Gina M. Quan

Address
One Washington Square
San José, California 95192-0106

Current Position

Assistant Professor (Spring 2019-Present)
Department of Physics and Astronomy
San José State University

Education

University of Maryland, College Park
Ph.D. Physics (Fall 2012-Summer 2017)

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

Previous Positions

Postdoctoral Research Associate (Summer 2017 - Fall 2018)
Center for STEM Learning, University of Colorado at Boulder
Supervisors: Dr. Joel C. Corbo, Dr. Daniel Reinholz, Dr. Noah Finkelstein

Graduate Research Assistant (Fall 2012 - Spring 2017)
University of Maryland, College Park
Supervisors: Dr. Andrew Elby, Dr. Ayush Gupta, Dr. Chandra Turpen

Awards

UMD Graduate Student Distinguished Service Award - Finalist (Spring 2017)
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

Assistant Professor
San José State University
- Physics 50: Introductory Calculus-Based Mechanics
- Physics 20: Invitation to Physics & Astronomy

Teaching Assistant & Curriculum Design
University of Maryland, College Park
- Engineering Learning Assistant Pedagogy Course (Fall 2016)
- Summer Girls Physics Summer Camp (Summer 2013, Summer 2014)
- PHYS299B: Developing a Physics Toolbox (Spring 2013, Spring 2014)
- UNIV100: The Physics Student in the University (Fall 2012, Fall 2013)

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

Refereed Journal Publications

Ngai, C., Pilgrim, M. E., Reinholz., D. L., Corbo, J. C., **Quan, G. M.**. *Developing the DELTA: Capturing cultural changes in undergraduate departments.* (2020) *CBE—Life Sciences Education.* https://doi.org/10.1187/cbe.19-09-0180

Quan, G., Gupta, A., *Tensions in the Productivity of Design Task Tinkering.* (2019) Journal of Engineering Education. https://doi.org/10.1002/jee.20303

Quan, G., Corbo, J., Falkenberg, K., Finkelstein, N., Geanious, C., Ngai, C., Pawlak, A., Pilgrim, M., Reinholz, D., Smith, C., Wise, S. (2019) *Designing for institutional transformation: Six principles for department-level interventions.* Physical Review—Physics Education Research.https://doi.org/10.1103/PhysRevPhysEducRes.15.010141

Reinholz, D. L., Ngai, C., **Quan, G.,** Pilgrim, M., Corbo, J., & Finkelstein, N. (2019) *Fostering sustainable improvements in science education: An analysis through four frames.* Science Education. https://doi.org/10.1002/sce.21526

Quan, G., Turpen, C., and Elby, A, (2018) *Interactions between disciplinary practices and joint work in undergraduate physics research experiences.* Physical Review —Physics Education Research. 14, 020124
https://doi.org/10.1103/PhysRevPhysEducRes.14.020124

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

Publications in Preparation

Ngai, C., Corbo, J. C., **Quan, G. M.**, Falkenberg, K., Geanious, C., Pawlak, A., Pilgrim, M. E., Reinholz, D. L., Smith, C., Wise, S. *Developing the Departmental Action Team Theory of Change.* (Accepted to *Transforming Institutions: Accelerating Systemic Change in Higher Education*).

Sohr, E. R., Gupta, A., Johnson, B. J., **Quan, G. M.** *Examining the dynamics of decision making when designing curriculum in partnership with students: How should we proceed?.* (In press *Physical Review—Physics Education Research*).

Books in Preparation

Ngai, C., Corbo, J. C., Falkenberg, K. L., Geanious, C., Pawlak, A., Pilgrim, M. E., **Quan, G. M.**, Reinholz, D. L., Smith, C., Wise, S., *Facilitating Change in Higher Education: the Departmental Action Teams Model.*

Refereed Conference Publications

Quan, G. M., Gutmann, B., Corbo, J. C., Pollard, B., Turpen, C. A., & The Access Network (2019) *The Access Network: Cultivating Equity and Student Leadership in STEM* (2019 PERC Proceedings). Provo, U.T., July 24th-July 25th, 2019.

Quan, G. M., Turpen, C. A., & Elby, A. (2019) *Longitudinal Analysis of Identity Trajectories of Undergraduate Physics Students* (2019 NARST). Baltimore, M.D., March 30-April 3rd.

Reinholz, D. L., Pilgrim, M. E., Falkenberg, K., Ngai, C., **Quan, G.,** Wise, S., Geanious, C., & Corbo, J. (2018) *Departmental Action Teams: A five-year update on a model for sustainable change* (in 2018 Reinvention Collaborative). Arlington, Virginia, November 8-10, 2018.

Quan, G. M., Corbo, J., Ngai, C., Reinholz, D. L., & Pilgrim, M. E.(2018) *Research on university faculty members reasoning about how departments change* (2018

PERC Proceedings). Washington, D.C., August 1-2, 2018, edited by A. Traxler, Y. Cao, Steven Wolf. http://dx.doi.org/10.1119/perc.2018.pr.Quan

Corbo, J., **Quan, G. M.,** Falkenberg, K., Geanious, C., Ngai, C., Pilgrim, M. E., Reinholz, D. L., & Wise, S. (2018) *Externalizing the Core Principles of the Departmental Action Team (DAT) model* (2018 PERC Proceedings). Washington, D.C., August 1-2, 2018, edited by A. Traxler, Y. Cao, Steven Wolf.
http://dx.doi.org/10.1119/perc.2018.pr.Corbo

Turpen, C. A., Gupta, A., Radoff, J., Elby, E., Sabo, H., & **Quan, G. M.**, (2018), *Successes and Challenges in Supporting Undergraduate Peer Educators to Notice and Respond to Equity Considerations within Design Teams.* Paper presented at 2018 ASEE Annual Conference Exposition, Salt Lake City, Utah.
Retrieved from https://www.asee.org/public/conferences/106/papers/23278/view

Quan, G. M., Turpen, C. A., Gupta, A., & Tanu, E. D. (2017), *Designing a Course for Peer Educators in Undergraduate Engineering Design Courses.* Paper presented at 2017 ASEE Annual Conference Exposition, Columbus, Ohio. Retrieved from https://peer.asee.org/28124

- Finalist for Best Paper in *Design in Engineering Education Division*

Tanu, E. D., **Quan, G. M.,** Gupta, A., & Turpen, C. A. (2017), *The Role of Empathy in Supporting Teaching Moves of Engineering Design Peer Educators.* Paper presented at 2017 ASEE Annual Conference Exposition, Columbus, Ohio. Retrieved from https://peer.asee.org/29004

Visintainer, T., Elby, A., Little, A., **Quan, G.**, & Aceves, A. (2017). *Exploring the Physics Summer Program Experiences of Undergraduate Students Underrepresented in the Physical Sciences.* Paper presented at the American Educational Research Association Conference, San Antonio, TX.

Quan, G., Turpen, C., Elby, A., (2016) *Attending to scientific practices within undergraduate research experiences* (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.

Grants and Funding

Collaborative Research: Expanding Access: Furthering a Network of Diversity-Focused Programs in the Physical Sciences September, 2018
Joel Corbo (PI) **Gina Quan (Co-PI)** $168,463
NSF Integrative Activities in Phys Award No. 1806566

Invited Presentations

Open Quantum Frontier Workshop: Quantum Education (May 2020)
Designing for Sustainable Change in University STEM Departments
San Francisco State University Physics Colloquium (October 2019)
Cultivating Institutional Change in University STEM Departments
APS Northwest Section Meeting (May 2019)
Understanding how Undergraduate Research Experiences Support Physics Identities
Physics Education Research Conference 2018 (July 2018)
The Access Network: Bringing Together Student Leaders to Support Equity Programs
AAPT 2017 Summer Meeting (July 2017)
Creating A Classroom Ethos of "Learning Together": Strategies Equity Implications
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

AERA 2020 Symposium (Discussant) (April 2020)
"Designing for" to "Designing with" Partners: Emergent Challenges in the Co-design Process (Conference cancelled due to COVID-19)
PERC 2019 (Juried Talk) (July 2018)
Longitudinal analysis of a students identity trajectory within the physics community
AAPT 2019 Summer Meeting (July 2018)
The Impacts of Students as Partners on Departmental Action Teams
AAPT 2018 Summer Meeting (July 2018)
Research on university faculty members reasoning about how departments change
AAPT 2017 Summer Meeting (July 2017)
Longitudinal Analysis of Identity Trajectories of Undergraduate Physics Students
American Society of Engineering Education Annual Conference (June 2017)
Designing a Course for Peer Educators in Undergraduate Engineering Design Courses
AAPT 2017 Winter Meeting (February 2017)
Understanding How Undergraduate Physics Research Experiences Shape Identity Tra-

jectories
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 2019 (July 2019)
The Access Network: Cultivating Equity and Student Leadership in STEM
Foundations and Frontiers of Physics Education Research - Puget Sound (July 2018)
Externalizing the Core Principles of the Departmental Action Team (DAT) Model
Physics Education Research Conference 2018 (August 2018)
Research on university faculty members reasoning about how departments change
CU Center for STEM Learning Symposium (October 2017)
Departmental Action Teams as a Mechanism for Promoting Departmental Change
Physics Education Research Conference 2017 (July 2017)
Supporting Community Building and Physics Practices in Undergraduate Research Experiences
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 Experiences
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

AERA 2020 Symposium (April 2020)
"Designing for" to "Designing with" Partners: Emergent Challenges in the Co-design Process (Conference cancelled due to COVID-19)

AAPT 2019 Workshop with Joel Corbo (July 2010)
Creating Sustainable Change in University Departments: Theory and Practice

PERC 2017 Parallel Session with Joel Corbo (July 2017)
Bridging Research and Practice in the Access Network

APS Bridge/Graduate Education Conference Workshop with Abhinav Deshpande, Zachary Eldredge, Stephen Ragole, and Erin Sohr (July 2017)
Student-led Initiatives Toward Improving Graduate Student Mental Health

AAPT 2017 Winter Meeting Session 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 Workshop with Danielle Champney & Dimitri Dounas-Frazer (July 2015)
Facilitating student self-reflection & personalized instructor feedback

PERC 2015 Parallel Session 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

PERLOC Representative (Elected) (Spring 2015 - Winter 2017)
Physics Education Research Leadership and Organizing Council (PERLOC)
PER Consortium of Graduate Students (PERCoGS)

Publicist (Elected) (Summer 2013 - Spring 2015)
PER Consortium of Graduate Students (PERCoGS)

Committee Member (Elected) (Spring 2014 - Fall 2015)
UMD Physics Graduate Committee

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

Student Leader & Academic Activities Chair (Summer 2009- Spring 2011)
The Compass Project

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

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, **Journal of Engineering Education**, **Science Education**, **American Society of Engineering Education Proceedings**, **Physics Education Research Conference Proceedings**, **National Association of Research in Science Teaching Conference Proceedings**, **European Science Education Research Association 2019 Conference Proceedings**