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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

Publication

Peer Reviewed Journals

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

**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.** (In Press). Walking out graphs: Multiple representation isn't enough. *Science Scope*.

**Shen, J.** & Confrey, J. (In Press). 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*.

**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., Wieggers, 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.** (2009). From Crafted Experience to Transformative Modeling: How to Make the Most out of Learning Tools in Science Classrooms. *Journal of the Learning Sciences*.

**Shen, J.**, & Linn, M.C. (2009). Connecting scientific explanations and everyday observations: A technology enhanced curriculum on modeling static electricity. *Journal of Research in Science Teaching*.

#### In Preparation

**Shen, J.** (2009). Transformative modeling: A theory of learning physics.

#### Curriculum

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

### **FUNDED PROJECTS**

- |                        |                                                                                                                                                                                                              |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2010-2012<br>(pending) | Co-Principal Investigator (PI: J. Michael Spector), IES funded project<br><i>Scaffolded Support for Informal and Personalized Inquiry Learning for 8<sup>th</sup> Grade Physical Science</i> , [\$1,500,000] |
| 2009-2011<br>(pending) | Senior Personnel, NIH funded project<br><i>Mobil Learning in Biology: Inquiries Using Interactive 3-D Models and Animations</i> , [\$765,724]                                                                |
| 2008-2009              | Principal Investigator, University of Georgia funded project<br><i>Learning Community in Technology Enhanced Science Education</i> [\$2,000]                                                                 |

### **PRESENTATIONS (selected)**

### Organizer

**Shen, J.** (2009, April). Critique to learn science. (organizer) *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? (organizer and presenter) *Symposium presented at the 8<sup>th</sup> 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.** (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 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 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 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., Wieggers, 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., Wieggers, J.F., & McMahon, A (2005, April). A Framework of a professional development program for K-8 science teachers. *Paper presented at 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., & Wieggers, 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 (Spring, 2009).

CHEM1060: Physical Sciences for Middle School Teachers (Instructor), College of Arts & Sciences, University of Georgia (Spring, 2009).

ESCI4420: Science for Early Childhood Education (Instructor), College of Education, University of Georgia (Fall, 2008).

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 Wieggers).

## **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)