

## Appendix D

### Present Ph.D. Programs in the USA

#### Physics Department Programs

##### Arizona State University

Areas of interest: Research in scientific inference, inquiry and evaluation. Models and modeling in physics instruction and software design.

Senior Professor: David Hestenes [hestenes@asu.edu](mailto:hestenes@asu.edu)

Tempe, AZ 85287-1504 (602) 965-8438 or 6277

<http://modeling.la.asu.edu/modeling.html>

##### Iowa State University

Areas of interest: Research on learning physics with multiple representations; assessing and analyzing individual variability in student learning; curriculum development and instructional methods for active learning in large-enrollment classes; teacher preparation, and assessment of learning in elementary physics courses

Professor: David Meltzer [dem@iastate.edu](mailto:dem@iastate.edu)

Ames, IA 50011 (515)294-9358

<http://www.public.iastate.edu/~physics/personal/meltzer.html>

##### Kansas State University

Areas of interest: Research on students understanding of modern physics, integration of physics research and education, applying technology to teaching physics

Senior Professor: Dean Zollman [dzollman@phys.ksu.edu](mailto:dzollman@phys.ksu.edu)

Manhattan, KS 66506-2601 (913) 532-1612 Fax:913/532-7167

<http://www.phys.ksu.edu/perg>

##### University of Maine

Areas of Interest: Electric and magnetic effects, radiation and radioactivity, in-service and pre-service professional development for K-12 teachers

Senior Faculty: Randal Harrington [randal@maine.maine.edu](mailto:randal@maine.maine.edu)

Orono, ME, 04469 (207) 581-1237 <http://lrpe.umephy.maine.edu>

##### University of Maryland

Areas of interest: Physics education research, student attitudes and expectations, student understanding of mathematics in physics, student conceptual difficulties in the areas of waves and quantum mechanics

Senior Faculty: E.F. Redish, David Hammer

[redish@quark.umd.edu](mailto:redish@quark.umd.edu), [davidham@physics.umd.edu](mailto:davidham@physics.umd.edu)

College Park, MD 20742 (301)405-6120 <http://www.physics.umd.edu/rgroups/ripe/perg/>

### University of Massachusetts

Areas of interest: Expert-novice differences in knowledge organization and problem solving in physics, assessment of conceptual understanding, classroom communication systems, active learning in large classes, and materials development.

Senior Professors: Bill Gerace, Jose Mestre  
 Amherst, MA 01003. (413)545-3774  
<http://www-perg.phast.umass.edu/>  
 wjgerace@phast.umass.edu,  
 mestre@phast.umass.edu

### Montana State University

Areas of interest: Active inquiry-based teaching/learning in large introductory physics and astronomy courses, interdisciplinary science courses, and teacher preparation (K-12)

Senior Faculty: Jeff Adams, Greg Francis  
 Bozeman, MT 59717 (406) 994-7835 or -6625  
 adams@physics.montana.edu francis@physics.montana.edu  
[http://www.montana.edu/~wwwph/research/phys\\_ed.html](http://www.montana.edu/~wwwph/research/phys_ed.html)

### University of Nebraska-Lincoln

Areas of interest: Using multimedia to teach physics

Special Student Support: NSF Graduate Research Traineeships in Research and Development in Using Hypermedia for Knowing Physics

Senior Professor: Robert Fuller  
 Lincoln, NE 68588-0109 (402) 472-2790  
<http://www.unl.edu/physics/Education.html>  
 rfuller@unlinfo.unl.edu

### North Carolina State University

Areas of interest: Instructional technology research, development, and evaluation, assessing student understanding of various topics including kinematics graphs, dc circuits, ray optics, measurement and errors, thermodynamics, and waves, collaborative learning in large and small enrollment courses, revising instruction and popular texts to incorporate the findings of physics education research. effects of web-based delivery of animation and video, application of ideas about human visual perception and cognition to instructional software design, teacher development.

Senior Faculty: Robert Beichner, John Hubisz, David Haase, Karen Johnston, John Risley  
 Raleigh, NC 27695-8202 (919) 515-7226 John\_Risley@NCSU.edu Beichner@NCSU.edu  
[http://www2.ncsu.edu/ncsu/pams/physics/Physics\\_Ed](http://www2.ncsu.edu/ncsu/pams/physics/Physics_Ed)

### the Ohio State University

Areas of interest: Using verbal reports as data (think aloud techniques) to analyze student conceptual beliefs and problem solving, investigation of student attitudes about physics, determination of the impact of "inquiry techniques" on the development of problem solving ability, integrating the results of physics education research and the use of technology into coherent learning systems for introductory college and high school physics courses

Special Student Support: NSF Graduate Research Traineeships; GAANN Fellowships; NSF Course and Curriculum Development Grant, NSF ILI grant (Introductory Lab Instruction).

Senior Professors: Alan Van Heuvelen, Gordon Aubrecht  
 Columbus, OH 43210 (614) 292-6956 / 292-7436  
[avanh@mps.ohio-state.edu](mailto:avanh@mps.ohio-state.edu)  
<http://www.physics.ohio-state.edu/~physedu/home.htm>

### **Rensselaer Polytechnic Institute**

Areas of interest: Creation of alternate learning environments for Physics and other Science, Mathematics, and Engineering fields. Particular emphasis on technology and collaborative learning in large enrollment courses. Research on networked based distributed (distance) learning techniques and technologies. CUPLE, Computational Physics, and Studio Physics. Special Student Support: NSF Grad. Res. Traineeships

Senior Faculty: Jack Wilson, Jim Napolitano, Chun Leung, Philip Casabella  
Troy, NY 12180-3590 (518)276-6310 or -4853

wilsoj@rpi.edu, napolj@rpi.edu, leungc@rpi.edu, casabp@rpi.edu

<http://www.rpi.edu/dept/phys/physics.html> <http://cde.rpi.edu>

### **University of Washington**

Areas of interest: Research on the learning and teaching of physics in introductory and upper-division physics courses, introductory engineering courses, special courses for precollege teachers (K-12), and courses for preparing graduate teaching assistants, use of research as a guide to the development and assessment of curriculum

Senior Faculty: Lillian C. McDermott, Stamatis Vokos, Peter Shaffer, Paula Heron

Physics Department, Box 351560

Seattle, WA 98195-1560 (206) 685-2046 (Phys. Ed. Group)

valles@phys.washington.edu [www.phys.washington.edu/groups/peg/](http://www.phys.washington.edu/groups/peg/)

## **Multidisciplinary programs**

### **University of California at Berkeley**

SESAME - Graduate Group in Science and Mathematics Education

Areas of interest: Research in science and mathematics education with a particular emphasis on the role that cognitive science and technology can play in improving physics education

Senior Faculty: Barbara White (Director), Andrea DiSessa

School of Education, Berkeley, CA 94720 (510) 642-4206

Contact: Kate Capps, [kate@socrates.berkeley.edu](mailto:kate@socrates.berkeley.edu)

<http://www-gse.berkeley.edu/program/CD/cdprogramssesame.html>

### **Carnegie Mellon University**

CIL (Center for Innovation in Learning)

Areas of interest: Classical mechanics, and electricity and magnetism

Senior Faculty: Richard Hayes (Director), Ruth Chabay, Fred Reif, Bruce Sherwood

Pittsburgh, PA 15213 (412) 268-2740

[Bruce.Sherwood@cmu.edu](mailto:Bruce.Sherwood@cmu.edu) <http://cil.andrew.cmu.edu/>

### **University of Minnesota**

Areas of interest: Research in student problem-solving, cooperative group techniques, and gender differences from instructional techniques, development of a comprehensive computer environment to support the construction of physics ideas by students, development of computerized data acquisition and analysis using a LabView environment, graduate student teaching orientation and teaching support.

Senior Faculty: Kenneth Heller, Patricia Heller [physed@physics.spa.umn.edu](mailto:physed@physics.spa.umn.edu)

148 Physics Building, 116 Church St. S.E.

Minneapolis, MN 55455 <http://www.physics.umn.edu/groups/physed/>

**San Diego State University/University of California at San Diego**

Areas of interest: Studying learning from multiple perspectives in a computer-rich collaborative learning environment; development of innovative computer software to promote physics learning; development of innovative physics courses for middle school and high school.

Senior Professor: Fred Goldberg, [fgoldberg@sciences.sdsu.edu](mailto:fgoldberg@sciences.sdsu.edu)

CRMSE, 6475 Alvarado Road, Suite 206,

San Diego, CA 92120      619-594-5090

<http://public.sdsu.edu/CRMSE/jointdoctoral.html>