JI SHEN — CURRICULUM VITAE

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EDUCATION

2003-2006	Ph.D. in Physics (Education), Department of Physics, Washington University in St. Louis. Advisors: Patrick Gibbons (physics), Jere Confrey (education).
2001-2003	A.M. in Physics, Department of Physics, Washington University in St. Louis.
1997-2001	B.S. in Geophysics, Department of Geophysics, Beijing University. Advisor: Chuanyi Tu (Academician, Chinese Academy of Sciences).

EMPLOYMENT

2008-	Assistant Professor in Mathematics & Science Education, University of Georgia.
2006-2008	Post-doctoral Researcher at the Technology-Enhanced Learning Science center, University of California, Berkeley. Advisor: Marcia Linn.

RESEARCH

Interest

- Model-based teaching and learning in physical sciences
- Modeling and visualization in technology-enhanced science education
- Assessments in science education
- Epistemology and learning theories
- Science teacher education

Publication

Peer Reviewed Journals

Shen, J., Gerard, L., & Bowyer, J. (In Press). Getting from Here to There: The Roles of Policy Makers and Principals in Increasing Science Teacher Quality. *Journal of Science Teacher Education*.

Shen, J. (2010). Nurturing students' critical knowledge using technology-enhanced scaffolding strategies in science education: A conceptual framework. *Journal of Science Education and Technology*, 19 (1), 1-12.

Shen, J. & Confrey, J. (2010). Justifying alternative models in learning the solar system: A case study on K-8 science teachers' understanding of frames of

reference. *International Journal of Science Education*, 32 (1), 1-29.

Shen, J. (2009). Walking out graphs. *Science Scope*. 33 (4), 47-51.

Shen, J. & Confrey, J. (2007). From conceptual change to transformative modeling: A case study of an elementary teacher in learning astronomy. *Science Education*. 91 (6), 948-966.

Shen, J., Gibbons, P.C., Wiegers, J.F., & McMahon, A. (2007). Using research based assessment tools in professional development in current electricity. *Journal of Science Teacher Education*. 18 (3), 431-459.

Ao, X.Z., **Shen, J.**, & Tu, C.Y. (2003). Mechanism of proton anisotropic velocity distribution in the solar wind. *Science in China Series G-Physics Astronomy*. 46 (1), 78-83.

Under Review

Shen, J. (2010). From Crafted Experience to Transformative Modeling: How to Make the Most out of Learning Tools in Science Classrooms.

Shen, J., & Linn, M.C. (2010). Connecting scientific explanations and everyday observations: A technology enhanced curriculum on modeling static electricity.

In Preparation

Shen, J. (2009). Transformative modeling: An instructional theory of learning physics.

Shen, J., Liu, O., Chang, H.-Y. (2009). Measuring transformative modeling: A framework of formatively assessing students' deep conceptual understanding in physical sciences.

Curriculum

Shen, J. (2007-9). Modeling Static Electricity: A Technology Enhanced Curriculum, published online (www.wise.berkeley.edu).

FUNDED PROJECTS

2010-2015 (pending) Co-Principal Investigator (PI: J. Michael Spector), NSF funded project *Formative Assessment Technology for 8th Grade Science Education (DEEP2)* [$450,995]

2010-2012 (pending) Principal Investigator, NSF funded project
Achievements and Challenges in Modeling-based Instruction (ACMBI) [$250,000]

2009-2010 Principal Investigator, University of Georgia funded project
Collaborative Activities for Science Content, Science Methods, and General Methods Courses for Preservice Middle School Science Teachers [$7,986]

2009-2010 Collaborator, University of Georgia funded project
UNITE: Undergraduate Nanotechnology Inquiry, Training and Experimentation at the University of Georgia [$7,950]

2010-2011 Principal Investigator, University of Georgia funded project
Reviewing Modeling-based Instruction in Science Education (RMISE) [$10,000]

2008-2010 Principal Investigator, University of Georgia funded project
Learning Community in Technology Enhanced Science Education [$4,000]

PRESENTATIONS (selected)

Organizer/Chair

Shen, J. & Chang, H.-Y. (2010, June). Using Visualization to Link Abstract Science and Everyday Experience. (co-organizer) *Symposium accepted for presentation at the 9th International Conference of the Learning Sciences (ICLS) 2010*. Chicago, IL.

Shen, J. (2009, April). Critique to learn science. (Chair*) Symposium presented at the annual conference of the National Association for Research in Science Teaching (NARST) 2009.* Garden Groves, CA.

Chang, H.-Y., & **Shen, J.** (2008, June). How can student logs inform the design of interactive, dynamic visualizations for science learning? (co-organizer) *Symposium presented at the 8th International Conference of the Learning Sciences (ICLS) 2008*. Utrecht, the Netherlands.

Shen, J. (2007, April). Research methodology and result interpretation on students' learning in STEM: Comparative studies between China and the United States. (Chair) *Symposium presented at AERA 2007*. Chicago, IL.

Presenter

Shen, J. & Rutchelle, E. (2010, June). Transformative modeling in learning electricity: A case study of preservice teachers. In J. Shen & H.-Y. Chang (eds.) Using visualization to link abstract science and everyday experience. *Symposium accepted for presentation at the 9th International Conference of the Learning Sciences (ICLS) 2010*. Chicago, IL.

Shen, J., Liu, O., & Chang, H.-Y. (2010, June). Measuring transformative modeling: A framework of formatively assessing students' deep conceptual understanding in physical sciences. *Paper accepted for presentation at the 9th International Conference of the Learning Sciences (ICLS) 2010*. Chicago, IL.

Shen, J. (2010, March). Crafted experience: The interplay between manipulative tools and conceptual learning in science classrooms. Paper accepted for presentation at the annual international conference of the *National Association for Research in Science Teaching (NARST) 2010*. Philadelphia, PA.

Shen, J. (2009, December). Constructing transformative modeling problems to promote students' deep learning in physics. Invited Panelist *for the West Central Georgia Regional STEM Institute: Developing STEM Learning Communities Conference*. Columbus, GA.

Shen, J. (2009, October). Transformative modeling: Towards an instructional theory of learning sciences. *Invited talk at the Friday Institute at the North Carolina Sate University*. Raleigh, NC.

Shen, J. (2009, October). Transformative modeling as a way to bridge the content knowledge and pedagogical knowledge for pre-service science teachers. Paper presented at the annual conference of the *Southeastern Association for Science Teacher Education*. Kennesaw, GA.

Shen, J. (2008, October). Introduction to technology enhanced science modules. Workshop conducted at the annual conference of the *Southeastern Association for Science Teacher Education*. Columbia, SC.

Shen, J. (2008, April). Connecting atomic models and observations to explain static electricity. Paper presented at *the annual conference of American Educational Research Association (AERA) 2008*. New York City.

Shen, J. (2007, April). Justifying alternative model: A case study on K-8 science teachers' understanding of frames of reference in astronomy. *Paper presented at the annual conference of American Educational Research Association (AERA) 2007*. Chicago, IL.

Shen, J. (2006, July). Tools and task structures in modeling balance beam. *Paper presented* at *ICLS 2006*. Bloomington, IN.

Shen, J. (2006, April). Understanding balance: Model or tool? *Paper presented at National Association for Research in Science Teaching (NARST) 2006*. San Francisco, CA.

Grillo-Hill, A., Gay, A., McNew, J., **Shen, J**., & Tate, W.F. (2006, April). Research and practice in science education: New scholars navigating the divide. *Paper presented at National Association for Research in Science Teaching (NARST) 2006*. San Francisco, CA.

Shen, J. (2006, February). Teaching strategies and conceptual change of science teachers of K-8. *Poster presented at the conference of the CLT-PI meeting 2006*. Washington, D.C.

Shen, J. (2005, September) Learning physics: A modeling approach and new insights. *Invited talk at Missouri State University*. Springfield, MO.

Shen, J. (2005, August). Conceptual change of K-8 science teachers in buoyancy. *Paper presented at the annual meeting of the American Association of Physics Teachers (AAPT)*. Salt Lake City, UT.

Shen, J., Gibbons, P.C., Wiegers, J.F., & McMahon, A. (2005, April). Conceptual change of K-8 science teachers in force and motion. *Paper presented at the annual meeting of Missouri Academy of Science (MAS)*. Jefferson City, MO.

Shen, J., Gibbons, P.C., Wiegers, J.F., & McMahon, A (2005, April). A Framework of a professional development program for K-8 science teachers. *Paper presented at National Association for Research in Science Teaching (NARST) 2005*. Dallas, TX.

Gay, A., **Shen, J.**, Maloney, A., Balcerzak, P., & Confrey J. (2005, January) CISTL Professional Development Bundles: Investigating Impact on Teacher Conceptual Development. *Poster presented at the annual meeting of American Association for the Education of Teachers in Science (AETS*), 2005.

Shen, J., Gibbons, P.C., & Wiegers, J.F. (2004, April). Using research based assessment tools in professional development – electricity & magnetism. *Paper presented at MAS*. Kansas City, MO.

TEACHING

ESCI4480/6480: Technology for Science Teaching (Instructor), College of Education, University of Georgia.

CHEM1060: Physical Sciences for Middle School Teachers (Instructor), College of Arts & Sciences, University of Georgia.

ESCI4420: Science for Early Childhood Education (Instructor), College of Education, University of Georgia.

Conceptual Change & Critical Transitions (Co-instructor), Graduate School of Education, University of California, Berkeley (Fall, 2007, with Marcia Linn and Norma Chang).

Introductory Physics (Lab Instructor), Department of Physics, Washington University in St. Louis (2001-2003).

Physical sciences courses for K-8 science teachers (Instructor Assistant), Science Outreach at Washington University in St. Louis (2003-2005, with Patrick Gibbons, Ann McMahon, and Jack

Wiegers).

AWARDS & Honors

2009	OVPR Research Fellow, University of Georgia
2004	Chair's Choice Award, Department of Education, Washington University
2001-06	Doctoral Research and Teaching Fellowship, Washington University
1999	University Award for Excellence in Social Organization, Beijing University
1998	Motorola Scholarship, Beijing University

PROFESSIONAL MEMBERSHIP

- American Educational Research Association (AERA)
- International Society of the Learning Sciences (ISLS)
- National Association for Research in Science Teaching (NARST)