Gina M. Quan

Present Address
082 Regents Drive
College Park, MD 20782
(408)823-0123

Education

University of Maryland, College Park
Ph.D. Physics (Expected) (Fall 2012-Present)

University of California, Berkeley
B.A. Physics with High Honors (Spring 2012)

Research Experience

Graduate Research Assistant (Fall 2012 - Present)
University of Maryland, College Park
Supervisors: Dr. Andrew Elby, Dr. Ayush Gupta, Dr. Chandra Turpen
–Led interview and classroom data collection, developed interview protocols and surveys, conducted ethnographic and sociocultural analyses, mentored undergraduate researcher.

Interdisciplinary Research Institute in STEM Education (I-RISE) Scholar
Seattle Pacific University (August 2012)
Supervisor: Dr. Rachel Scherr
–Qualitatively analyzed physics teachers' forms of argumentation during a summer professional development program.

Research Assistant (Fall 2011- Spring 2012)
University of California, Berkeley
Supervisors: Dr. Randi A. Engle, Dr. Andrea A. diSessa, Dr. Angela Little
–Developed a coding scheme to describe how undergraduate physics majors come to consensus on the definition of "physics model."

REU Intern (Summer 2011)
University of Washington
Supervisors: Dr. Paula Heron, Dr. Peter Shaffer, Dr. Lillian McDermott
–Designed and analyzed survey items probing students' understanding of heat and temperature.

Research Assistant (Summer 2009- Fall 2010)
University of California, Berkeley
Supervisors: Dr. Alex Zettl, Dr. Anna Zaniewski
–Synthesized plasmonic materials for thin film solar cells using UV and electron beam lithography.

Awards

UMD Outstanding Graduate Assistant- Department of Physics (Spring 2016)
NSF Graduate Research Fellowship Program- Honorable Mention (Spring 2014)
UC Berkeley Physics Department Service Award- Recipient (May 2012)
UC Berkeley Dean's List - Recipient (Fall 2011)
IBM Thomas J. Watson Scholarship - Recipient (Fall 2008-Spring 2012)

Teaching Experience

Teaching Assitant & Curriculum Design
University of Maryland, College Park

- Engineering Learning Assistant Pedagogy Course (Fall 2016)
  Pedagogy seminar for undergraduate peer educators in a freshman engineering design course.
  –Co-designed discussion activities, course rubrics.
- Summer Girls Physics Summer Camp (Summer 2013, Summer 2014)
  Modern physics camp for rising high school juniors and seniors.
  –Redesigned curriculum for modern physics program to include project-based Arduino design component.
- PHYS299B: Developing a Physics Toolbox (Spring 2013, Spring 2014)
  Research seminar which focuses on research skills, community building, and reflection; pairs students with research mentors.
  –Co-designed activities to develop research skills, facilitate reflection.
- UNIV100: The Physics Student in the University (Fall 2012, Fall 2013)
  Community building and problem solving seminar for undergraduate freshmen.
  –Designed self-reflection rubrics; co-designed problem solving activities, discussion questions.

High School Student Teacher (Spring 2011- Fall 2011)
Berkeley High School, El Cerrito High School

Refereed Publications

Quan, G., Gupta, A., *Tensions in the Productivity of Design Task Tinkering.* (Under Review in *Journal of the Learning Sciences*).

Quan, G., Elby, A., (2016) Connecting self-efficacy and views about nature of science in undergraduate research experiences. Physical Review Physics Education Research, 12 (2), 020140. https://doi.org/10.1103/PhysRevPhysEducRes.12.020140

Quan, G., Turpen, C., Elby, A., (2016) *Attending to scientific practices within undergraduate research experiences* (Accepted to 2016 PERC Proceedings). Sacramento, CA, July 20-21, 2016, edited by D. L. Jones, L. Ding, and Adrienne Traxler.

Quan, G., Elby, A., (2015) *Connecting Self-Efficacy and Nature of Science Shifts in Undergraduate Research Experiences* In 2015 PERC Proceedings. College Park, MD, July 29-30, 2015, edited by A. D. Churukian, D. L. Jones, and Lin Ding.
Retrieved from http://www.compadre.org/per/items/detail.cfm?ID=13888

Quan, G., Gupta, A., (2015) *Tensions in the Productivity in Design Task Tinkering - Fundamental* In 122th ASEE Annual Conference and Exposition. Seattle: American Society of Engineering Education.
Retrieved from http://www.asee.org/public/conferences/56/papers/12561/view

Quan, G., Gupta, A., & Elby, A. (2015) *Problematizing Best Practices for Pairing in K-12 Student Design Teams* In 122th ASEE Annual Conference and Exposition. Seattle: American Society of Engineering Education.
Retrieved from http://www.asee.org/public/conferences/56/papers/12565/view

Quan, G., Gupta, A., (2014) *Finding Productivity in Design Task Tinkering.* In Polman, J. L., Kyza, E. A., O'Neill, D. K., Tabak, I., Penuel, W. R., Jurow, A. S., O'Connor, K., Lee, T., and D'Amico, L. (Eds.). (2014). Learning and becoming in

practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 3 (1607-1608). Boulder, CO: International Society of the Learning Sciences.

Invited Presentations

San José State University Science Education Seminar (October 2016)
Attending to Scientific Practices within Undergraduate Research Experiences

Better Astronomy for the Next Generation (UMD Astronomy Seminar Series) - with Stephen Secules (March 2016)
Using Student Perspectives to Understand Equity in STEM Education

Bard College Colloquium (November 2015)
How Undergraduate Student Research Experiences Impact Students' Participation in Physics

PER Group Meeting, University of Colorado, Boulder (April 2015)
Unpacking the Productivity of Design Task Tinkering

National Society of Black Physicists 2015 Winter Meeting (February 2015)
How Undergraduate Student Research Experiences Impact Students' Participation in Physics

PERL @ Michigan State Unversity Seminar (September 2014)
Unpacking Partnership in an Arduino Environment

American Physical Society (APS) April 2012 Meeting with Ana Aceves, Badr Albanna, and Joel Corbo (April 2012)
Students as Colleagues: An Examination of Teacher-Student Collaboration in Improving Educational Environments

Contributed Presentations

American Association of Physics Teachers (AAPT)
2016 Summer Meeting (July 2016)
Research on Identity Trajectories in Undergraduate Research Experiences

AAPT 2016 Winter Meeting (January 2016)
Becoming a Physicist: Identity Trajectories in Undergraduate Research Experiences

AAPT 2015 Summer Meeting (July 2015)
How Undergraduate Research Experiences Support More Central Participation in Physics

American Society of Engineering Education Annual Conference (June 2015)
Tensions in the Productivity in Design Task Tinkering

American Society of Engineering Education Annual Conference (June 2015)
Problematizing Best Practices for Pairing in K-12 Student Design Teams

AAPT 2015 Winter Meeting (January 2015)
How Student Research Experiences Shape Perceptions of Scientists

AAPT 2014 Summer Meeting (July 2014)
Research on Productive Tinkering in an Arduino Environment

AAPT 2013 Summer Meeting (July 2013)
Research on Building Supportive Undergraduate Communities through Physics Seminars

AAPT 2012 Summer Meeting (August 2012)
Modeling Consensus: Understanding how Undergraduate Freshmen Define Physics Model

Contributed Posters

Physics Education Research Conference 2016 (July 2016)
Attending to scientific practices within undergraduate research experiences

American Educational Research Association (April 2016)
Tracing the Participation of Undergraduate Physics Majors in Research Experiences

American Educational Research Association (April 2016)
Unpacking Productivity in the Practice of Design Task Tinkering

Physics Education Research Conference 2015 (July 2015)
Connecting Self-Efficacy and Nature of Science Shifts in Undergraduate Research Ex-

periences

Physics Education Research Conference 2014 (July 2014)
Investigating Access to and Attitudes toward Programming in a Physics Camp

International Conference of the Learning Sciences 2014 (July 2014)
Finding Productivity in Design Task Tinkering

Physics Education Research Conference 2013 (July 2013)
Variation in Student Self-Reports of Study Group Experiences

Physics Education Research Conference 2012 (August 2012)
Characterizing Consensus about the Definition of a Physics Model

AAPT 2012 Winter Meeting (February 2012)
Building Together: An Undergraduate Freshman Class Defines Physics Model

Non-Refereed Writing

UMD Physics Graduate Committee and **the Access Network**, *Results of the Mental Health Survey*. (September 2016)

Quan, G., and Gupta, A., *Bringing our Whole Selves to the Table: Nurturing a Positive Culture*. PER Consortium of Graduate Students Newsletter. (July 2016)

Quan, G., and Little, A. *Creating Together in Compass: Strategies To Support Participation*. Compass Website. (April 2013)

Workshop & Session Organizer

AAPT 2017 Winter Meeting with Eleanor Sayre (February 2017)
Creating Inclusive Environments at Conferences

UMD Physics Department TA Training with Chandra Turpen (August 2016)
Assessment and Giving Feedback

AAPT 2015 Summer Meeting with Danielle Champney & Dimitri Dounas-Frazer (July 2015)
Facilitating student self-reflection & personalized instructor feedback (Workshop)

PERC 2015 with Chandra Turpen (July 2015)
Bridging educational research and practice: Supporting Undergraduate Research Experiences in physics

Leadership

Core Organzer & Founding Member (Spring 2015 - Present)
The Access Network
–As a founding core-organizer, I contributed to ideation and writing on an NSF grant, development of organizational structure, and meeting facilitation. Within the UMD Access site, I led the implementation of a mental health survey for physics graduate students, developed mental health workshops, and mentored an undergraduate student leader on running an event for non-academic career paths.

PERLOC Representative (Elected) (Spring 2015 - Winter 2017)
Physics Education Research Leadership and Organizing Council (PERLOC)
PER Consortium of Graduate Students (PERCoGS)
–I serve as primary liason between PER graduate student leadership and broader PER leadership. I work with other members of PERCoGS to develop professional development sessions & community building events at conferences, and facilitate online networking and resource-sharing.

Publicist (Elected) (Summer 2013 - Spring 2015)
PER Consortium of Graduate Students (PERCoGS)
–As co-founding member of leadership body serving over 200 PER Graduate Students, I co-developed goals and the organizational structure of PERCoGS, and oversaw a quarterly newsletter.

Committee Member (Elected) (Spring 2014 - Fall 2015)
UMD Physics Graduate Committee
–The Physics Graduate Committee is an elected group of seven graduate students who work toward improving all aspects of the graduate student experience. As founding member, I contributed to development of leadership structure and charter, coordination of prospective visit weekend, development of a TA mutual expectations agreement, creation of a peer mentoring program for first-year graduate students and creation of an advising award & advising guide.

Mentor (Spring 2013 - Spring 2016)
UMD Women in Physics

Student Leader & Academic Activities Chair (Summer 2009- Spring 2011)
The Compass Project
–I coordinated a monthly lecture series, organized socials, and served as Resident Assistant to the summer bridge program.

President (Summer 2011- Spring 2012)
Society of Physics Students at Berkeley

Undergraduate Internal Evaluator (Fall 2011- Spring 2012)
Berkeley Physics Departmental Review

Memberships

American Educational Research Association–Member (Fall 2015-Present)
American Association of Physics Teachers–Member (Fall 2011-Present)
American Physical Society–Member (Fall 2011-Present)

Referee

Physical Review - Physics Education Research
American Society of Engineering Education Proceedings
Physics Education Research Conference Proceedings