Jane C. Jackson

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CV updated in June 2020

PROFESSIONAL PREPARATION:
Arizona State University, Tempe. All degrees in physics. B.S. 1965, M.S. 1966, Ph.D. 1970

APPOINTMENTS:
July 1, 2016 – present: Arizona State University, Tempe
Co-Director, Modeling Instruction Program, Department of Physics
Jan. 2012 - June 30, 2016: Arizona State University, Tempe
Volunteer Co-Director of the Modeling Instruction Program, Department of Physics
May 2006 – Dec. 2011: Arizona State University, Tempe
Co-Principal Investigator and Project Director of Arizona Board of Regents-funded ESEA Title IIA grants (2006-2008, 2008-2010), "Improving the Quality of Arizona Teachers of the Physical Sciences and Mathematics", Department of Physics
November 2005 – May 2006: Arizona State University, Tempe
Volunteer Co-Director of the Modeling Instruction Program, Department of Physics
1994-Oct. 28, 2005: Arizona State University, Tempe
Academic Associate, Department of Physics and Astronomy
Project Director for these National Science Foundation grants: Modeling Instruction in High School Physics (1994-2000), Science and Technology Education Partnerships (1999-2003), A Graduate Program for Secondary Physics Teachers (2002-2005). David Hestenes was Principal Investigator of all of them.
1984-1998: Scottsdale Community College, Scottsdale, AZ . Professor of Physics
1992-03 (summers): Arizona State University, Tempe
Academic Associate, Department of Physics and Astronomy
Associate Director, NSF - REU Program in Physics
1990-1991: Arizona State University, Tempe
Sabbatical, Department of Chemical, Bio and Materials Engineering
1976-1984: South Dakota State University, Brookings. Assistant Professor of Physics
July 1972: Los Alamos Scientific Laboratory, Los Alamos, NM. Summer staff member

PUBLICATIONS SINCE 1997:
Hestenes, D., Megowan-Romanowicz, C., Osborn-Popp, S., **Jackson, J**., Culbertson R., (2011). A Graduate Program for High school Physics and Physical Science Teachers, *American Journal of Physics* **79**(9), p.971-979. http://modeling.asu.edu/R&E/Research.html
Jackson, Jane (2010). Arizona State University's preparation of out-of-field physics teachers: MNS summer program. *Journal of Physics Teacher Education Online* 5(4), p. 2-10. . http://www2.phy.ilstu.edu/~wenning/jpteo/issues/sum2010.html
Jackson, Jane, Larry Dukerich, and David Hestenes (2008). Modeling Instruction: An Effective Model for Science Education, *Science Educator* **17** (1), p.10-17. http://www.nsela.org/images/stories/scienceeducator/17article7.pdf
Hestenes, David and **Jane Jackson** (1997). Partnerships for Physics Teaching Reform -- a crucial role for universities. In E. Redish & J. Rigden (Eds.) The changing role of the

physics department in modern universities. American Institute of Physics. http://modeling.asu.edu

Jackson, Jane (1997). Get Real! A "Methods of Teaching Physics" Course Instructed by a High School Physics Teacher. In E. Redish & J. Rigden (Eds.) The changing role of the physics department in modern universities. American Institute of Physics.

CONFERENCE PRESENTATIONS SINCE 1997 (not including local):

Jackson, J. (2019). Modeling Instruction at Arizona State University: update AAPT Summer Meeting in Provo, UT

Jackson, J. (2012). Emergency professional development at Arizona State University. AAPT Winter Meeting in Ontario, CA. (Invited presentation)

Jackson, J. (2012). High School Physics: Chief STEM Pathway & Science-Math Literacy. AAPT Winter Meeting in Ontario, CA

Jackson, J. (2010). Arizona State University's preparation of out-of-field physics teachers: MNS summer program. AAPT Summer Meeting in Portland, OR.

Jackson, J. and D. Hestenes (2005 and 2004). Arizona State University's Summer Graduate Program for Physics Teachers, *AAPT Announcer* **35** (2), p.153 and **34** (2), p.179. Information at http://modeling.asu.edu/MNS/MNS.html

Jackson, J. (2002). A Longitudinal Study of Student Force Concept Inventory Scores under Modeling Instruction, *AAPT Announcer* **32** (2), p.110.

Jackson, J. and D. Hestenes (2001). U.S. Congress pushes University -High School Partnerships for K-12 Science Reform. *AAPT Announcer* **31** (2), p.134.

Jackson, J. and D. Hestenes (2000). The Arizona Science and Technology Education Partnership (AzSTEP), *AAPT Announcer* **30** (2), p.76. See http://modeling.asu.edu

Jackson, J. (1999). Modeling Workshops for Arizona Teachers, *AAPT Announcer* **29** (2)

GRANTS AWARDED SINCE 1997 (in consecutive order):

I co-wrote and directed the following grants for yearly Modeling Workshops for Arizona teachers of physics, chemistry, and/or middle school science and math, and for teachers' classroom technology. David Hestenes was P.I. through 2005, and Robert Culbertson was P.I. thereafter, for most grants.

Physics Modeling Workshops for School Technology Infusion (Eisenhower grant, 1998-2000. $49,500 in Year 1, $39,900 in Year 2)

Physics Modeling for School Technology Infusion (Arizona Community Foundation, (1998)

Physics Modeling for School Technology Infusion II (Medtronic Foundation, 1999-2000)

Physics Modeling Workshop for School Technology Infusion (AZ Community Fnd, 2000)

School - University Partnerships for Science and Mathematics Reform (Eisenhower & Improving Teacher Quality grant, 2001 – 2003. $100,000 in Year 1, $48,900 in Year 2)

Foundation for a School - University Partnership for Science and Mathematics Reform (ITQ grant, 2004-2006. $59,758 in Year 1, $60,000 in Year 2)

Mathematics and Science Modeling Workshops for Middle School and 9th Grade Teachers (I co-wrote and co-directed with Dr. Robert MacDuff, an ASU school - university partnership project, the AZ Dept. of Education 2005-2006 Math and Science Partnerships grant to Tolleson Elementary School District. $171,000. Joan McDonald, P.I.)

Improving the Quality of Arizona Teachers of Physics, Chemistry, Physical Sciences, and Mathematics (ITQ grant, 2006-2008. $200,000 in each of Years 1 and 2).

Improving the Quality of Arizona Teachers of the Physical Sciences and Mathematics (ITQ grant, 2008-2010. $226,562 in Year 1, $250,765 in Year 2).

Grants to support the summer Modeling Instruction and MNS degree programs, by the Boeing Company ($5000 to $50,000) from 2011 to 2016, and the Salt River Project ($10,000 to $15,000) in most years from 2008 to present.

Grants & solicitations for summer partial tuition scholarships and program support for teachers, by local companies, including Alliance Bank of Arizona ($5000 in 2016, $7500 in 2018 and 2019), Versum Materials (2016), West Pharmaceutical ($5000 in 2017), ON Semiconductor ($15,000 in 2018 and 2019), WebPT ($5000 in 2018 and 2019), Core Construction ($2500 in 2019, $4500 in 2020). Also I initiated requests for donations for summer tuition scholarships, from the Arizona Technology Council Foundation.

Grants for 1-day physics teacher workshops at ASU, from the Bauder Fund of the American Association of Physics Teachers ($1000 in 2016, $1000 in 2017).

OTHER PROFESSIONAL ACTIVITIES SINCE 1997:

I assisted David Hestenes in developing Arizona State University's summer graduate program for high school teachers of physics and physical science (starting in 2000).

I co-led five one-day workshops at AAPT meetings on "University - High School Partnerships for Physics Teaching Reform" with David Hestenes (1999-2002).

I organized AAPT national meeting sessions on Modeling Instruction, university - high school partnerships, physics education reform in high school, preparation of high school physics teachers, environmental issues, and ethics (1995-2005).

COMMUNITY OUTREACH:

Since 1996, I have managed listservs for physics and chemistry teachers, notably a statewide one called TCHRS (1150 subscribers as of spring 2020), and two for teachers who use Modeling Instruction (3200 subscribers on the physics listserv, 2000 on the chemistry listserv).

I maintain a legacy website on Modeling Instruction and related research; it includes many classroom resources that are used in ASU Modeling Workshops, as well as the Force Concept Inventory (in 29 languages), the Mechanics Baseline Test (in 11 languages), and the Lawson Classroom Test of Scientific Reasoning (CTSR), all password-protected. Until PhysPORT assumed responsibility in 2016, we got about 1000 requests each year for the password; most from post-secondary physics faculty all over the world. We still get many requests for the CTSR, particularly from Asian nations.

Since 2017 I have volunteered to enhance implemention, in physics and chemistry, of the Arizona legislature's appropriation in May 2017 of $300,000 and in June 2019 of $1.2 million for $2000 scholarships for K-12 certified teachers, for professional development to add credentials & certifications in CTE and STEM subjects – including becoming qualified to teach Dual Enrollment physics or chemistry. I cooperate and communicate with ADE staff in the Teacher Quality Division for this endeavor.

CAREER-RELATED SKILLS:

Research and Development: Since 1995 I have collaborated in research on high school physics teacher effectiveness as measured by pre- and posttest concept inventories, and on development and validation of research-based concept inventories in physics and physical science for K-12 (notably, Simplified Force Concept Inventory, Matter Concept Inventory).

Administration: Since 1994, I have directed NSF and U.S. Department of Education science and mathematics education grants, including responsibility for budgeting, procurement,

employee hiring, training and supervision, graduate and undergraduate students, clerical staff, coordination with universities and school districts nationwide, and dissemination.
Writing: grant writing (1997-now), preparation of resource documents for in-service professional development in physics and other K-12 science and math, publication of scholarly articles (listed above) and technical/final reports for grants.
Curriculum and Instruction: For 10 years at Scottsdale Community College I designed and implemented active engagement physics courses, including planning, teaching and assessment (PHY101, 111, 113, 121, 131, labs) and astronomy (AST 101, 111, 113, labs).
Mentoring: I mentored five Obama scholars. Nationally, I advise hundreds of high school physics and chemistry teachers, school district science coordinators, and college physics faculty, on many issues relating to professional development (1995 to present).

CURRENT PROFESSIONAL AFFILIATIONS:
American Association of Physics Teachers: lifetime member.
American Modeling Teachers Association: lifetime member.
Arizona section of the American Association of Physics Teachers:lifetime member.
National Science Education Leadership Association (NSELA) member.
Arizona Science Education Leadership Association (AZSELA) member.
Arizona Technology Council: Workforce Development and Education Committee member.

RECENT GRANT COLLABORATOR: Robert Culbertson (ASU)
GRADUATE ADVISOR: Akbar Ahmadzadeh (deceased)