

## Eric Kuo

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## Education

University of Maryland, College Park, MD

Ph.D. Physics

M.S. Physics

Expected - Summer 2013

Expected - Fall 2012

Brandeis University, Waltham, MA

B.S. Physics

B.A. Mathematics

Minor Secondary Education - Physics

Dec. 2007

## Teaching Experience

University of Maryland, College Park, MD

Instructor - Phys 115 (Inquiry into Physics - for elem. ed. majors)

Spring 2012

Teaching Assistant - Phys 270 (Physics for Engineers III)

Spring 2010

Teaching Assistant - Phys 260 (Physics for Engineers II)

Fall 2009

Teaching Assistant - Phys 161 (Physics for Engineers I)

Spring 2009

Teaching Assistant - Phys 121 (Physics for Life Sciences I)

Fall 2008

Lincoln-Sudbury Regional High School, Sudbury, MA

Teacher - Conceptual Physics (4 sections)

Spring 2008

Acton-Boxborough Regional High School, Acton, MA

Student Teacher - Calc. (1 section) & Algebra (1 section) based Physics

Fall 2007

Brandeis University, Waltham, MA

Undergraduate Lab Assistant - Phys 10b (Physics for Life Sciences II)

Spring 2007

Undergraduate Lab Assistant - Phys 10a (Physics for Life Sciences I)

Fall 2006

## Research Experience

TRUSE Mini-Grant Project:

Fall 2010 - Summer 2012

Physics Education Research Group and Graduate Group in Science and Mathematics Education

University of Maryland, College Park, MD and University of California, Berkeley, CA

Project: How Small is Small? - Student Reasoning with 'Neglected Quantities' in Introductory  
Calculus and Physics (with Danielle Champney and Angela Little)

Physics Education Research Group

Spring 2009 - Fall 2012

University of Maryland, College Park, MD

Project: Improving students' mathematical sense-making in engineering:  
research and development (with Dr. Andrew Elby and Dr. Ayush Gupta)

## Other Professional Experience

Educational Testing Service  
Question Writer for AP Physics 1 Test

Spring 2012

## Invited Publications

Champney, D. and Kuo, E. (in submission). Beyond the physics classroom: Exploring disciplinary factors that influence students' reasoning about approximation, through video data. *2012 PERC Proceedings*.

## Peer-Reviewed Journal Publications

Hull, M., Kuo, E., Gupta, A., and Elby, A. (under review). Problematizing problem-solving rubrics: Enhancing assessments to include blended mathematical and physical reasoning throughout the solution. *Physical Review Special Topics - Physics Education Research*.

Kuo, E., Hull, M., Gupta, A., and Elby, A. (under review). What's missing from conceptualizations of expert quantitative problem solving: Blending conceptual meaning with symbolic manipulations. *Science Education*.

## Peer-Reviewed Conference Proceedings

Kuo, E., Champney, D., and Little, A. (under review). Considering Factors Beyond Transfer Of Knowledge. *2012 PERC Proceedings*.

Champney, D. and Kuo, E. (in press). An evolving graphical image of approximations with Taylor series: a case study. *Proceedings of the 15th Annual Conference on Research in Undergraduate Mathematics Education*.

## Invited Presentations & Posters

Champney, D., Kuo, E., and Little, A. (2012). How small is small?: student reasoning with approximations in introductory calculus and physics. TRUSE Mini-grant presentation at Transforming Research in Undergraduate STEM Education (TRUSE) conference 2012, St. Paul, MN.

Kuo, E., Hull, M., Elby, A., and Gupta, A. (2011). Analyzing Interviews Suggests Patterns of Reasoning with Math in Physics. Invited Poster at Frontiers and Foundations in Physics Education Research (FFPER) 2011, Bar Harbor, ME.

## Contributed Presentations

Hutchison, P. and Kuo, E. (2012). Some Thoughts About Using Authoritative Sources in a Physics Class for Future Elementary Teachers. Contributed talk at AAPT summer 2012, Philadelphia, PA.

Kuo, E., Gupta, A., and Elby, A. (2012). When do I use symbolic forms? Contributed talk at AAPT summer 2012, Philadelphia, PA.

Kuo, E., Hull, M., and Gupta, A. (2011). Linking the Dynamics of Student Reasoning to Epistemology. Contributed talk at the Jean Piaget Society Meeting 2011, Berkeley, CA.

Hull, M.M., Kuo, E., Elby, A., and Gupta, A. (2010). I'm doing what my teacher says, why aren't I expert-like? Contributed talk at AAPT winter 2010, Washington, D.C.

Kuo, E., Hull, M.M., Elby, A., and Gupta, A. (2010). Explaining student expertise with mathematical sense-making. Contributed talk at the meeting of the American Association of Physics Teachers (AAPT) winter 2010, Washington, D.C.

## Contributed Posters

Kuo, E., Champney, D., and Little, A. (2012). Considering Factors Beyond Transfer Of Knowledge. Contributed poster at the Physics Education Research Conference (PERC) 2012, Philadelphia, PA.

Champney, D. and Kuo, E. (2012). Disciplinary Dependence of Student Reasoning about Approximation. Contributed poster at Transforming Research in Undergraduate STEM Education (TRUSE) conference 2012, St. Paul, MN.

Kuo, E., Hull, M., Elby, A., and Gupta, A. (2010). Toward Expert Problem Solving: Blending Conceptual and Symbolic Reasoning. Contributed poster at Transforming Research in Undergraduate STEM Education (TRUSE) conference 2010, Orono, ME.

Hull, M.M., Kuo, E., Elby, A., and Gupta, A. (2009). Undergraduate engineers' sense-making of math. Contributed poster at the Physics Education Research Conference (PERC) 2009, Ann Arbor, MI.

## Workshops Organized

Beyond the Physics Classroom: Exploring Disciplinary Factors that Influence Students' Reasoning about Approximation, through Video Data.

Organizers: Danielle Champney and Eric Kuo.

Workshop at the Physics Education Research Conference (PERC) 2012, Philadelphia, PA.

## Awards

Graduate Student Travel Award for The Conference on Transforming Research in Undergraduate STEM Education (TRUSE) 2010, Orono, Maine.

## **Grants Awarded**

How Small is Small? - Student Reasoning with 'Neglected Quantities' in Introductory Calculus and Physics, TRUSE Mini-Grant, \$5,500. Sub-award under NSF-CCLI # 0941191 (Awarded 7/30/2010).

## **Professional Affiliations**

American Association of Physics Teachers (AAPT)