

DEBORAH L. HANUSCIN

Assistant Professor of Science Education and Physics
MU Science Education Center
303 Townsend Hall
University of Missouri
Columbia, Missouri 65211
(573) 884-2527
hanuscind@missouri.edu

EDUCATION

- 2004 Ph.D., Curriculum and Instruction. Indiana University (Bloomington, IN)
Area of emphasis: Physics Education

Dissertation: *Learning the 'Grammar of Science': The Influence of a Physical Science Content Course on K-8 Teachers' Understandings of the Nature of Science.*
Dissertation Chair: Dr. Valarie L. Akerson.
- 2002-3 Visiting graduate student, Physics Education Group. University of Washington (Seattle, WA)
- 2001 M.S., Science and Environmental Education. Indiana University (Bloomington, IN)
- 1995 B.S., Elementary Education. Florida State University (Tallahassee, FL)

PROFESSIONAL EXPERIENCE

- 2004-present Assistant Professor, jointly appointed in the Department of Learning, Teaching, & Curriculum and the Department of Physics & Astronomy, University of Missouri (Columbia, MO)
- 2003-2004 Coordinator, Saturday Science QUEST Program, Indiana University School of Education (Bloomington, IN)
- 2002-2003 Associate Instructor, Department of Physics & Astronomy, Indiana University (Bloomington, IN)
- 1999-2002 Associate Instructor, Department of Curriculum & Instruction, Indiana University (Bloomington, IN)
- 2000-2002 Professional Developer, Inquiry Learning Forum, Center for Research on Learning and Technology, Indiana University (Bloomington, IN) <http://ilf.crlt.indiana.edu/>
- 2000-2001 Informal Science Educator, Wonderlab Museum of Science, Health, and Technology (Bloomington, IN)
- 2000 Curriculum Developer, Indiana Science Curriculum Frameworks Project, Center for Innovation in Assessment, Indiana University (Bloomington, IN)
- 1999 Informal Science Educator, Odyssey Science Center (Tallahassee, FL)
- 1996-1999 Classroom Teacher, Grade 4. Killlearn Lakes Elementary (Tallahassee, FL)
- 1995-1996 Classroom Teacher, Grades 4-5. Caroline Brevard Elementary (Tallahassee, FL)

HONORS AND AWARDS

Teaching Honors

- 2009 Excellence in Education Award (campus award)
- 2009 Recognized Mentor, MU Honors Convocation, by graduates Sara Foster, Catie Monzyk, and Katie Lonergan
- 2008 Provost's Outstanding Junior Faculty Teaching Award (campus award)
- 2008 "High Flyer" Recognition for Outstanding Course Evaluations, COE
- 2008 Recognized Mentor, MU Honors Convocation, by graduates Sara Stellmach, Nicole Adles, Kristen Neuner, and Jill Harris
- 2007 College of Education Undergraduate Instructor of the Year, COE Student Council
- 2007 Outstanding Faculty Member, MU Greek Council (campus award)
- 2007 Recognized Mentor, MU Honors Convocation, by graduate Jessica Jay
- 2007 "High Flyer" Recognition for Outstanding Course Evaluations (college award)
- 2006 Recognized Mentor, MU Honors Convocation, by graduate Julie Haesemeier
- 2006 "High Flyer" Recognition for Outstanding Course Evaluations (college award)
- 2005 "High Flyer" Recognition for Outstanding Course Evaluations (college award)
- 2001 Outstanding Associate Instructor, Indiana University School of Education
- 1998-1999 Campus Teacher of the Year, Killlearn Lakes Elementary, Tallahassee, FL
- 1997 Seed Pearl Award for Excellence in Science Teaching, Leon Association for Science Teaching, Leon County School District: Tallahassee FL
- 1991 Chappie James Most Promising Teacher Award, Florida Department of Education

Research Honors

- 2007 Selected to participate in the AERA Division K Early Career Forum
- 2005 Finalist, NARST Outstanding Paper Award
- 2005 Selected to participate in the AERA Division K New Faculty Forum
- 2004 Dissertation Fellowship, University Graduate School, Indiana University
- 2003 Daisy and Vivien Jones Graduate Research Fellowship, Indiana University School of Education

TEACHING

Undergraduate

University of Missouri-Columbia (2004-present)

PHYSICS 2330: Exploring Principles of Physics (4cr.) Sp05, Sp06, F07, F08

PHYSICS 4950: Undergraduate Research in Physics (3cr.) Sp05

TDP 4280/7280: Teaching Science in Elementary Schools (3cr.) F04, Sp05, F05, F06, Sp07, Sp08, Sp09

TDP 4085: Problems in Teacher Development/Field Studies (3cr.) Sp08, S08

Indiana University-Bloomington (1999- 2003)

Q202: Physical Science for Elementary Teachers (3cr.) F02, Sp03

E328: Science in the Elementary School (3cr.) F99, F00(2), Sp01, F01, Sp02

M201: Early Field Experience (2cr.) Sp01

E321: Science for Early Childhood (3cr.) Sp00(2)

Graduate

University of Missouri-Columbia (2004-present)

C&I 8900: Inclusive Methods for Teaching Elementary Science (3cr.) F08

PHYSICS 7085: Problems in Physics/Independent Study (3 cr.) F06, F07, F08

C&I 8710: The Nature of Science in Science Teaching (3 cr.) F06, F08

C&I 8720: Advanced Teaching of Science in Elementary Schools (3cr.) S05, S06, S07

C&I 8717: Teaching, Learning, and Research in Middle and Sec. Science (3 cr.) S06, S07, S08, S09

C&I 8941: Internship in Science Education (3cr.) Sp05, S05, F05, Sp06, F06, Sp07, F07, S08, F08

C&I 8085: Problems in Curriculum & Instruction (3cr.) Su05, Su07, Sp08,

C&I 8085: Pedagogical Content Knowledge for Nature of Science (var.) Sp09

Indiana University-Bloomington (2003)

E548: Advanced Methods of Teaching Elementary Science (3cr.) F03

Q514: Workshop in Junior High School/Middle School Science (3cr.) S01

Outreach

MU QUEST Summer Science Academy for Kids, MU Science Education Center Office of Science Outreach (Coordinator, 2005-2010)

Mathematics and Science Institute for Beginning Teachers, Missouri Center for Mathematics and Science Teacher Education (Co-Instructor, July 2005 & 2006)

COMMITTEE MEMBERSHIPS & ADVISING

PhD Advisees

Deepika Menon, Curriculum & Instruction: Science Education (2008-)

Will Romine, Curriculum & Instruction: Science Education (2008-)

Carina Rebello, Curriculum & Instruction: Science Education (2009-)

PhD Committees

Tina Varma, Curriculum & Instruction: Elementary Education (graduated: 05/07)

I-Chun Tsai, School of Information Science & Learning Technologies (graduated 5/08)
Cathy Wissehr, Curriculum & Instruction: Science Education (ABD)
Kristen Hutchins, Curriculum & Instruction: Science Education (ABD)
Michele Lee, Curriculum & Instruction: Science Education (2006-)
Mark Gagnon, Curriculum & Instruction: Science Education (2007-)
Tina Roberts, Curriculum & Instruction: Science Education (2007-)
Ya-Wen Cheng, Curriculum & Instruction: Science Education (2008-)
Jeni Davis, Curriculum & Instruction: Elementary Education (2009-)

Sponsorship of Visiting PhD Students

Sinan Ozgelen, PhD Student in Elementary Science Education, Middle East Technical University (METU) (Aug 2008-July 2009)

Master's Student Advisees

Nilay Muslu, M. Ed. Science Education; emphasis in Physics Education (2009-)
Suleyman Cite, M.Ed. Science Education; emphasis in Physics Education (2009-)
Jennifer Lacey, M. Ed. Science Education; emphasis in Middle/Secondary Science (2008-)
Jordan Shroyer, M. Ed. Science Education; emphasis in Informal Science Education (2008-)
Brian Hostetler, M. Ed. Science Education; emphasis in Informal Science Education (2006-)
Terri Neu, M. Ed. Science Education; emphasis in Elementary Science Education (2006-)

SCHOLARSHIP

My research program focuses on elementary science education with the goal of understanding how learners' images of science shape, and are shaped by, their experiences learning science. 'Learners' in my studies include both elementary teachers and their students. My work spans the teacher professional continuum, to explore the ways in which teachers' views of science develop during their teacher education programs (e.g., science content courses and teacher education coursework) and throughout their careers (e.g., continuing professional development). I am particularly interested in the epistemology of science, or learners' views of the nature of science. In addition as a joint appointment in physics and education, I often collaborate with science colleagues on issues related to physics teaching at the college level. My publications are directed toward reaching several audiences; among those are researchers, scientists, teacher educators, and classroom teachers.

Refereed Journal Articles

*Varma, T., Volkmann, M. J., & **Hanuscin, D.** (in press). Preservice elementary teachers' perceptions of their understanding of inquiry and inquiry-based science pedagogy: Influence of elementary science education methods course and science field experience. *Journal of Elementary Science Education*.

[Percent Contribution: 20%] *This manuscript is based on Varma's dissertation research for which I served as committee member. I provided feedback through several iterations of the writing, and assisted in the revision process prior to publication.*

*Abell, S. K., Rogers, M. P., **Hanuscin, D. L.**, Lee, M. H., & Gagnon, M. J. (2009) Preparing the next generation of science teacher educators: A model for developing PCK for teaching science teachers. *Journal of Science Teacher Education*, 20(9), 77-93.

[Percent Contribution: 20%] *As coauthor I participated in all stages of the writing process, from*

conceptualizing the model and presenting the paper initially at ASTE, through addressing reviewers' comments prior to publication.

- *Varma, T., & **Hanuscin, D.** (2008) Pre-service elementary teachers' field experiences in classrooms led by science specialists. *Journal of Science Teacher Education*, 19(6), 593-614.
[Percent Contribution: 50%] *This manuscript is based on a research internship Varma conducted with me. I mentored her through all phases of the research and writing process, and took the lead on revising the manuscript and addressing reviewers' comments prior to publication.*
- ***Hanuscin, D.** and Lee, M. H. (2008). Using the learning cycle as a model for teaching the learning cycle to preservice elementary teachers. *Journal of Elementary Science Education*, 20(2), 51-66.
[Percent Contribution: 80%] *This manuscript resulted from a teaching internship Lee conducted with me. We co-developed the learning activity, and I took the lead on preparing the manuscript for publication.*
- Tucker, S. A., **Hanuscin, D.**, & Bearnes, C. J. (2008). Igniting girls' interest in chemistry. *Science*, 319(5870), 1621-1622.
[Percent Contribution: 45%] *This work is based on a program developed by Tucker, an MU Chemist; I conducted the qualitative data analysis and assisted in writing and revision of the manuscript.*
- Hanuscin, D.** (2007) The use of specialized laboratory facilities for science in elementary schools: A call for research. *Journal of Elementary Science Education*, 19(2), 59-64.
- Taub, H. and **Hanuscin, D.** (2007) Writing scheme teaches science to non-scientists. *Physics Education*, 42, 562-564.
[Percent Contribution: 50%] *This manuscript is based on a writing-intensive course developed by Taub in the MU Department of Physics & Astronomy. I conducted data analyses and participated equally in several iterations of the writing and revision process prior to publication.*
- ***Hanuscin, D.**, Richard, M., Chandrasekhar, M., Corman, A., & Lapilli, C. (2007) Collaborative action research to improve classroom assessment in an introductory physics course for teachers. *Journal of Physics Teacher Education*, 4(2), 16-20.
[Percent Contribution: 75%] *This manuscript is based on my efforts as leader of an action research team of faculty, graduate students, and an undergraduate physics education major.*
- Akerson, V.L., & **Hanuscin, D.** (2007) Teaching the nature of science through inquiry: Results of a three-year professional development program. *Journal of Research in Science Teaching*. 44(5), 653-680. *Most downloaded article in *JRST* as of 2007
[Percent Contribution: 50%] *I served as an equal partner in writing the grant that funded this project, conducting the professional development, designing the study, collecting and analyzing data, and writing/revising the manuscript.*
- ***Hanuscin, D.**, & Musikul, K. (2007) School's IN for summer: An innovative field experience for elementary science methods. *Journal of Elementary Science Education*, 19(1), 57-68.
[Percent Contribution: 70%] *This is based on a teaching internship Musikul conducted with me. I served as the lead author, mentoring this graduate student on the publication process.*
- Hanuscin, D.**, Phillipson-Mower, T., & Akerson, V.L. (2006) Integrating nature of science instruction into a physical science content course for teachers: NOS views of teaching assistants. *Science Education*, 90(5), 912-935.
[Percent Contribution: 80%] *This manuscript is based on a research study I designed and conducted. My co-authors assisted with data collection and provided feedback on the manuscript and revisions.*
- Hanuscin, D.** (2004). A workshop approach: Instructional strategies for working within the constraints of field experiences in elementary science. *Journal of Elementary Science Education*, 16(1), 1-8.

Hanuscin, D. (2002). Environmental mis-education? Addressing the criticisms of environmental education. *The Hoosier Science Teacher*, 26(4), 100-105.

Hanuscin, D. (2002). Names and claims: Is it science or spin? *Science Scope*, 25(6), 36-38.

Reiff, R. & **Hanuscin, D.** (2002). The iron (Fe) scientist. *Science Scope*, 25(8), 40.

[Percent Contribution: 50%] This manuscript describes a learning experience Reiff and I co-created based on the popular *Exploratorium* event.

*Denotes publication with graduate students.

Invited Columns in Refereed Journals

The *Perspectives* column, edited by my colleague Sandra Abell, focuses on translating research into practice and helping elementary teachers use research findings to inform their instruction. Co-authorship provides a venue for mentoring graduate students in this process.

***Hanuscin, D.** & Lee, E. J. (2009). Helping students understand the nature of science. Perspectives: Research and tips to support science education. *Science & Children*, 46(7), 56-57.
[Percent Contribution: 75%] I mentored a master's student (Lee) in synthesizing the implications of research for practice through coauthoring this manuscript.

*Lee, M. H., & **Hanuscin, D.** (2008). A (mis)understanding of astronomical proportions? Perspectives: Research and tips to support science education. *Science and Children*, 46 (1), 60-61.
[Percent Contribution: 50%] My co-author and I equally contributed to this manuscript.

***Hanuscin, D.** & Lee, M. H. (2008). Mentoring New Teachers. Perspectives: Research and tips to support science education. *Science and Children*, 45(9), 62-63.
[Percent Contribution: 50%] My co-author and I equally contributed to this manuscript.

Hanuscin, D., & Park-Rogers, M. (2008). Learning to observe and infer. Perspectives: Research and tips to support science education. *Science and Children*, 45(6), 56-57.
[Percent Contribution: 50%] My co-author and I equally contributed to this manuscript.

*Denotes publication with graduate students.

Book and Book Chapters

Abell, S. K., Appleton, K., & **Hanuscin, D.** (under contract) *Designing the elementary science methods course*. Taylor & Francis.
[Percent Contribution: 30%] The book consists of 17 chapters. The authors have contributed equally to being lead author or responding author on each of the chapters, with Abell overseeing the process.

Hanuscin, D. (2007). The use of specialized facilities for laboratory science instruction in elementary schools. In E. Wright, D. W. Sunal, & C. W. Sundberg (Eds.) (pp. 57-70). *Research in science education: The impact of the laboratory and technology on k-12 science learning and teaching*

Akerson, V. L., & **Hanuscin, D.** (2005). A collaborative endeavor to teach the nature of scientific inquiry: There's more to science than meets the "I." In R. A. Yager (Ed.) (p. 1-12). *Exemplary science: Best practices in professional development*. NSTA Press: Arlington.
[Percent Contribution: 50%] My co-author and I equally contributed to this manuscript, which is based on our 3-year collaboration with local elementary teachers.

Rooney, M., & **Hanuscin D.** (2005) 'Re-inventing' science instruction: Inquiry-based instruction in a 5th/6th grade classroom. In R. A. Yager (Ed.) (pp. 173-180). *Exemplary science: Best Practices in Science Teaching Today/ Grades 5-8*. NSTA Press: Arlington, VA.

[Percent Contribution: 50%] *My co-author was a teacher participant in a 3-year professional development program developed by my colleague and I; we contributed equally to the authorship of this manuscript.*

Educational Materials

Hanuscin, D. (2001). "Rock Cycle Activities" Curriculum Resource for the *Indiana Geological Survey*
Available: <http://igs.indiana.edu/Geology/rocks/rockcycleactivities/index.cfm>
This work was created to assist elementary teachers in utilizing IGS resources; several state science frameworks currently include a link to this resource.

Hanuscin, D. (2001). "Misconceptions in Science" Web-based resource for teachers. Available:
<http://www.indiana.edu/~w505a/studwork/deborah/>
This web resources synthesizes the implication for research on children's misconceptions about science and provides links to additional information. I have been contacted by groups of teachers seeking National Board Certification who have indicated this was helpful to them in the process.

Hanuscin, D., Rhea, M., & Campbell, S. (2006). "Teaching Science through Inquiry- It's Elementary"
Online professional development course developed through Missouri eLearning for Educators.
<http://www.elearningmo.org/>
This 6-week course is part of a series offered to Missouri teachers.

Scholarly Work Submitted

***Hanuscin, D.,** Lee, M. H., & Akerson, V. L. (in 2nd review). Elementary teachers' pedagogical content knowledge for teaching the nature of science: An examination of teachers who are effective in improving their students' views. Submitted to the *Journal of Research in Science Teaching*.
[Percent Contribution: 80%]

Hanuscin, D. & Akerson, V. L. (under review) *Respect for evidence or respect for authority? Classroom culture and the nature of science.* Submitted to *Science Education*.
[Percent Contribution: 90%]

***Hanuscin, D.,** & Lee, M. H. (under revision) The impact of multiple versus single-course interventions on preservice elementary teachers views of the nature of science. Submitted to the *Journal of Research in Science Teaching*.
[Percent Contribution: 75%]

***Hanuscin, D.,** Pareja, A., & Phillipson-Mower, T. (under revision). Integrating nature of science instruction into a physical science content course for elementary teachers: Enhancing efforts of teacher education programs? Submitted to *International Journal of Science Education*.
[Percent Contribution: 75%]

*Tsai, I. & **Hanuscin, D.** (under review). Hammering a nail with a saw: The constraints of "one-size-fits-all" technology in supporting online communities of science teachers. Submitted to the *Journal of Science Education & Technology*.
[Percent Contribution 25%]

*Yilmaz, O., Topcu, M., & **Hanuscin, D.** (under review) A cross cultural study of pre-service elementary teachers' epistemological beliefs and gender effect. Submitted to *Educational Research and Evaluation*.
[Percent Contribution: 20%]

*Denotes publication with graduate students.

Scholarly Work in Progress

*Friedrichsen, P., **Hanuscin, D.**, & Hutchins, K. (in progress) *Will I teach evolution? A multiple case study of prospective biology teachers.*

***Hanuscin, D.**, Witzig, S. & Lacy, J. (in progress) *Teaching About the Nature of Science in an Introductory Astronomy Course: Examination of a Professor's PCK*

*Denotes publication with graduate students.

EDITORIAL AND REVIEW WORK

Editorial Board Member (appointed): *Journal of Research on Science Teaching* (2008-2010)

Journal Reviews

Science Education (2007-present)

International Journal of Science Education. (2004-present)

Journal of Research on Science Teaching. (2002-present)

Content Area Consultant: *The Hoosier Science Teacher.* (2003-2004)

Conference Proposal Reviews

2009 Annual Meeting of the European Science Education Research Association (ESERA). Istanbul, TR.

2008 Annual Meeting of the National Association for Research on Science Teaching, Baltimore, MD.
Strand 13: *History, Philosophy, and Sociology of Science.*

2007 Annual Meeting of the National Association for Research on Science Teaching, New Orleans, LA.
Strand 13: *History, Philosophy, and Sociology of Science.*
Strand 2: *Science Learning: Contexts, Characteristics and Interactions.*

2006 Annual Meeting of the National Association for Research on Science Teaching, San Francisco, CA.
Strand 8: *History, Philosophy, & Epistemology.*

2006 Annual Meeting of the Association for Science Teacher Education, Portland, OR.

2005 Annual Meeting of the National Association for Research on Science Teaching, Dallas, Texas. Strand
2: *Classroom Context & Learner Characteristics.*

2005 Annual Meeting of the Association for the Education of Teachers of Science, Colorado Springs, CO.

2004 Annual Meeting of the National Association for Research on Science Teaching, Vancouver, BC.
Strand 2: *Classroom Context & Learner Characteristics.*
Strand 8: *History, Philosophy, & Epistemology.*

2004 Annual Meeting of the National Association for Research on Science Teaching, Vancouver, BC.

2003 Annual Meeting of the National Association for Research on Science Teaching, Philadelphia, PA.
Strand 2: *Classroom Context and Learner Characteristics.*

REFEREED PRESENTATIONS

National/International

Hanuscin, D. (2009, August). *Teaching NOS as 'acts of rebellion': Critical incidents in the development of PCK for teaching NOS*. Paper presented at the European Science Education Research Association. Istanbul, TR.

***Hanuscin, D.** & Hian, J. (2009, April). *Developing pedagogical content knowledge for teaching the nature of science: lessons from a mentor-mentee relationship*. Paper presented at the Paper presented at the annual meeting of the National Association for Research on Science Teaching: Garden Grove, CA.

Tsai, I., Laffey, J., & **Hanuscin, D.** (2009, April). *Effectiveness of an online community of practice for learning to teach elementary science*. Paper presented at the annual meeting of the American Educational Research Association. San Diego, CA.

Tsai, I., Laffey, J., & **Hanuscin, D.** (2009, April). *Understanding the social nature of an online community of practice for learning to teach*. Paper presented at the annual meeting of the American Educational Research Association. San Diego, CA.

+ **Hanuscin, D.**, Sickel, A., Lonsway, K., Lonergan, Weber, M., K., Roe, J., Johnson, J., Strackeljahn, A., & Murphy, K. (2009, March). *De-cookbooking science activities: A recipe for success*. Session presented at the National Science Teachers Association National Conference on Science Education. New Orleans, LA.

Hanuscin, D., Weaver, J. C., Manteuffel, M. S., Witzig, S., & Veverka, L. M. (2009, March). *Connecting undergraduates to the enterprise of science through inquiry*. Session presented at the National Science Teachers Association National Conference on Science Education. New Orleans, LA.

*Wexler, C., **Hanuscin, D.**, Mower, M., & Taub H. (2009, March). *ReDUCE: Rethinking Directions in Undergraduate Curriculum Experiences*. March meeting of the American Physical Society. Pittsburgh, PA.

***Hanuscin, D.**, Speck, A., & Ruzhitskaya, L. (2009, February). *What do students in an introductory astronomy course believe science is?* Poster presented at the winter meeting of the American Association of Physics Teachers. Chicago, IL.

***Hanuscin, D.**, Lee, M. H., & Akerson, V. L. (2008, April). *Pedagogical content knowledge for teaching the nature of science: A study of teachers who are effective in impacting students' views*. Paper presented at the annual meeting of the National Association for Research on Science Teaching: Baltimore, MD.

Hanuscin, D., & Friedrichsen, P. (2008, January). *Working in two worlds: Perspectives on joint appointments in science and education*. Session presented at the annual meeting of the Association for Science Teacher Education: St. Louis, MO.

*Cullen, M., Friedrichsen, P., Haefner, L., **Hanuscin, D.**, Brown, P., Courson, S. (2008, January). *Strategies for supporting prospective teachers' instructional planning*. Paper presented at the annual meeting of the Association for Science Teacher Education: St. Louis, MO.

*Wissehr, C., & **Hanuscin, D.** (2008, January). *Science museums & specialized content courses for prospective elementary teachers: Implications for learning to teach science*. Paper presented at the annual meeting of the Association for Science Teacher Education: St. Louis, MO.

- ***Hanuscin, D.** & Lee, M. H. (2007, April). *Science between the lines: Using literature to teach the nature of science*. Session presented at the NSTA National Conference on Science Education: St. Louis, MO.
- *Concannon, J., & **Hanuscin, D.** (2007, April). *Prior to assessing prior knowledge... using research to inform assessment*. Session presented at the NSTA National Conference on Science Education: St. Louis, MO.
- *Yılmaz-Tüzün, O., Topçu, M. S., & **Hanuscin, D.** (2007, April). *A Cross Cultural Study of Pre-Service Elementary Teachers' Epistemological Beliefs*. Paper presented at the annual meeting of the American Educational Research Association: Chicago, IL.
- *Tsai, I., & **Hanuscin, D.** (2007, April). *Hammering a nail with a saw: The constraints of 'one size fits all' technology in supporting online communities of science teachers*. Paper presented at the annual meeting of the American Educational Research Association: Chicago, IL.
- ***Hanuscin, D.**, & Lee, M. H. (2007, April). *Across content and pedagogy: Seeking coherence in NOS instruction in teacher education programs*. Paper presented at the annual meeting of the National Association for Research in Science Teaching: New Orleans, LA.
- ***Hanuscin, D.**, & Lee, M. H. (2007, January). *Literature-based approaches in science teacher education*. Paper presented at the annual meeting of the Association for Science Teacher Education: Clearwater, FL.
- *Friedrichsen, P., Haefner, L. A., **Hanuscin, D.**, Manno, J., Brown, P., Courson, S., & Cullin, M. (2007, January) *Challenges and scaffolds for helping prospective teachers design science lessons using the 5E instructional model*. Paper presented at the annual meeting of the Association for Science Teacher Education: Clearwater, FL.
- *Abell, S. K., Gagnon, M. J., **Hanuscin, D. L.**, Lee, M. H., & Park-Rogers, M. (2007, January). *Methods or madness? Preparing the next generation of elementary science teacher educators*. Paper presented at the annual meeting of the Association for Science Teacher Education: Clearwater, FL.
- Hanuscin, D.**, & Friedrichsen, P., (2007, January). *Working in two worlds: Developing a Research Identity as a Joint Appointment*. Panel discussion presented at the annual meeting of the Association for Science Teacher Education: Clearwater, FL.
- *Topçu, M. Yılmaz, Ö, & **Hanuscin, D.** (2006, May). Cross cultural validation of Schommer's epistemological questionnaire in exemplary samples of preservice elementary teachers across Turkey and USA. Paper presented at the Çanakkale Onsekiz Mart University Third International Symposium on Teacher Education: Çanakkale, Turkey.
- *Friedrichsen, P., **Hanuscin, D.**, & Hutchins, K. (2006, April) *Will I teach evolution? A multiple case study of secondary biology teachers*. Paper presented at the annual meeting of the National Association for Research in Science Teaching: San Francisco, CA.
- Hanuscin, D.**, & Friedrichsen, P., (2006, January). *Working in two worlds: Perspectives on joint appointments*. Panel discussion presented at the annual meeting of the Association for Science Teacher Education: Portland, OR.
- *Richard, M., **Hanuscin, D.**, & Chandrasekhar, M. (2006, January) *Using assessment to inform teaching in a physical science content course for preservice elementary teachers*. Paper presented at the annual meeting of the Association for Science Teacher Education: Portland, OR.

- Hanuscin, D.** (2005, April) *Learning the 'grammar of science': The influence of a physical science content course on K-8 teachers' understanding of the nature of science.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, QU.
- Akerson, V. L., & **Hanuscin, D.** (2005, April) *Teaching the nature of science through inquiry: the influence of a three-year elementary professional development program.* Paper presented at the annual meeting of the National Association for Research on Science Teaching, Dallas, TX.
- ***Hanuscin, D.**, Phillipson-Mower, T., & Pareja, E. (2005, April) *Integration of NOS instruction into a physical science content course for elementary teachers: Enhancing efforts of teacher education programs?* Paper presented at the annual meeting of the National Association for Research on Science Teaching, Dallas, TX.
- Akerson, V.L., & **Hanuscin, D.** (2005, April) *There's more to science than meets the "I": A collaborative endeavor to teach the nature of scientific inquiry.* Annual meeting of the National Science Teachers Association, Dallas, TX.
- ***Hanuscin, D.**, Phillipson-Mower, T., Akerson, V. L., & Sadler, T. (2005, April) *Introducing nature of science into the science methods classroom.* Annual meeting of the National Science Teachers Association, Dallas, TX.
- Hanuscin, D.**, & Akerson, V. L. (2005, January) *The impact of a physical science content course on K-8 teachers' understanding of the nature of science.* Paper presented at the annual meeting of the Association for the Education of Teachers of Science, Colorado Springs, CO.
- Akerson, V.L., & **Hanuscin, D.** (2005, January) *Primary teachers' abilities to teach the nature of science.* Paper presented at the International Conference on Education, Honolulu, HI.
- ***Hanuscin, D.**, Phillipson-Mower, T., & Akerson, V.L. (2004, April) *Teaching nature of science in a physical science content course for teachers: A study of undergraduate lab instructors.* Paper presented at the annual meeting of the National Association for Research on Science Teaching, Vancouver, BC.
- ***Hanuscin, D.**, Phillipson-Mower, T., & Akerson, V.L. (2004, January). *Learning and teaching about the nature of science: A study of undergraduate laboratory instructors.* Paper presented at the annual meeting of the Association for the Education of Teachers of Science, Nashville, TN.
- Akerson, V., & **Hanuscin, D.** (2004, January). *There's more to science than meets the "I": A collaborative endeavor to teach the nature of science.* Paper presented at the annual meeting of the Association for the Education of Teachers of Science, Nashville, TN.
- Akerson, V., & **Hanuscin, D.** (2003, March). *Primary teachers' abilities to teach via scientific inquiry while making elements of nature of science explicit.* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA. [cited by: 3]
- Akerson, V., & **Hanuscin D.** (2003, January) *Learning science by inquiry: An elementary teacher enhancement project.* Paper presented at the annual meeting of the Association for the Education of Teachers of Science, St. Louis, MO.
- Akerson, V. L., Reiff, R., Morrison, J. A., **Hanuscin, D.**, Shymansky, J. A., & Yore, L. D. (2003, January). *Issues associated with using student science journals with K-6 students.* Paper presented at the annual meeting of the Association for the Education of Teachers of Science, St. Louis, MO.

Hanuscin, D. (2003, January) *Content as context: teaching nature of science in a physical science content course for preservice elementary teachers.* Poster presented at the annual meeting of the Association for the Education of Teachers of Science, St. Louis, MO.

Hanuscin, D. (2003, January) *Making the most of an early field experience.* Paper presented at the annual meeting of the Association for the Education of Teachers of Science, St. Louis, Missouri. (EDRS No. ED474453)

Barnett, M., MaKinster, J. G., & **Hanuscin, D.** (2001). *Exploring elementary students' learning of astronomy through model building.* Paper presented at the American Education Research Association, Seattle, WA.

*Denotes presentations with graduate students.

*Denotes presentations with undergraduate students.

Regional and State

∞Coomer, D., Green, S., & **Hanuscin, D.** (2008, September). *It only takes a minute... Making assessment seamless.* Session presented at the annual meeting of the Science Teachers of Missouri: Jefferson City, MO.

∞Heckstetter, S., Hunter, C., & **Hanuscin, D.** (2008, September). *Formative assessment using conceptual cartoons.* Session presented at the annual meeting of the Science Teachers of Missouri: Jefferson City, MO.

*Lee, M., & **Hanuscin, D.** (2006, November) *Who are scientists and what do they do? - Investigating science as a human endeavor.* Session presented at the National Science Teachers Association Eastern Area Conference on Science Education: Baltimore, MD.

***Hanuscin, D.**, & Lee, M. (2006, October) *Science Olympiad coaches' clinic: Write-It, do it!* Session presented at the annual meeting of the Science Teachers of Missouri. Columbia, MO.

Hanuscin, D., Phillipson-Mower, T. (2005, November). *Beyond content and process—Understanding the nature of science.* Session presented at the Midwestern Area convention of the National Science Teachers Association. Chicago, IL.

***Hanuscin, D.**, & Lee, M. (2005, October) *Science Olympiad coaches' clinic: Write-It, do it!* Session presented at the annual meeting of the Science Teachers of Missouri. Columbia, MO.

***Hanuscin, D.**, Richard, M., & Corman, A. (2005, October) *"What answer are you looking for?" Student responses to assessment practices.* Session presented at the annual meeting of the Science Teachers of Missouri. Columbia, MO.

Friedrichsen, P. & **Hanuscin, D.** (2005, October) *Missouri Beginning Teacher Institute.* Session presented at the annual meeting of the Science Teachers of Missouri. Columbia, MO.

***Hanuscin, D.**, Lee, M., & Pareja, E. (2005, March) *Learning about the nature of science in teacher education: Reform and research.* College of Education Research Day, University of Missouri-Columbia.

***Hanuscin, D.**, & Lee, M. (2004, October) *Science Olympiad coaches' clinic: Write-It, do it!* Session presented at the annual meeting of the Science Teachers of Missouri. Columbia, MO.

Hanuscin, D. (2004, October) *From cookbook activities to inquiry: Electrical circuits.* Session presented at the annual meeting of the Science Teachers of Missouri. Columbia, MO.

*Phillipson-Mower, T., Sadler, T., Akerson, V., **Hanuscin, D.**, Deniz, H., & Donnelly, L. (2004, February). *Introducing the nature of science into the science methods classroom*. Session presented at the annual meeting of the Hoosier Association of Science Teachers, Inc., Indianapolis, IN.

∞Green, A., Hollinger, K., Rooney, M., Akerson, V., & **Hanuscin, D.** (2004, February). *The myth of the scientific method*. Session presented at the annual meeting of the Hoosier Association of Science Teachers, Inc., Indianapolis, IN.

†**Hanuscin, D.**, Boyd, T., Bomberg, J., & Thoms, A. (2004, February). *There's more to it than batteries, bulbs, & wires: Teaching the nature of science within a unit on electrical circuits*. Session presented at the annual meeting of the Hoosier Association of Science Teachers, Inc., Indianapolis, IN.

∞Comerford, J., Hollinger, H., Rooney, M., Greene, A., **Hanuscin, D.**, & Akerson, V. (2003, February). *Adapting curricula to focus on inquiry*. Session presented at the annual meeting of the Hoosier Association of Science Teachers, Inc., Indianapolis, IN.

Hanuscin, D., & Yilmaz, O. (2002, February). *If that's the NEW moon, where did the OLD one go? Children's misconceptions in science*. Session presented at the annual meeting of the Hoosier Association of Science Teachers, Inc., Indianapolis, IN.

Hanuscin, D., Reiff, R., & Phillipson, T. (2002, February). *What do they remember? Students' science autobiographies*. Session presented at the annual meeting of the Hoosier Association of Science Teachers, Inc., Indianapolis, IN.

Reiff, R., & **Hanuscin, D.** (2002, February). *That SOUNDS like science*. Session presented at the annual meeting of the Hoosier Association of Science Teachers, Inc., Indianapolis, IN.

Barnett, M., Rogers, K., & **Hanuscin, D.** (2002, February). *Meeting the Indiana Academic Standards through inquiry*. Session presented at the annual meeting of the Hoosier Association of Science Teachers, Inc., Indianapolis, IN.

*Denotes presentations with graduate students.

+Denotes presentations with undergraduate students.

∞Denotes presentation with K-12 classroom teachers.

INVITED TALKS

Gess-Newsome, J., **Hanuscin, D.**, Olson, J., Pasqual, M., Schwartz, R., & Smith, D., (2009, March). *The importance of elementary science education in the NCLB era*. Symposium held at the annual meeting of the National Association for Research on Science Teaching: Garden Grove, CA.

Hanuscin, D., Vajk, O., & Peculis, B. (2008, April). *Discussion on Lesson Implementation: Using Mini-journals to facilitate student inquiry*. MU Conversations on College Science Teaching, University of Missouri.

Hanuscin, D. (2008, March). *NSTA's Exemplary Science Programs (ESP): Professional Development*. NSTA 55th National Conference on Science Education: Boston, MA.

Hanuscin, D. (2008, March). *NSTA's Exemplary Science Programs (ESP): Middle Grades Science*. NSTA 55th National Conference on Science Education: Boston, MA.

Hanuscin, D. (2007, March). *Everything you need to know about science but didn't learn in college: Considering the nature of science and scientific literacy*. Invited seminar: Department of Applied Biology and Biomedical Engineering, Rose-Hulman Institute of Technology: Terre Haute, IN.

- *Tsai, I. & **Hanuscin, D.** (2007, November). Nurturing Elementary Teachers' Work (NETwork) Through an Online Learning Community. Mathematics and Science Education Colloquium: College of Education. University of Missouri.
- Akerson, V. L., & **Hanuscin, D.** (2006, November). *NSTA's Exemplary Science Program (ESP): ESP for Professional Development*. Symposium presented at the National Science Teachers Association Eastern Area Conference on Science Education: Baltimore, MD.
- Akerson, V. L., & **Hanuscin, D.** (2006, April). *NSTA's Exemplary Science Program (ESP): ESP for Professional Development*. NSTA 54th National Conference on Science Education: Anaheim, CA.
- Hanuscin, D.** et al. (2006, April) *Getting started: Internal grant opportunities*. MU College of Education Office of Research Brown Bag Series. University of Missouri.
- Hanuscin, D.** (2006, February) *Supervising at a distance: Leveraging technology in field experiences*. Conversations on Learning, Teaching, and More: Department of Learning, Teaching, and Curriculum, University of Missouri-Columbia.
- Friedrichsen, P., & **Hanuscin, D.** (2005, November) *Scientific Literacy: A Gap in Understanding, or a Gap in the Syllabus?* MU Conversations on College Science Teaching, University of Missouri-Columbia.
- Hanuscin, D. (2005, October) *Promoting Science Literacy: A Gap in Understanding or a Gap in the Syllabus?* Seminar Series: Department of Physics, Astronomy, and Materials Science. Missouri State University.
- Tarr, J., & Hanuscin, D. (2005, February) *Preparing for the academic job market: Tips for prospective math and science teacher educators*. Mathematics and Science Education Colloquium: College of Education. University of Missouri.
- Hanuscin, D. (2004, January). *Learning to teach the nature of science: A study of undergraduate laboratory instructors*. Seminar on the Teaching of Physics, Indiana University Department of Physics & Astronomy Colloquium Series.

FUNDING ACTIVITY

External

Submitted

Co-Principal Investigator (submitted 5/09) *ReDUCE: Rethinking Directions in Undergraduate Curriculum Experiences*. NSF Course, Curriculum, & Laboratory Improvement. PI: C. Wexler; Co-PIs: A. Speck, and H. Taub. Total value of grant: \$200,000.

[Shared Credit: XX%]

Co-Principal Investigator (submitted 2/09). *A Time for Freshman Physics*. NSF Math-Science Partnership Program- Institution Partnerships. PI: Meera Chandrasekhar. Co-PIs: Sara Torres, Dorina Kosztin, Dorina Mitrea.

[Shared Credit: 7%] *At this point we are responding to questions from the program officer.*

Funded

Principal Investigator (1/08-6/11) *QUEST: Quality Elementary Science Teaching*. Missouri Department of Higher Education, Improving Teacher Quality Grants Program. Co-PI: Delinda van Garderen. Total value of grant: \$337,352.

[Shared Credit: XX%] *This program provides a year-long professional development experience for K-6 classroom and special education teachers. The program focuses on physical science content and incorporates principles of inquiry and Universal Design for Learning (UDL) to support success of all learners. A summer institute includes an embedded teaching experience, and school-year activities include face-to-face and online collaboration, as well as individualized classroom support visits.*

Not Funded

Principal Investigator (submitted 5/08) *ReDUCE: Rethinking Directions in Undergraduate Curriculum Experiences*. NSF Course, Curriculum, & Laboratory Improvement. Co-PIs: C. Wexler, A. Speck, and H. Taub. Total value of grant: \$150,000. (not funded)

Co-Principal Investigator (submitted 12/07) *Research Experiences for Teachers: Modern Engineering and Biomedical Materials for the 21st Century*. National Science Foundation. PI: Sanjeev Khanna. Total value of grant: \$500,000. (not funded)

Co-Principal Investigator: (submitted 3/07) *ELEMENTS: A Mathematics and Science Pathway for Elementary Teachers*. National Science Foundation: National Science Digital Libraries. PI: Tom Kochtanek. Total value of grant: \$917, 347 (not funded)

Principal Investigator: (submitted 1/07) *MU Physics Teacher Education Coalition*. National Science Foundation, Sub-contract with APS. Co-PIs: M. Volkmann, P. Miceli, C. Wexler, and D. Kosztin. Total value of grant: \$299,812. (not funded)

Principal Investigator: (submitted 6/06) *Quality Experiences with Science and Technology (QUEST)*. National Science Foundation, Academies for Young Scientists. Co-PI: Steven Whitney. Total value of grant: \$798,623. (not funded)

Co-Principal Investigator: (submitted 1/05) *Teacher Institute and Partnerships in Science (TIPS)* Missouri Department of Higher Education, Improving Teacher Quality Grants Program. PI: Meera Chandrasekhar. Total Value of Grant: \$594, 790. (not funded)

Co-Principal Investigator: (submitted 8/04) *Missouri Teacher Academy and Partnerships in Science*. \$800,000 requested from the Missouri Department of Elementary and Secondary Education, Math and Science Partnerships Program. PI: Meera Chandrasekhar (not funded)

Co-Principal Investigator: (submitted 8/04) *Academy for Learning and Teaching Elementary Mathematics*. \$2,634,326.25 requested from the Missouri Department of Elementary and Secondary Education, Math and Science Partnerships Program. PI: John Lannin (not funded)

Internal

Funded

Principal Investigator: *ReDUCE: Rethinking Directions in Undergraduate Curriculum Experiences*. \$5000 awarded by the Department of Learning, Teaching & Curriculum Interdisciplinary Planning Grants Program. (May 2008-August 2009) Co-PI: Carlos Wexler (Physics & Astronomy) *Funding supported a pilot study intended to strengthen our NSF proposal, submitted 5/09.*

Faculty Sponsor: *QUEST: Quality Elementary Science Teaching: Study Group/ Teacher Inquiry Project*. \$1500 awarded by the MU Partnership for Educational Renewal, MU College of Education. (August 2008-May 2009) Collaborators: Pierremont Elementary, Kathy Cain (principal) *Funding supported a single-school professional learning community focused on science.*

Principal Investigator: *Improving Undergraduate Non-Majors' Understanding of the Nature of Science*. \$6290 awarded by the University of Missouri Office of Research, Research Council Grants

Program. (January 2008-August 2008) Co-PI: Angela Speck (Physics & Astronomy)
Funding supported a graduate student to assist in data collection and analysis; findings were presented at the 2009 March meeting of AAPT.

Faculty Sponsor: *Seamless Assessment: Study Group/ Teacher Inquiry Project*. \$4500 awarded by the MU Partnership for Educational Renewal, MU College of Education. (August 2007-May 2008)
Collaborators: Brown Elementary (Bill Heckel, Principal), Lawson Elementary (Betty Scheller, Principal), Walker Elementary (Eric Arbetter, Principal)
Funding supported a multi-school professional learning community focused on assessment. Project outcomes were disseminated via a session at the state science teachers' conference.

Principal Investigator: *Enhancing Preservice Elementary Teachers' Understanding of the Nature of Science: An Intervention Study*. \$7092.00 awarded by the University of Missouri Office of Research, Research Council Grants Program. (January 2005-July 2006) Co-PI: Meera Chandrasekhar (Physics)
Funding supported a graduate student to assist in data collection and analysis. Findings were presented at NARST and a manuscript is currently under review.

Principal Investigator: *An Exploratory Study of the Integration of Explicit-and-Reflective Nature of Science Instruction into a Content Course for Preservice Elementary Teachers* \$960.00 awarded by the University of Missouri Office of Research, Research Council Small Grants Program. (December 2004-April 2005)
Funding supported a graduate study to assist in analysis of an existing data set. Findings were presented at NARST. A manuscript is currently in revision for resubmission.

Principal Investigator: *Examining Assessment Practices in a Physical Science Content Course for Preservice Elementary Teachers*, \$2000.00 awarded by the Dr. Richard Wallace Research Incentive Grants Program – Scholarship of Teaching. (October 2004- June 2005) Co-PIs: Meera Chandrasekhar (Physics), Cintia Lapilli and Adrian Corman (Physics Graduate Students), Matt Richard (Undergraduate Physics Education Student)
Funding supported a faculty/graduate student/undergraduate student professional learning community focused on improving classroom assessment in a physics course. Project outcomes were published in the Journal of Physics Teacher Education.

PROFESSIONAL SERVICE

International

Committee Member: *International Scientific Committee*. 2009 Conference of European Science Education Research Association. Istanbul, TR.

National

Coordinator, Conference Strand: *College and University Science Education*, 2008 Annual Meeting of the Association for Science Teacher Education, St. Louis, MO.

Coordinator, Conference Strand: *College and University Science Education*, 2006 Annual Meeting of the Association for Science Teacher Education, Portland, OR.

Committee Member (appointed), *NARST Outstanding Paper Committee* (2005-2007)

State

Member, Selection Committee, *Missouri Presidential Awards in K-6 Science* (2006)

State Event Coordinator for *Write It, Do It*. Missouri State Science Olympiad. (2004-2007)

State Event Coordinator for *Experimental Design* Missouri State Science Olympiad. (2008-)

Local

Member, K-5 Science Program Evaluation Team. Columbia Public Schools. (2005-2006)

Judge, Harris-Litherland Science Award Competition. Columbia Public Schools. (2005, 2006, 2007)

UNIVERSITY SERVICE

Campus

Faculty Advisor, MU Student Chapter of the *National Science Teachers Association* (2007-present)

Faculty Judge, Unsung Heroes Award. Student Union Programming Board (2009)

Member, College of Education Dean's Search Committee (2008)

Faculty Advisor, Gamma Phi Beta Sorority, Alpha Delta Chapter. (2005-2008)

College of Education

Member, COE Assessment & Consultation Advisory Committee. (2004-present)

Faculty Coordinator, Phase II Teacher Development Program, Blue Block Cohort (2004-2007)

Department of Learning, Teaching, and Curriculum

Chair, LTC Faculty Awards Committee (2008-present)

Member, Doctoral Faculty, (2007-present)

Member, Biochemistry Education Search Committee (2005-2006)

Member (appointed), LTC Faculty Awards Committee (2004-2008)

Department of Physics and Astronomy

Liaison, Physics Teacher Education Coalition (PTEC)

ORGANIZATIONAL MEMBERSHIPS

European Science Education Research Association (ESERA)

American Educational Research Association (AERA) Division K; Science Education SIG

National Association for Research on Science Teaching (NARST)

Association for Science Teacher Education (ASTE); Women in Science Education forum (WISE)

National Science Teachers Association (NSTA)

American Association of Physics Teachers (AAPT)

Science Teachers of Missouri (STOM)