

STEPHANIE V. CHASTEEN

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BACKGROUND SUMMARY

Ph.D. Physicist with 9 years experience in science communication and education. Possess a talent for learning, getting new projects off the ground, organizing & disseminating information, and a creative passion for broad communication of science.

- formal & informal science education
- education research
- science journalism
- program evaluation
- teacher professional development
- social & digital media

PROVEN SKILLS

Project management

- Broad experience facilitating and collaborating with diverse groups of people.
- Vision and clarity in creating and managing innovative projects.
- Initiate and follow through on long-term projects.

Technical and creative skills

- Data collection and analysis, including program evaluation, educational assessment, assessment and pre/post content survey design, and interviews.
- Excellent written and verbal skills, for both public and professional audiences.
- Digital audio and video writing, direction, and production
- Workshop creation and facilitation

FORMAL EDUCATION

University of California – Santa Cruz. Ph.D., Condensed Matter Physics, 2005.
Bard College. B.A., Social Psychology, 1995.

EXPERIENCE

SCIENCE EDUCATION CONSULTANT & SCIENCE WRITER 2002–present

Produced education and evaluation materials (several clients listed below). Published numerous articles on science in print, web, radio and podcast. Projects have been targeted to diverse audiences and have included a broad range of science topics.

DEPARTMENT OF ENGINEERING 2009–present

Program evaluator • Dr. Rafael Piestun

External evaluator for Integrative Graduate Education and Research Traineeship in Computational Optical Sensing and Imaging (COSI-IGERT) project, a 5-year transformative education project. (Currently included on two pending NSF projects as external evaluator).

HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS Oct. 2009–April 2010

Professional Development Writer • Kelly Cramer and Alex Griswold

Developed and wrote an extensive teacher's guide to accompany a set of videos and online text on modern physics entitled "Physics for the 21st Century."

SCIENCE EDUCATION INITIATIVE, Univ. of Colorado, Boulder **Sept. 2007–present**
Science Teaching Fellow • Dr. Carl Wieman, Dr. Kathy Perkins, and Dr. Steven Pollock
Collaborated with faculty to research and reform upper-division physics courses to increase student comprehension through active engagement. Initiated outreach program to inform educators about how science education research can inform their teaching.

NATIONAL SCIENCE DIGITAL LIBRARY, Boulder, CO **Oct. 2008–present**
Podcast Consultant • Robert Payo
Co-developed and produced podcasts and wrote content articles for K–5 educators

EXPLORATORIUM TEACHER INSTITUTE, San Francisco, CA **Mar. 2006–Aug. 2007**
Postdoctoral Fellow (NSF–IPSE) • Dr. Paul Doherty

- Created and taught hands-on inquiry-based professional development workshops for secondary school educators, including online workshops.
- Co-wrote and produced or hosted several audio podcasts and live webcasts
- Acted as a scientific advisor for the museum.

NATIONAL PUBLIC RADIO – SCIENCE DESK, Washington DC **Summer 2003**
AAAS Mass Media Fellow • Alison Richards
Reported, wrote, voiced, and produced several nationally-aired radio shorts on breaking science news. Learned to communicate science briefly and clearly.

OTHER PROJECTS AND CLIENTS:

- **American Institute of Physics** (Kendra Rand, 2009): Revised manual for physicists in Adopt a Physicist program.
- **Emergent Matter Project** (Dr. David Pines; 2005–2006): Central coordinator for international collaboration of scientists and educators.
- **Twin Cities Public Television** (Richard Hudson, 2003): Research assistant.

PROFESSIONAL AFFILIATIONS

National Association of Science Writers (2001–present) • American Association of Physics Teachers (2006–present) • National Science Teachers Association (2007–present) • American Association for the Advancement of Science (2002–present) • American Physical Society (2001–present) • Colorado Science Education Network (2009–present).

LEADERSHIP & VOLUNTEER EXPERIENCE

SCIENCEGEEKGIRL BLOGS **2008–present**
Blog regularly as part of a community dedicated to science and physics education, both at <http://blog.sciencegeekgirl.com> and <http://expertvoices.nsd.org/sciencegeekgirl>

BOULDER AREA STEM EDUCATION COALITION (BASEC) **2010–present**
Steering committee and member.

FRIENDS OF GUINEA **1999–present**
Founding officer, webmaster, secretary, membership director
Spearheaded new non-profit organization (<http://www.friendsofguinea.org>)

U.S. PEACE CORPS, Guinea–Conakry, West Africa **1997–1999**
Community Development & Public Health Volunteer
Worked with diverse groups of people to develop public health projects.

PRESENTATIONS & POSTERS

Annual meetings designated as follows: AAPT = American Physics Teacher Association; APS = American Physical Society; CSC = Colorado Science Conference; NSTA = National Science Teachers Association; PERC = Physics Education Research Conference.

PROFESSIONAL WORKSHOPS

- **Make Clickers Work for You**, *International Society for Technology in Education*, Denver CO (June, 2010); *Faculty Teaching Excellence Program*, University of Colorado, Boulder (April, 2010); *Graland Country Day School*, Thornton CO (February, 2010), *NSTA*, Phoenix, AZ (December, 2009); *Colorado Science Conference*, Denver CO (November, 2009); *Bollman Technical High School*, Thornton CO (October, 2009); *New England AAPT*, Durham NH (October, 2009), *Technology in Education Conference*, Copper Mountain, CO (July, 2009); *Adams 12 School District*, Thornton, CO (May, 2009).
- **What Do You Want Them to Learn Today? Learning Goals and Formative Assessment.** *Faculty Teaching Excellence Program*, University of Colorado at Boulder (April, 2010).
- **Using PhET in the Classroom**, *NSTA*, Minneapolis, MN (October, 2009); *NSTA*, Phoenix, AZ (December, 2009); *Technology in Education Conference*, Copper Mountain, CO (July, 2009).
- **Solid Ways to Teach Fluids**, *CSC*, Denver, CO (November, 2007).
- **Demonstrations and Ideas from the Exploratorium**, *CO-AAPT*, Wheat Ridge, CO (October, 2008)
- **Using and Making Audio Podcasts in the Mathematics Classroom**, *California Mathematics Council*, Asilomar CA (June, 2007)
- **Attack of the Podpeople: Creating and using podcasts in the classroom**, *Exploratorium*, San Francisco (May, 2007).
- **Sparking Excitement for Electricity: Electrostatic activities that work.** *CMSESMC Math/Science Conference*, Redwood City (June, 2007).

TALKS & PRESENTATIONS

- **Facing Facebook: Using Social Media In and Out of the Classroom.** Invited panelist and speaker, *AAPT*, Portland OR (July, 2010).
- **An Inside Look: Practical strategies for personal response systems (“clickers”).** *AAPT*, Portland OR, (July, 2010).
- **Make Clickers Work for You**, *University of Colorado at Denver: Anschutz Campus* (February, 2010).
- **What (most) Physicists (don't) Do: Alternative Careers in Science.** Invited speaker for course *What Physicists Do*, Carleton College, MN (April 2010).
- **What Every Teacher Should Know About Cognitive Research.** *Computer Science GK12 Fellows meeting*, University of Colorado at Boulder (February, 2010); *CSC*, Denver, CO (November, 2009).
- **Writing Great Clicker Questions** *CSC*, Denver CO (November, 2009).
- **Flirt Harder, I'm a Physicist.** Invited talk on alternative careers and a career as a woman scientist, *Women in JILA group*, CU Boulder (October, 2009).
- **Thinking Like a Physicist: Transforming Upper-Division Electricity and Magnetism**, *Carleton College Colloquium*, MN (April 2010); *New England AAPT*, Durham NH (October, 2009).
- **A Research-Based Transformation of Junior Electricity and Magnetism.** *APS*, Denver CO (March, 2009).
- **Clicker Use in Upper-Division Courses**, Invited talk, *AAPT*, Chicago, IL (February, 2009); *Colorado Learning and Teaching with Technology Conference*, Boulder CO (August, 2009).

- **Transforming Upper-Division Electricity & Magnetism**, *APS*, Denver, CO (March, 2007).
- **Transforming Upper-Division E&M**, *AAPT*, Edmonton, AB (July, 2008).
- **Get the Word Out: My Life as a Scientist Communicator**, Invited talk, *Ecological Society of America*, San Jose, CA (March, 2007)
- **Hear Me Out: Communicating Nanotechnology through Podcasts**. *Communicating Science to Broader Audiences*, Lincoln, NE (December, 2007)
- **SmallTalk: Conversations about Nanotechnology through Podcasts**, *AAPT*, Seattle WA (July, 2007).
- **Speaking of Physics... The art of science communication**, Department Colloquium, *Physics Dept.*, *San Jose State University*, San Jose CA (October, 2006).

POSTERS

- **New Ways of Teaching Junior E&M – Descriptions and Results**. S. V. Chasteen, S. J. Pollock, M. Dubson, E. Kinney, P. Beale and K. K. Perkins. *AAPT*, Portland OR (July 2010).
- **An Inside Look: Practical strategies for personal response systems (“clickers”)**. S.V. Chasteen. *AAPT*, Portland OR (July 2010).
- **But Does it Last? Sustaining Upper-Division Transformations in Electricity and Magnetism**. S. V. Chasteen, R. E. Pepper, S. J. Pollock, K. Perkins. *PERC*, Portland OR (July, 2010).
- **Upper Division Transformations in Physics**. S.V. Chasteen, S. Goldhaber, M. Dubson, E. Kinney, O. DeWolfe, P. Beale, K. Perkins, *STEM Education Symposium*, Boulder CO (August, 2009)
- **Thinking Like a Physicist: Transforming Upper Division Electricity & Magnetism**, S. V. Chasteen, S. J. Pollock, M. Dubson, E. Kinney, P. Beale and K. Perkins, *PERC*, Ann Arbor, MI (July 2009);
- **Tapping into Juniors’ Understanding of E&M: Development of the CUE Assessment**, S. V. Chasteen and S.J. Pollock, *PERC*, Ann Arbor, MI (July 2009).
- **Cognitive Issues in Upper Division E&M**, S.J. Pollock and S.V. Chasteen, invited poster, *PERC*, Ann Arbor, MI (July 2009)
- **Transforming Upper Division E&M**, S.V. Chasteen, S. Pollock, W. Handley, D. Tarshis, P. Beale, *AAPT*, Edmonton AB (July 2008)
- **Assessing Student Understanding in Upper Division E&M**, S. V. Chasteen and S. J. Pollock, *PERC*, Edmonton AB (July 2008).

INTERVIEWS

- [Educators that Rock](http://bit.ly/bL3Gka) series for *findingEducation*, March 2010.
- [Forum on Graduate Student Affairs](http://bit.ly/bTTLdo), *American Physical Society*, 2007.

PEER-REVIEWED PUBLICATIONS

Full articles at <http://sciencegeekgirl.com/publications.html>

Thinking Like a Physicist: Does Transforming Upper-Division Electricity & Magnetism Help? **S. V. Chasteen**, R.E. Pepper, S. J. Pollock, K. K. Perkins, P. Beale and C.E. Wieman, *Am. J. Phys.* (in preparation).

Upper-Division Students' Difficulties with Ampere's Law. C. Wallace and **S. V. Chasteen**, *Phys. Rev. Spec. Top.: Phys. Ed. Research* (in press).

A Thoughtful Approach to Instruction: Course Transformation for the Rest of Us. **S.V. Chasteen**, K. K. Perkins, S. J. Pollock, C.E. Wieman. *J. Coll. Sci. Teach.* (in press).

But Does It Last? Sustaining a Research-Based Curriculum in Upper-Division Electricity and Magnetism. **S.V. Chasteen**, R. E. Pepper, S. J. Pollock and K.K. Perkins, *PERC Proceedings 2010**, AIP Press (submitted).

Our Best Juniors Still Struggle with Gauss' Law. R. E. Pepper, **S. V. Chasteen**, S. J. Pollock, and K. K. Perkins, *PERC Proceedings 2010*, AIP Press, 2010.

The Use of Concept Tests and Peer Instruction in Upper-Division Physics. S. J. Pollock, **S. V. Chasteen**, K. K. Perkins, M. Dubson, *PERC Proceedings 2010*, AIP Press, 2010.

Tapping into Juniors' Understanding of E&M: The Colorado Upper-Division Electrostatics (CUE) Diagnostic, **S. V. Chasteen** and S. J. Pollock, *PERC Proceedings 2009*, AIP Press (2009).

A Research-Based Approach to Assessing Student Learning Issues in Upper-Division Electricity & Magnetism, **S. V. Chasteen** and S. J. Pollock, *PERC Proceedings 2009*, AIP Press, 2009.

Longer term impacts of transformed courses on student conceptual understanding of E&M, S. J. Pollock and **S. V. Chasteen**, *PERC Proceedings 2009*, AIP Press, 2009.

Transforming Upper-Division Electricity & Magnetism, **S.V. Chasteen** & S.J. Pollock, *PERC Proceedings 2008*, AIP Press, 2008.

The Salty Science of the Aluminum-Air Battery, **S.V. Chasteen**, N.D. Chasteen, P. Doherty, *The Physics Teacher*, December 2008.

Toward optimization of device performance in conjugated polymer photovoltaics: Charge generation, transfer and transport in poly(p-phenylene-vinylene) polymer heterojunctions. **S.V. Chasteen**, V. Sholin, S. A. Carter, G. Rumbles. *Sol. Energy Mat. & Sol. Cells* (92), 651-659, 2008.

The effect of broken conjugation on the excited state due to ether-linkage in a cyano-substituted poly(p-phenylene vinylene) conjugated polymer: CN-PPV vs. CN-ether-PPV, **S. V. Chasteen**, G. Rumbles, S. A. Carter, *J. Chem. Phys.* (24), 214704, 2006.

* The *Physics Education Research Conference* (PERC) proceedings are peer-reviewed and thus are considered as peer-reviewed journal publications (due to the limited publishing opportunities in this field).

Blended versus Layered Structures in Polymer Photovoltaics. S. V. Chasteen, J. O. Haerter, G. Rumbles, C. Scott, S. A. Carter. *J. Appl. Phys.* (99), 033709, 2006.

Numerical Simulations of Layered and Blended Organic Photovoltaic Cells, J. O. Haerter, S.V. Chasteen, S. A. Carter, J. C. Scott, *Applied Physics Letters* (86), 164101, 2005.

DIGITAL MEDIA EXPERIENCE & PRODUCTIONS

STEM education videos <http://stemvideos.colorado.edu>

Wrote and directed series of high-quality videos for faculty on educational techniques:

- Clickers: Students and Teachers Speak
- Anatomy of a Clicker Question
- Explain Clickers to Your Students
- Group Work in the College Classroom
- How To Use Clickers Effectively
- Do Clickers Help Students Learn?
- Clickers in Upper Division Courses

Learning about Science Teaching website TBA

Awarded mini-grant to produce podcast communicating physics education research to practicing teachers. In progress.

Sciencegeekgirl blog <http://blog.sciencegeekgirl.com>

Science education blog, well-read and often-cited within the science blogosphere.

NSDL blog -- Expert Voices: sciencegeekgirl <http://expertvoices.nsd.org>

The Active Class blog. <http://theactiveclass.com>

Blog regularly on teaching and learning with technology for MacMillan, Inc.

Beyond Penguins Podcast <http://beyondpenguins.nsd.org/podcast>

Dec. 2008–May 2010. Co-host, writer, & producer of podcast series for K–5 educators.

Science at the Poles: Video Production. <http://bit.ly/9SeROw>

Beyond Penguins and Polar Bears. May 2010. Edited video for website for K–5 teachers.

SmallTalk <http://www.nisenet.org/podcasts>

January 2007 – August 2008. Creator, host, co-writer, producer.

Monthly 25 minute podcast on nanotechnology, Featured in *Science* (Mar. 2, 2007).

Science Teaching Tips <http://exploratorium.edu/ti/podcasts>

May 2006–present. Creator, host and producer.

Year-long series of 5–10 minute podcast series for science teachers.

Once & Future Climate <http://www.exo.net/~drsteph/webcasts.html>

Nov. – Dec. 2006, Co-host and co-writer. Three live webcasts on global climate change.

Cassini Update <http://www.exo.net/~drsteph/webcasts.html>

May 2007. Co-host and co-writer. Live webcast on findings from the Cassini spacecraft.

First Cloned Horse, *National Public Radio*, aired August 7, 2003 on Morning Edition.

Protein Prompts Labor Activation, *National Public Radio*, aired August 2, 2003.

NASA... Down to Earth? *National Public Radio*, web-cast August 10, 2003.

PUBLICATIONS (not peer-reviewed)

Full articles at <http://sciencegeekgirl.com/publications.html>

Professional Development Guide: Physics for the 21st Century. *Harvard-Smithsonian Center for Astrophysics and Annenberg Media.* August, 2010.

Cracking the Story of Fracture. *Physical Review Focus*, January 29, 2010.

Speaking of Physics: The Art of Science Communication. *American Physical Society Forum on Education newsletter*, Spring 2010.

How a Scientist Becomes a Freelance Science Writer, *National Association of Science Writers website*, January 2010.

Cool Facts about Heat. *Beyond Penguins and Polar Bears webzine*, December, 2009.

Physicists' Guide for Adopt a Physicist program. *American Institute of Physics.* December, 2009.

Spotlight on Hidden Physicists: Stephanie Chasteen. *Radiations* magazine of Sigma Pi Sigma (The Physics Honors Society), Fall, 2009.

Nuclear Waste Management after Yucca Mountain, *Science Magazine Podcast*, July 17, 2009.

Tiger Moths Jam Bat Sonar, *Science Magazine Podcast*, July 10, 2009.

Response to Classroom Clickers and the Cost of Technology, Letter to the Editor, *The Chronicle of Higher Education*, January 2009.

Why Physics Teachers Should Read Blogs, Websights column, *The Physics Teacher*, December 2008.

Podcasts in the Mathematics Classroom, *The California Mathematics Council Communicator*, December 2008.

Inside Mother of Pearl, *Physical Review Focus* (an APS publication), July 2007.

Inside a Solar Cell, co-author on companion web interactive for *PBS NOVA* program "Saved by the Sun," <http://www.pbs.org/wgbh/nova/solar/inside.html>. April 10, 2007.

Causal Relations: HIV in Guinea, *Science & Spirit* (bimonthly magazine), May/June 2005.

Exciton Dynamics in Conjugated Polymer Photovoltaics: Steady-State and Time-Resolved Optical Spectroscopy, *Ph.D. Dissertation*, December 2005.

Exciton Dynamics and Device Performance in Polythiophene Heterojunctions for Photovoltaics. S. V. Chasteen, S. A. Carter, G. Rumbles, *Proc. of SPIE* (5938), 59380J-1, 2005.

You're Not as Great as You Think You Are, *Science & Spirit*, May/June 2004.

Light Wave Outlasts Itself, *Physical Review Focus*, May 12, 2004.

Life Beyond Bars, *Science & Spirit*, March/April 2004.

Electronic Voting Unreliable Without Receipt, *Stanford Report*, Feb. 18, 2004.

Who Owns the Wind? *Science & Spirit*, January/February 2003.

City Buildings Rely on Renewable Power Sources, *Santa Cruz Sentinel*, May 16, 2003.

Bait & Switch, *Science & Spirit*, May/June 2003.

Sex and Gender Scientists Explore a Revolution in Evolution, *Stanford Report*, Feb. 16 2003. Reprinted widely, and earned mention from a writer for National Geographic.

Future Farmers, *Santa Cruz Sentinel*, February 1, 2003.

Cosmos "Big Bubble" Theorist Alan Guth to Lecture, *The Stanford Report*, Jan. 22, 2003.

Down on the (Research) Farm, *Science's Next Wave (AAAS)*, Nov. 21, 2002.

Solar Power Still Too Expensive, *Santa Cruz Sentinel*, November 10, 2002.

Solar Energy Research Heats Up, *Santa Cruz Sentinel*, Page 1, Nov. 10, 2002.