031-06193-6
6. David R. Sokoloff, American Institute of Physics Oral History, July 12, 2021. https://www.aip.org/history-programs/niels-bohr-library/oral-histories/47457
7. Sokoloff D.R., "Active Dissemination—Over Three Decades of Faculty Development in Active Learning," in Jarosievitz B., Sükösd C. (eds.) *Teaching-Learning Contemporary Physics. Challenges in Physics Education*, 201-211 (Springer, 2021). http://doi.org/10.1007/978-3-030-78720-2_14
8. D.R. Sokoloff, "Multimedia in Physics Education," chapter in Jenaro Guisasola, & Eilish McLoughlin, eds. (2022). Connecting Research in Physics Education with Teacher Education 3. Zenodo. https://doi.org/10.5281/zenodo.5792968, pp. 162-172.
9. David R. Sokoloff, "Home-Adapted Interactive Lecture Demonstrations," self-published, July, 2020: **https://pages.uoregon.edu/sokoloff/HomeAdaptedILDs.html**
10. David R. Sokoloff, "2020 Oersted Medal Presentation: If opportunity doesn't knock, build a door—My path to active dissemination of active learning," *American Journal of Physics* **88,** 343 (2020).
11. Erik Bodegom, Erik Jensen and David R. Sokoloff, "Adapting RealTime Physics for Distance Learning with the IOLab," *Phys. Teach.* **57**: 6, 382 (2019).
12. David Sokoloff, Erik Bodegom and Erik Jensen, "Research Validated Distance Learning Labs for Introductory Physics Using IOLab," chapter in *The Role of Laboratory Work in Improving Physics Teaching and Learning,* (Springer Nature, 2018).

13. David R. Sokoloff, "Active Learning of Introductory Light and Optics," *Phys. Teach.* 54: 1, 18 (2016).
14. Priscilla W. Laws, Maxine C. Willis and David R. Sokoloff, "Workshop Physics and Related Curricula: A 25 Year History of Collaborative Learning Enhanced by Computer Tools for Observation and Analysis," *Phys. Teach.* **53**: 7, 401(2015).
15. Michi Ishimoto, Ronald K. Thornton and David R. Sokoloff, "Assessing the Japanese translation of the Force and Motion Conceptual Evaluation using pre-concepts of Japanese university students," *Phys. Rev. ST Phys. Educ. Res.* 10, (2014).
16. David R. Sokoloff, "Active Learning of Introductory Optics: Strategies for the U.S. and the Developing World," *Latin American Journal of Physics Education* **6:** 16-22 (2012).
17. David R. Sokoloff, Ronald K. Thornton and Priscilla W. Laws, *RealTime Physics: Active Learning Laboratories, Module 1: Mechanics, 3rd Edition* (Hoboken, NJ, John Wiley and Sons, 2011).
18. David R. Sokoloff, Priscilla W. Laws and Ronald K. Thornton, *RealTime Physics: Active Learning Laboratories, Module 2: Heat and Thermodynamics, 3rd Edition* (Hoboken, NJ, John Wiley and Sons, 2011).
19. David R. Sokoloff and Priscilla W. Laws, *RealTime Physics: Active Learning Laboratories, Module 3: Electricity and Magnetism, 3rd Edition* (Hoboken, NJ, John Wiley and Sons, 2012).
20. David R. Sokoloff, *RealTime Physics: Active Learning Laboratories, Module 4: Light and Optics, 3rd Edition* (Hoboken, NJ, John Wiley and Sons, 2012).
21. David Sokoloff, *Tercer Taller Regional del Cono sur Sobre Aprendizaje Activo de la Fisica: Electricidad y Magnetismo,* with J. Benegas, P. Laws, G. Zavala, G. Punte and Z. Gangoso, Universidad Nacional de San Luis (San Luis, Argentina, 2010).
22. *Apprentissage Actif en Optique et Photonique, Manuel de Formation, Version Française,* David R. Sokoloff, ed., (Paris, UNESCO, 2009).
23. David R. Sokoloff, Ronald K. Thornton and Priscilla W. Laws, "RealTime Physics: Active Learning Labs Transforming the Introductory Laboratory," *Eur. J. of Phys.*, **28** (2007), S83-S94.
24. *Active Learning in Optics and Photonics Training Manual*, David R. Sokoloff, ed., (Paris, UNESCO, 2006).
25. David R. Sokoloff, "The Physics of magic; the Magic of Physics," *Proceedings of the GIREP Seminar on Informal Learning and Public Understanding of Physics, 5-9 September, 2005*, (Ljubljana, University of Ljubljana, 2006).
26. David R. Sokoloff and Ronald K. Thornton, *Interactive Lecture Demonstrations* (Hoboken, NJ, John Wiley and Sons, 2004).
27. David R. Sokoloff, Priscilla W. Laws and Ronald K. Thornton, *RealTime Physics: Active Learning Laboratories, 2004 edition, Module 1: Mecchanics* (Hoboken, NJ, John Wiley and Sons, 2004).
28. David R. Sokoloff, Priscilla W. Laws and Ronald K. Thornton, *RealTime Physics: Active Learning Laboratories, 2004 edition, Module 2: Heat and Thermodynamics,* (Hoboken, NJ, John Wiley and Sons, 2004).
29. David R. Sokoloff, Priscilla W. Laws and Ronald K. Thornton, *RealTime Physics: Active Learning Laboratories, 2004 edition, Module 3: Electric Circcuits* (Hoboken, NJ, John Wiley and Sons, 2004).
30. David R. Sokoloff, Priscilla W. Laws and Ronald K. Thornton, *RealTime Physics: Active Learning Laboratories, 2004 edition, Module 4: Light and Optics* (Hoboken, NJ, John Wiley and Sons, 2004).
31. David R. Sokoloff, "Activity Based Physics Institutes: In-Service Teacher Professional Development with Computer Supported Tools and Pedagogy," *Proceedings of the Second International GIREP Seminar Quality Development in Teacher Education and Training—2003* (Udine, Forum, 2004).
32. Proceedings of UNESCO-ASPEN Regional Workshop on Active Learning in Physics, "Recent Developments in Physics Education Research," University of Peradeniya, Peradenya, Sri Lanka (2002).
33. Proceedings of UNESCO-ASPEN Seminar-Workshop, "Multimedia Physics Education: Promoting Active Learning in Introductory Physics Courses July 9-15, 2000," Published by Institute of Photonics and Information Technology, Chonbuk National University, Chonju, Korea.
34. "Keynote address: Active Learning of Physics Concepts—A Brief Overview," Proceedings of the ASPEN Workshop on Physics Demonstrations and Classroom Innovations (ASPEN '99), Hanoi, Vietnam, November 11-14, 1999, Hanoi University of Science, 2001.
35. "Improving Conceptual Learning in Lecture with *Interactive Lecture Demonstrations*," Proceedings of the ASPEN Workshop on Physics Demonstrations and Classroom Innovations (ASPEN '99), Hanoi, Vietnam, November 11-14, 1999, Hanoi University of Science, 2001.
36. David R. Sokoloff, Ronald K. Thornton and Priscilla W. Laws, *RealTime Physics Module 3: Electric Circuits*, (New York, John Wiley and Sons, 2000).
37. Ronald K. Thornton and David R. Sokoloff, *Microcomputer-Based Interactive Lecture Demonstrations (ILDs) in Force, Motion and Energy with Teachers' Guide* (Portland, Vernier Software, 1999).

38. Priscilla Laws, David Sokoloff and Ronald Thornton, "Promoting Active Learning Using the Results of Physics Education Research," *UniServe Science News* Vol. 13, 1999.
39. David R. Sokoloff, Ronald K. Thornton and Priscilla W. Laws, "*RealTime Physics Module 1: Mechanics*, (New York, John Wiley and Sons, 1998).
40. David R. Sokoloff, Ronald K. Thornton and Priscilla W. Laws, *RealTime Physics Module 2: Heat and Thermodynamics*, (New York, John Wiley and Sons, 1998).
41. Ronald K. Thornton and David R. Sokoloff, "Assessing Student Learning of Newton's Laws: The *Force and Motion Conceptual Evaluation* and the Evaluation of Active Learning Laboratory and Lecture Curricula," *American Journal of Physics* **66**, 338-352 (1998).
42. David R. Sokoloff and Ronald K. Thornton, "Using *Interactive Lecture Demonstrations* to Create an Active Learning Environment," *Phys. Teach.* **35:** 6, 340 (1997).
43. David R. Sokoloff, Priscilla W. Laws and Ronald K. Thornton, *RealTime Physics Electric Circuits V. 1.20* (Portland, Vernier Software, 1997).
44. David R. Sokoloff, Ronald K. Thornton and Priscilla W. Laws, *RealTime Physics Heat and Thermodynamics V. 1.00* (Portland, Vernier Software, 1997).
45. Ronald K. Thornton and David R. Sokoloff*, Microcomputer-Based Interactive Lecture Demonstrations (ILDs) in Force and Motion with Teachers' Guide* (Portland, Vernier Software, 1997).
46. Contributing author to Priscilla W. Laws*, Workshop Physics Activity Guide*, (New York, Wiley, 1997).
47. David R. Sokoloff and Ronald K. Thornton, "Using *Interactive Lecture Demonstrations* to Create an Active Learning Environment," in *The Changing Role of the Physics Department in Modern Universities, Proceedings of the International Conference on Undergraduate Physics Education*, 1061-1074 (American Institute of Physics, 1997).
48. Ronald K. Thornton and David R. Sokoloff, "RealTime Physics: Active Learning Laboratory," in *The Changing Role of the Physics Department in Modern Universities, Proceedings of the International Conference on Undergraduate Physics Education*, 1101-1118 (American Institute of Physics, 1997).
49. David R. Sokoloff, "Teaching Electric Circuit Concepts Using Microcomputer-Based Current and Voltage Probes," chapter in *Microcomputer-Based Labs: Educational Research and Standards,* Robert F. Tinker, ed., *Series F, Computer and Systems Sciences,* **156**, 129-146 (Berlin, Heidelberg, Springer Verlag, 1996).
50. David R. Sokoloff, "RealTime Physics Electricity: Active Learning of Electric Circuit Concepts Using Microcomputer-Based Current and Voltage Probes," accepted for publication in *La Fisica Nella Scuola*, based on research reported at IV Settimana della Cultura Scientifica Universita degli Studi di Udine, 22 April, 1994.
51. David R. Sokoloff, Ronald K. Thornton and Priscilla W. Laws, "*RealTime Physics*: Mechanics V. 1.40 (Portland, Vernier Software, 1994).
52. David R. Sokoloff, "RealTime Physics: Active Learning in the Introductory Laboratory," *Proceedings of Lab Focus '93*, 98-101, (American Association of Physics Teachers, 1993).
53. David R. Sokoloff, "Engaging Students with Microcomputer-Based Laboratories and *Interactive Lecture Demonstrations*," *Proceedings of the National Science Foundation Workshop on the Role of Faculty from the Scientific Disciplines in the Undergraduate Education of Future Science and Mathematics Teachers*, 38-48, (NSF, 1993).
54. Ronald K. Thornton and David R. Sokoloff, "Learning Motion Concepts Using Real-Time Microcomputer-Based Laboratory Tools," *American Journal of Physics* **58**, 858 (1990) (with Ronald Thornton).
55. Ronald K. Thornton and David R. Sokoloff, "Tools for Scientific Thinking--Heat and Temperature Curriculum and Teachers' Guide," (Portland, Vernier Software, 1993). (Under contract for publication by John Wiley and Sons.)
56. David R. Sokoloff and Ronald K. Thornton, "Tools for Scientific Thinking--Motion and Force Curriculum and Teachers' Guide," Second edition, (Portland, Vernier Software, 1992). (First edition, 1990.) (Under contract for publication by John Wiley and Sons.)
57. David R. Sokoloff, "Force and Motion: Apple II Software Guide," (Portland, Vernier Software, 1990).
58. David R. Sokoloff, "Energy Experiments for Nonscience Majors," *The Physics Teacher* **16**, 86 (1978).
59. David R. Sokoloff and Walter Holloway, "Matter, Energy and Life--Physics in an Interdisciplinary, General Education Science Course," *American Journal of Physics* **45**, 716 (1977).
60. D. R. Sokoloff and A. Javan, "Precision Spectroscopy of the N0 $00^{o}1$- $10^{o}0$ Laser Band by Frequency Mixing in an Infrared, Metal-Metal Oxide-Metal Point Contact Diode," *Journal of Chemical Physics* **56**, 4028 (1972).

61. D. R. Sokoloff, A. Sanchez, R.M. Osgood and A. Javan. "Extension of Laser Harmonic Frequency Mixing into the 5 Micron Region," *Applied Physics Letters* **17**, 257 (1970)
62. V. Daneu , D. Sokoloff, A. Sanchez and A. Javan, "Extension of Laser Harmonic Frequency Mixing Techniques into the 9 Micron Region with a Metal-Metal Point Contact Diode," *Applied Physics Letters* **15**, 398 (1969).
63. L.O. Hocker, D.R. Sokoloff, V. Daneu, A. Szoke and A. Javan, "Frequency Mixing in the Infrared and Far-Infrared Using a Metal-to-Metal Point Contact Diode," *Applied Physics Letters* **12**, 401 (1968).

SPONSORED COURSES AND WORKSHOPS AT THE UNIVERSITY OF OREGON:

1. "Promoting Active Learning in Introductory Physics Courses," NSF-sponsored Chautauqua Short Course, June 29-July 1, 2009 (with Ronald Thornton and Priscilla Laws).
2. "Promoting Active Learning in Introductory Physics Courses, NSF-sponsored Chautauqua Short Course, June 7-9, 2008 (with Ronald Thornton).
3. "Activity Based Physics Faculty Institutes," NSF-sponsored summer institutes for two year college, four year college and university faculty, June 17-22 and June 24-29, 2007 (with Ronald Thornton and John Garrett).
4. "Using IT Tools to Enhance Learning for All Introductory Physics Students," Active Learning Workshop for Korean Visiting Educators, July 18, 2006.
5. "Activity Based Physics Faculty Institutes," NSF-sponsored summer institutes for two year college, four year college and university faculty, June 19-24 and June 26-July 1, 2005 (with Ronald Thornton and John Garrett).
6. "Promoting Active Learning in Introductory Physics Courses II, NSF-sponsored Chautauqua Short Course, June 16-18, 2005, July 24-26, 2003 and August 3-5, 2001 (with Ronald Thornton and Priscilla Laws).
7. "Activity Based Physics Institute," NSF-sponsored institutes, each for 30 high school teachers, June 15-27, 2003, June 16-28, 2002, June 17-29, 2001 and June 18-30, 2000.
8. "Promoting Active Learning in Introductory Physics Courses I, NSF-sponsored Chautauqua Short Course, June 10-12, 2004 and June 6-8, 2002 (with Ronald Thornton and Priscilla Laws).
9. "Promoting Active Learning in Introductory Physics Courses II," NSF-sponsored Chautauqua Short Course, June 17-19, 1999.
10. "Summer Seminar: Teaching Introductory Physics Using Interactive Teaching Methods and Computers," June 21-July 3, 1998, sponsored by National Science Foundation.
11. "Active Learning in Introductory Physics Courses Using Microcomputer-Based Tools," February 28, 1998, workshop for Oregon college/university faculty, sponsored by OCEPT.
12. Oregon Summer Outreach in Science, institute for 23 high school teachers of science, July 20-August 1, 1997, sponsored by Howard Hughes Medical Institute.
13. "Promoting Active Learning in Introductory Physics Courses," NSF-sponsored Chautauqua Short Course, June 5-7, 1997.
14. Oregon Summer Outreach in Science, institute for 23 middle and junior high school teachers of science, July 14-26, 1996, sponsored by Howard Hughes Medical Institute.
15. "Promoting Active Learning in Introductory Physics Courses," NSF-sponsored Chautauqua Short Course, June 6-8, 1996.
16. Student Oriented Science (SOS), one-day followup workshop for 24 high school physics teachers, administrators and college teacher preparation faculty, December 9, 1995, sponsored by U.S. Department of Education.
17. Student Oriented Science (SOS), two-day workshop for 24 high school physics teachers, administrators and college teacher preparation faculty, October 27-28, 1995, sponsored by U.S. Department of Education.
18. Oregon Summer Outreach in Science, institute for 28 high school and community college teachers of science, July 16-28, 1995, sponsored by Howard Hughes Medical Institute.
19. "Promoting Active Learning in Introductory Physics Courses," NSF-sponsored Chautauqua Short Course, June 22-24, 1995.
20. Student Oriented Science (SOS), one-day followup workshop for 24 high school physics teachers, administrators and college teacher preparation faculty, December 3, 1994, sponsored by U.S. Department of Education.
21. Student Oriented Science (SOS), two-day workshop for 24 high school physics teachers, administrators and college teacher preparation faculty, October 28-29, 1994, sponsored by U.S. Department of Education.
22. Student Oriented Science (SOS), two-day workshop for 24 high school physics teachers, administrators and college teacher preparation faculty, April 8-9, 1994, sponsored by U.S. Department of Education.
23. Oregon Summer Outreach in Science, institute for 24 high school and community college teachers of science, July 18-30, 1993, sponsored by Howard Hughes Medical Institute.

24. Oregon TIIPS (Teaching Institute for Interactive Physical Science) year-long monthly workshops and equipment loan program for 18 local middle school teachers, 1991-93, sponsored by the U.S. Department of Education, Eisenhower program. In cooperation with Willamette Science and Technology Center (WISTEC).
25. Oregon STIR (Science Teaching: Implementation and Research) summer workshop and spring followup workshop and equipment loan program for 14 Oregon high school physics and physical science teachers in the use of microcomputer-based laboratory tools and curricula, 1991-92, sponsored by the U.S. Department of Education, Eisenhower program.
26. Oregon STIR (Science Teaching: Implementation and Research) summer workshop and spring followup workshop and equipment loan program for 14 Oregon high school physics and physical science teachers in the use of microcomputer-based laboratory tools and curricula, 1990-91, sponsored by the U.S. Department of Education, Eisenhower program.
27. Oregon STIR (Science Teaching: Implementation and Research) year-long monthly workshops and equipment loan program for 17 local high school physics and physical science teachers in the use of microcomputer-based laboratory tools and curricula, 1988-90, sponsored by the U.S. Department of Education, Eisenhower program.
28. Oregon SMITE (Science and Mathematics Institute for Teaching Excellence), summer workshop and spring follow up workshop for 60 high school science and mathematics teachers from the Pacific Northwest, 1985-86, sponsored by the National Science Foundation.
29. Summer Energy Workshop for middle school teachers, "Energy Production and Use in the Pacific Northwest," Summer, 1982 (with Dr. Alan Hughes, EWEB), sponsored by U.S. Department of Energy Faculty Development Program.
30. Summer Energy Workshop for middle school teachers, "Energy Production and Use in the Pacific Northwest," Summer, 1981 (with Dr. Alan Hughes, EWEB), sponsored by U.S. Department of Energy Faculty Development Program.
31. Summer Energy Workshop for middle school teachers, "Energy Production and Use in the Pacific Northwest," Summer, 1980 (with Dr. Alan Hughes, EWEB), sponsored by U.S. Department of Energy Faculty Development Program.

CONTRIBUTED PAPERS:

1. "Technology for Active Learning of Mechanics: IOLab vs. Vernier and PASCO," Pacific Northwest Association for College Physics/Oregon AAPT Joint Meeting, Beaverton, OR, March 9, 2019.
2. "Adapting RealTime Physics for Distance Learning with IOLab—A Final Report ," American Association of Physics Teachers Summer Meeting, Washington, DC, July 30, 2018.
3. "Research Validated Distance Learning Labs for Introductory Physics Using IOLab," American Association of Physics Teachers Winter Meeting, New Orleans, LA, January 12, 2016.
4. "Peer-Led Team Learning (PLTL) at the University of Oregon," Summer AAPT Meeting, Rochester, NY, July 23, 2001.
5. "Active Learning in Lecture Using *Interactive Lecture Demonstrations* in Heat and Thermodynamics, Electricity and Magnetism and Optics," Northwest Section of the American Physical Society, Seattle, WA, May 25, 2001.
6. "Engaging Students with Interactive, Microcomputer-Based Demonstrations," AAPT Announcer **24**, 92 (1994).
7. "Student Oriented Science: Promoting Active Learning with Microcomputer-Based Tools," poster session at National Educational Computing Conference, Boston, June 15, 1994.
8. "Teaching Electric Circuit Concepts Using Microcomputer-Based Current and Voltage Probes," AAPT Announcer **22**, 84 (1992).
9. "Oregon Teachers' Institute for Interactive Physical Science," AAPT Announcer **22**, 53 (1992).
10. Robert B. Teese and David R. Sokoloff, "An MBL Probe for Angular Variables," presented to the Ohio Section of the AAPT, March 14, 1992.
11. "Engaging Lecture Students in Interactive, Microcomputer-Based Demonstrations," AAPT Announcer **21**, 71 (1991).
12. "Interactive Physics--Adapting Workshop Physics to a More Traditional Setting", talk delivered to the Pacific Northwest Association for College Physics (PNACP,) April 5, 1991.
13. "Interactive Physics--Adapting Workshop Physics to a More Traditional Setting," AAPT Announcer **20**, 62 (1990).
14. David R. Sokoloff, Robert Teese and Ronald K. Thornton, "Teaching Light Concepts Using Microcomputer-Based Laboratory Tools," AAPT Announcer **20**, 74 (1990).
15. "Using Microcomputer-Based Laboratory Tools to Teach Concepts of Waves and Sound," AAPT Announcer **19**, 81 (1989).
16. "Oregon STIR: Implementing Microcomputer-Based Laboratories at the Secondary Level," AAPT Announcer **19**, 55 (1989).
17. "Teaching Newton's Laws of Motion Using Microcomputer-Based Laboratory Tools," talk delivered to the Pacific Northwest Association for College Physics (PNACP,) April 15, 1989.
18. David R. Sokoloff and Ronald K. Thornton, "Using a Microcomputer-Based Force Probe to Teach Newton's Laws of Motion," AAPT Announcer **18**, 106 (1988).

19. "Using Microcomputer-Based Laboratories to Teach Physical Intuition," talk delivered to the Oregon Science Teachers Association 1988 Fall Conference, October 14, 1988.
20. "Using Microcomputer-Based Laboratory Tools to Teach Basic Heat and Temperature Concepts, " AAPT Announcer **18**, 78 (1988).
21. "Microcomputer-Based Exploration of Thermal Conduction in the Introductory Physics Laboratory", talk delivered to the AAPT Oregon Section, April 23, 1988.
22. "Effectiveness of Microcomputer-Based Tools in Teaching Kinematics Concepts in the Introductory Physics Laboratory," talk delivered to the Pacific Northwest Association for College Physics, April 15, 1988.
23. "Microcomputer-Based Exploration of Thermal Conduction in the Introductory Physics Laboratory," AAPT Announcer **17**, 93 (1987).
24. "Oregon SMITE--An Interdisciplinary Honors Institute for High School Science and Mathematics Teachers," AAPT Announcer **15**, 61 (1985).
25. "The Magic of Physics; the Physics of Magic," talk delivered to the AAPT Oregon Section, October 1984.
26. "Preconception Quizzes as a Teaching Tool in General Physics," AAPT Announcer **13**, 111 (1983).
27. "The Magic of Physics; the Physics of Magic," AAPT Announcer **11**, 108 (1981).
28. "Back to Basics: Objectives, Prerequisites, Practice Exercises and Quizzes in an Introductory Laboratory Study Guide," AAPT Announcer **8**, 83 (1978).
29. "Energy Related Experiments for a General Education Science Course," talk delivered to the AAPT Michigan Section, March 12, 1977.
30. "Physics in an Integrated, Interdisciplinary Science Course for Nonscience Majors," Bulletin of the American Physical Society **20**, 77 (1975).
31. D. Sokoloff and A. Javan, "Absolute Frequency Determination of 9.3 Micron CO_2 Laser Transitions," Bulletin of the American Physical Society **15**, 505 (1970).

DEPARTMENT, UNIVERSITY, COMMUNITY SERVICE AND CONSULTING:

Reviewer of papers for *The Physics Teacher.*

Reviewer of papers for *European Journal of Physics.*

Reviewer of papers for *Physical Review: Physics Education Research*.

Reviewer of Fuller Fund and Yamani Fund applicants for AAPT.

NSF proposal reviewer, June, 2020.

Member, Commission 14 (Physics Education) of International Union of Pure and Applied Physics (IUPAP), January 1, 2018 – .

AAPT Representative to U.S. Liaison Committee for the International Union of Pure and Applied Physics (USLC/IUPAP), January 1, 2015 - .

NSF DUE proposal reviewer, February, 2018.

Representative of AAPT at meetings in Beijing with faculty from Peking University, Tsinghua University and Beijing Normal University to discuss future cooperative efforts, September 12, 2016.

NSF DUE proposal reviewer, March, 2017.

Member, External Review Committee, Department of Physics, Randolph College, Lynchburg, VA, September 29-30, 2016.

Representative of AAPT as presenter of congratulatory remarks on the occasion of the 50th Anniversary of Groupe International de Recherche sur l'Enseignement de la Physique (GIREP), August 29, 2016.

Welcomer at AAPT First Timers' events, 2012 to present.

NSF DUE proposal reviewer, March, 2016.

Peer Reviewer, Fulbright Specialist Program, 2014 – present.

President, Eugene Arts Umbrella Board of Directors, 2012-2013. (Vice President 2011-1012.)

Vice President, President Elect, President, Past President, American Association of Physics Teachers, 2009-2012.

Member, External Review Committee, Department of Physics, Whitman College, Walla Walla, WA, March - April, 2011.

Volunteer member, UNESCO Active Learning in Optics and Photonics (ALOP) working group and facilitator team, 2004 to present.

Evaluator, "Apprentissage Actif en Optique et en Photonique," UNESCO workshop French edition, March 30-April 3, 2007, Rabat, Morocco.

Member, National Advisory Committee, National Science Foundation-funded, "RealTime Physics Lab Implmentation Project," University of Central Florida, 2007 – 2010.

Member, National Advisory Committee, US Department of Education, Fund for the Improvement of Post-Secondary Education-funded, "Large-Class POGIL Project" (Process Oriented Guided Inquiry Learning), College of Charleston, 2007-2010.

Member Physics faculty search committee, Lane Community College, January-May, 2006.

Member NSF Site Visit Team, Pittsburgh Science of Learning Center, Carnegie Mellon University, June 7-9, 2006.

Member, AAPT Committee on Apparatus, 2006-2007.

Member, U.S. Delegation, World Conference on Physics and Sustainable Development, Durban, South Africa, October 31-November 2, 2005.

Consultant, UNESCO Paris, with M. Alarcon, Active Learning Project, May, 2004 to present.

Project Evaluator, NSF project, "Adapting and Implementation of Research-Based Curricula in Introductory Physics Courses," Seattle Pacific University, September 2003 to August, 2005.

Commercial Workshop on Physics Suite, American Association of Physics Teachers Summer Meeting, Salt Lake City, UT, August 9, 2005, Winter Meeting, Albuquerque, NM, January 10, 2005.

Book reviewer, Thompson, MacMillan, Perarson/Addison Wesley, Wiley, Freeman, Rutgers University Press, 2004 to present.

Focus Group, McGraw-Hill, November, 2003.

National Science Foundation Review Panel for the Course, Curriculum and Laboratory Improvement (CCLI) Program, 2001, 2006.

Physics Summer Session Director, September, 1998 - 2004.

Physics Teacher Education Advisor, September, 1998 - 2003.

Physics Teaching Assistant Supervisor, September, 1998 – August, 2001.

Reviewer of introductory physics text prospectus and chapter by Jerry Touger for John Wiley and Sons, November, 2000.

Reviewer of PRAXIS exam questions for Oregon Department of Education/Oregon University System, July, 2000.

Pre-major Advisor, September, 1999 – 2000.

Reviewer of Distance Learning Physics Course, Archipelago Productions, Harcourt-Brace, 1998.

Focus Group on Distance Learning, Archipelago Productions, Harcourt-Brace, 1998.

Reviewer of "The New Physics," by Eric Mazur (calculus-based introductory text) for Prentice Hall, 1997.

Project Evaluator, NSF funded "Project-centered Physics Curriculum Project," Dickinson College, 1997.

Member Advisory Committee to NSF and U.S. Department of Education funded project, "Integrated Core Curriculum for Mathematics, Physics and Chemistry," Hunter College, City University of New York, 1996 - 98.

Member, Advisory Committee to NSF funded "Project UNVEIL," Department of Physics, Southern Methodist University, 1996 - 1998.

Chair, Instructor/Laboratory Manager Search Committee, 1995-96.

Departmental review, Physics Department, Southern Oregon State College, Fall, 1995.

Reviewer of "Phyiscs," by Eugene Hecht for Brooks/Cole Publishing Company, 1996 and 1997.

Referee for American Journal of Physics.

Member, Advisory Committee to Dutchess Community College Integrated Calculus/Physics Program, 1993 - 95.

Member, Physics Academic Software Review Committee, American Institute of Physics, 1993 - 94.

Reviewer of proposals to Dwight D. Eisenhower program in science and mathematics, for Oregon State System of Higher Education, December, 1992.

Member, State of Oregon Mathematics, Science and Technology Council, 1992 - 94.

Presidential Awards for Excellence in Science and Mathematics Teaching Selection Committee, Oregon Department of Education, 1992.

Ersted Award Committee, 1992.

Goldwater Scholarship Committee, 1992 - 97.

Consultant, Department of Physics and Astronomy, Dickinson College, 1990.

Physics Undergraduate Advising Coordinator, 1979 - 98.

Executive Secretary, Admissions and Awards Committee, 1978 - 98.

Executive Secretary, Department Curriculum Committee, 1978 - 98.

Department Recruitment Committee, Ex-Officio, 1988 - 98.

University Advising Committee, 1988 - 89.

University Senate, 1984 - 86.

General Science Program Committee (Chair, 1980), 1978 - 1990.

Pre-Medical Advisory Committee, 1982 - 1989.

Teacher Education Committee, 1979 - 81, 1988 - 89.

Pre-Engineering Program Director and Advising Coordinator, 1983 - 84.

Chairman of organizing committee for the Oregon Science and Mathematics Conference, 1984.

Oregon Mathematics Educational Council Task Group on Mathematics Preparation for College/University in Oregon, 1982.

Invited judge at American Association of Physics Teachers Apparatus Competition, AAPT Summer 1982 Meeting, Ashland.

Science Director, Willamette Science and Technology Center, 1980 - 82.

Board of Directors, Willamette Science and Technology Center, 1979 - 82. Vice Chair of the Board, 1981 - 82. Chair, Executive Director Search Committee, 1981 - 82.

Cooperative Museum Commission Museum Advisory Council, 1980 - 82

University Representative to Northwest College and University Association for Science (NORCUS), 1981 - 98.

National Science Foundation Review Panel for the Student Science Training Program, 1978.