Yangqiuting (Doris) Li

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Oregon State University
Department of Physics

EDUCATION

Ph.D., Physics, University of Pittsburgh, August 2022

M.S., Physics, University of Pittsburgh, 2020

B.S., Physics, Nanjing University, 2017

RESEARCH EXPERIENCE

Fall 2023-Present — **Assistant Professor at Oregon State University**

- Investigating how to improve students' motivational beliefs by enhancing the inclusiveness of the learning environment.
- Investigating students' sense-making processes in upper-division physics courses, e.g., quantum mechanics.
- Investigating the role played by math in physics learning and developing tools to support students with diverse preparation.

Fall 2022-Summer 2023 — **Postdoctoral Researcher (Physics Education Research) at Auburn University**

Principal Investigator of the projects: Dr. Eric Burkholder

Investigating course factors that can impact students' learning

- Investigated the relationship between students' preparation and learning outcomes using cluster analysis and structural equation modeling
- Investigated the effectiveness of continuous gender measures

Developing recitation interventions to enhance students' learning

- Manage the project including multiple interventions
- Develop math and physics materials for the interventions

Fall 2019-Summer 2022 — **Research Assistant (Physics Education Research) at University of Pittsburgh**

Research Adviser: Dr. Chandralekha Singh

Improving students' content understanding of quantum physics

- Developed research-validated learning materials to help students build physical intuition about quantum physics. Observed student learning and analyzed students' written work.
- Developed quantum computing tutorials that can be used for both physics majors and non-physics majors.

Improving the inclusiveness of learning environment in introductory physics

- Investigated students' motivational beliefs in calculus-based introductory physics courses, and how they affect students' learning outcomes using structural equation modeling
- Developed and conducted an interview protocol to understand women's experiences in introductory physics
- Conducted Social Belonging and Mindset Classroom Interventions in introductory physics classrooms to enhance minority students' learning and engagement.

- Collaborated on the SEISMIC project, contributing to parallel data analysis across 10 large public research universities, with a focus on improving equity and inclusion in STEM.

Summer 2021 **Teacher Scholar at University of Pittsburgh, Pittsburgh, PA**
Discipline-Based Science Education Research Center (dB-SERC):
- Participated in weekly lunch discussion
- Consulted with college instructors in other science departments to develop evidence-based teaching materials and assessment tools for undergraduate courses.
- Reviewed proposals and provided feedback in dB-SERC for transforming undergraduate courses to make them evidence-based.

Fall 2016- **Undergraduate Researcher at Nanjing University, Nanjing, China**
Summer 2017 Used equation of state (EOS) of quark matter within the Nambu-Jona-Lasinio model to study the structure of compact star.

TEACHING EXPERIENCE

Fall 2023- **Instructor at Oregon State University, Corvallis, OR**
Present   General Physics with Calculus 2 (PH 212H) (Fall 2023)
Paradigms in Physics: Quantum Fundamentals (PH 425) (Winter 2024)

Summer 2022 **Instructor (teaching an independent course) at University of Pittsburgh, Pittsburgh, PA**
Introduction to Physics 2 (PHYS 0111)
Average Student Evaluation score: **4.81/5** (Full teaching evaluations are available)

Summer 2019 **Teaching Assistant (recitation instructor) at University of Pittsburgh, Pittsburgh, PA**
Introduction to Physics 2 (PHYS 0111)
From Stonehenge to Hubble (ASTRON 0088)

Fall 2018- **Teaching Assistant (lab instructor) at University of Pittsburgh, Pittsburgh, PA**
Spring 2019 Introduction to Laboratory Physics (PHYS 0212)

PUBLICATIONS

Peer-reviewed journal papers

1. **Yangqiuting Li**, Rafael Bernardi and Eric Burkholder, The effects of active learning on students' sense of belonging and academic performance, European Journal of Physics **45,** 045705 (2024). https://doi.org/10.1088/1361-6404/ad4fcd

2. **Yangqiuting Li** and C. Singh, How inclusiveness of learning environment mediates gender differences in students' physics motivational beliefs and grades, *accepted to International Journal of Engineering Education*.

3. **Yangqiuting Li** and Eric Burkholder, Investigating students' self-identified and reflected appraisal of femininity, masculinity, and androgyny in introductory physics courses, Physical Review Physics Education Research **20**, 010110 (2024). https://doi.org/10.1103/PhysRevPhysEducRes.20.010110

4. Peter Hu, **Yangqiuting Li**, Roger S. K. Mong, and C. Singh, Student understanding of the Bloch sphere, European Journal of Physics **45,** 025705 (2024). https://doi.org/10.1088/1361-6404/ad2393

5. S. Castle, W. Byrd, B. Koester, M. Pearson, E. Bonem, N. Caporale, S. Cwik, K. Denaro, S. Fiorini, **Yangqiuting Li,** C. Mead, H. Rypkema, R. Sweeder, M. Medinaceli, K. Whitcomb, S. Brownell, C.

Levesque-Bristol, M. Molinaro, C. Singh, T. McKay, B. Matz, Systemic advantage has a meaningful relationship with grade outcomes in students' early stem courses at six research universities, International Journal of STEM Education **11**, 14 (2024). https://doi.org/10.1186/s40594-024-00474-7

6. **Yangqiuting Li** and C. Singh, Statistically equivalent models with different causal structures: An example from physics identity, Physical Review Physics Education Research **20**, 010101 (2024). https://link.aps.org/doi/10.1103/PhysRevPhysEducRes.20.010101

7. **Yangqiuting Li** and C. Singh, Selecting pedagogically beneficial models that are theoretically grounded from statistically equivalent models of physics identity, International Journal of Innovation in Science and Mathematics Education **31,** 2 (2023). https://doi.org/10.30722/IJISME.31.04.001

8. Peter Hu, **Yangqiuting Li** and C. Singh, Challenges in addressing student difficulties with basics and change of basis for two-state quantum systems using a multiple-choice question sequence in online and in-person classes, European Journal of Physics **44**, 065703 (2023). https://doi.org/10.1088/1361-6404/acf5b3

9. **Yangqiuting Li** and C. Singh, Sense of belonging is an important predictor of introductory physics students' academic performance, Physical Review Physics Education Research **19**, 020137 (2023). https://doi.org/10.1103/PhysRevPhysEducRes.19.020137

10. **Yangqiuting Li** and C. Singh, Impact of perceived recognition by physics instructors on women's self-efficacy and interest, Physical Review Physics Education Research **19**, 020125 (2023). https://doi.org/10.1103/PhysRevPhysEducRes.19.020125

11. Peter Hu, **Yangqiuting Li** and C. Singh, Challenges in addressing student difficulties with quantum measurement of two-state quantum systems using a multiple-choice question sequence in online and in-person classes, Physical Review Physics Education Research **19,** 020130 (2023) https://doi.org/10.1088/1361-6404/ac9ba3

12. **Yangqiuting Li** and C. Singh, Inclusive learning environments can improve student learning and motivational beliefs, Physical Review Physics Education Research **18**, 020147 (2022). https://doi.org/10.1103/PhysRevPhysEducRes.18.020147

13. Peter Hu, **Yangqiuting Li** and C. Singh, Challenges in addressing student difficulties with measurement uncertainty of two-state quantum systems using a multiple-choice question sequence in online and in-person classes, European Journal of Physics **44,** 015702 (2022) https://doi.org/10.1088/1361-6404/ac9ba3

14. **Yangqiuting Li** and C. Singh, Do female and male students' physics motivational beliefs change in a two-semester introductory physics course sequence?, Physical Review Physics Education Research **18**, 010142 (2022). https://doi.org/10.1103/PhysRevPhysEducRes.18.010142

15. **Yangqiuting Li** and C. Singh, How engineering identity of first-year female and male engineering majors is predicted by their physics self-efficacy and identity, International Journal of Engineering Education **38**, 799 (2022). https://www.ijee.ie/latestissues/Vol38-3/21_ijee4203.pdf

16. Peter Hu, **Yangqiuting Li** and C. Singh, Challenges in addressing student difficulties with time-development of two-state quantum systems using a multiple-choice question sequence in virtual and in-person classes, European Journal of Physics **43**, 025704 (2022) https://iopscience.iop.org/article/10.1088/1361-6404/ac49f4/meta

17. **Yangqiuting Li** and C. Singh, Effect of gender, self-efficacy, and interest on perception of the learning environment and outcomes in calculus-based introductory physics courses, Physical Review Physics Education Research **17**, 010143 (2021). (**Selected as Editors' Suggestion**) https://doi.org/10.1103/PhysRevPhysEducRes.17.010143

18. **Yangqiuting Li,** K. M. Whitcomb and C. Singh, How perception of being recognized or not recognized by instructors as a "Physics Person" impacts male and female students' self-efficacy and performance, The Physics Teacher **58**, 484 (2020). https://doi.org/10.1119/10.0002067

Peer-reviewed Conference Proceedings

19. Peter Hu, **Yangqiuting Li** and C. Singh, Development, validation and online and in-person implementation of clicker question sequence on change of basis, in Proceedings of the 2023 Physics Education Research Conference, Sacramento, CA (2023), p.138. https://www.per-central.org/items/detail.cfm?ID=16573

20. **Yangqiuting Li** and C. Singh, How inclusiveness of learning environment predicts student outcomes in introductory physics, in Proceedings of the 2022 Physics Education Research Conference, Grand Rapids, MI (2022), p. 285. https://www.compadre.org/per/items/detail.cfm?ID=16248

21. Peter Hu, **Yangqiuting Li** and C. Singh, Development, validation and virtual and in-person implementation of clicker question sequence on quantum measurement uncertainty, in Proceedings of the 2022 Physics Education Research Conference, Grand Rapids, MI (2022), p.230. https://www.compadre.org/per/items/detail.cfm?ID=16238

22. Peter Hu, **Yangqiuting Li** and C. Singh, Using a clicker question sequence to teach time-development in quantum mechanics, in Proceedings of the 2021 Physics Education Research Conference, Virtual Meeting (2021), p. 184. http://www.per-central.org/items/detail.cfm?ID=15750

23. **Yangqiuting Li,** K. M. Whitcomb and C. Singh, How learning environment predicts male and female students' physics motivational beliefs in introductory physics courses, in Proceedings of the 2020 Physics Education Research Conference, Virtual Meeting (2020), p. 284. https://www.compadre.org/PER/items/detail.cfm?ID=15497

MANUSCRIPT IN PROGRESS

1. A. Maries, **Yangquiting Li**, and C. Singh, How to enhance physics by making it equitable and inclusive, *in review at Reports of Progress in Physics.*

2. **Yangqiuting Li** and C. Singh, Examples of instructor interactions that women in physics courses find condescending or intimidating, *in review at Journal of College Science Teaching.*

3. **Yangqiuting Li** and C. Singh, Improving student understanding of quantum measurement using a research-validated multiple-choice question sequence, *in review at Physical Review Physics Education Research.*

4. Peter Hu, **Yangqiuting Li** and C. Singh**,** Investigating and improving student understanding of the basics of quantum computing, *in review at Physical Review Physics Education Research.*

5. Lisabeth Santana, Alysa Malespina, **Yangqiuting Li,** and C. Singh, Investigation of students repeating calculus-based introductory physics courses by gender, ethnicity and race, *in review at European Journal of Physics.*

6. Noah Leibnitz, Smith Strain, Reagan Ruben, Yangqiuting Li and Eric Burkholder, Living in the tensions: Investigations of gender performativity in STEM, *in review at Proceedings of the 2024 Physics Education Research Conference.*

INVITED PRESENTATIONS

- **Yangqiuting Li** (May 2024). *Investigating the Relationship Between Student Perceptions of Learning Environments and Their Gender Identity on a Gradational Scale.* Invited presentation at CoSCIES Education Research Showcase Extravaganza, Corvallis, OR.

- **Yangqiuting Li** (May 2024). *Enhancing students' physics motivational beliefs and academic performance by improving the inclusiveness of learning environment.* Invited presentation at Pacific Northwest Association of College Physics (PNACP) meeting, Seattle, WA.

- **Yangqiuting Li** (Nov 2023). *Investigating students' perceptions of the inclusiveness of learning environment in physics courses.* Seminar presentation at Department of Physics and Astronomy, Michigan State University, East Lansing, MI.

- **Yangqiuting Li** (Nov 2023). *Investigating students' perceived recognition from others in physics courses.* Seminar presentation at Department of Physics, Oregon State University, Corvallis, OR.

- **Yangqiuting Li** (Nov 2022). *Continuous measures of gender in introductory physics courses.* Discipline-Based Education Research Meeting at Auburn University.

- **Yangqiuting Li** (October 2022). *How Physics Education Research improves the effectiveness of teaching and learning.* Society of Physics Students at University of Pittsburgh.

- **Yangqiuting Li** (September 2022). *Improving inclusiveness of learning environment in physics courses.* Colloquium presentation at Department of Physics, Auburn University, Auburn, AL.

- **Yangqiuting Li** (July 2022). *The importance of inclusiveness of learning environment in promoting equity.* Invited presentation at American Association Physics Teachers (AAPT) Summer Meeting, Grand Rapids, MI.

- **Yangqiuting Li** (April 2022). *How to build an inclusive and equitable learning environment in STEM courses.* Discipline-Based Science Education Research Center at University of Pittsburgh.

- **Yangqiuting Li** (October 2021). *Students' motivational beliefs in introductory physics courses.* Physics Education Research Graduate Students Forum, Shanghai, China.

- **Yangqiuting Li** (September 2021). *A brief introduction to Physics Education Research.* Society of Physics Students at University of Pittsburgh.

- **Yangqiuting Li** (July 2021). *Students' motivational beliefs in physics courses.* Women and Minorities in Physics at University of Pittsburgh.

- **Yangqiuting Li** (March 2021). *How to build an inclusive and equitable learning environment in physics.* Physics department, University of California, Santa Cruz.

- S. Cwik, **Yangqiuting Li** and A. Malespina (January 2021). *Equity in STEM education.* STEM & Society Lecture Series, University of Pittsburgh.

- C. Singh and contributors: E. Marshman, Z. Y. Kalender, S. Cwik, **Yangqiuting Li**, D. Doucette and A. Malespina (May 2020). *How to enhance physics by making it inclusive.* School of Engineering and Applied Sciences, Harvard University.

- **Yangqiuting Li** (December 2019). *Understanding self-efficacy and performance of students and the effect of perceived recognition*. College of Teacher Education, East China Normal University, Shanghai, China.

CONFERENCE PRESENTATIONS

- **Yangqiuting Li** (April 2024). *Investigating students' self-identified and reflected appraisal of femininity, masculinity, and androgyny in introductory physics courses using gradational gender measures.* Presentation at the American Physical Society April Meeting 2024, Sacramento, CA.

- **Yangqiuting Li** (July 2023). *Discrepancies in self-identified and perceived masculinity in introductory physics courses.* Presentation at the American Association Physics Teachers (AAPT) Summer Meeting, Sacramento, CA.

- **Yangqiuting Li** (July 2023). *The effect of the inclusiveness of learning environment on students' physics motivational beliefs.* Presentation at the American Association Physics Teachers (AAPT) Summer Meeting, Sacramento, CA.

- **Yangqiuting Li** (July 2023). *The effects of active learning on students' sense of belonging and academic performance.* Poster presented at the Physics Education Research Conference, Sacramento, CA.

- **Yangqiuting Li** (July 2023). *The impact of perceived recognition by physics instructors on women's self-efficacy and interest.* Poster presented at the American Association Physics Teachers (AAPT) Summer Meeting, Sacramento, CA.

- **Yangqiuting Li** (July 2023). *How perception of being recognized by instructors as a "physics person" predicts students' self-efficacy and academic performance.* Poster presented at the American Association Physics Teachers (AAPT) Summer Meeting, Sacramento, CA.

- **Yangqiuting Li** (July 2022). *How inclusiveness of learning environment mediates gender differences in students' physics motivational beliefs and grades.* Presentation at the American Association Physics Teachers (AAPT) Summer Meeting, Grand Rapids, MI.

- **Yangqiuting Li** (July 2022). *How inclusiveness of learning environment predicts students' physics motivational beliefs.* Poster presented at the American Association Physics Teachers (AAPT) Summer Meeting, Grand Rapids, MI.

- **Yangqiuting Li** (July 2022). *How inclusiveness of learning environment mediates gender differences in students' physics motivational beliefs and grades.* Poster presented at the Physics Education Research Conference, Grand Rapids, MI.

- **Yangqiuting Li** (July 2021). *How learning environment predicts students' physics grades and motivational beliefs in introductory physics courses.* Presentation at the American Association Physics Teachers (AAPT) Virtual Summer Meeting.

- **Yangqiuting Li** (July 2021). *How learning environment predicts students' physics grades and motivational beliefs in introductory physics courses.* Poster presented at the Physics Education Research Virtual Conference.

- **Yangqiuting Li** (April 2021). *How to build an inclusive and equitable learning environment in physics.* Presentation at Western Pennsylvania American Association Physics Teacher (WPA-AAPT) Spring 2021.

- **Yangqiuting Li** (March 2021). *How learning environment predicts male and female students' physics motivational beliefs in introductory physics courses.* Presentation at Pitt Grad Expo 2021.

- **Yangqiuting Li** (March 2021). *How learning environment predicts male and female students' physics motivational beliefs in introductory physics courses.* Poster presented at the X-DBER Virtual Conference.

- **Yangqiuting Li** (July 2020). *How learning environment predicts male and female students' physics motivational beliefs in introductory physics courses.* Presentation at the American Association Physics Teachers (AAPT) Virtual Summer Meeting.

- **Yangqiuting Li** (July 2020). *How learning environment predicts male and female students' physics motivational beliefs in introductory physics courses.* Poster presented at the Physics Education Research Virtual Conference.

- **Yangqiuting Li** (July 2019). *Understanding motivational characteristics of students who repeat calculus-based introductory level physics courses*. Presentation at the American Association Physics Teachers (AAPT) Summer Meeting, Provo, UT.

- **Yangqiuting Li** (July 2019). *Understanding motivational characteristics of students who repeat calculus-based introductory level physics courses*. Poster presented at the Physics Education Research Conference, Provo, UT.

WORKSHOPS CONDUCTED

- **Auburn University,** Graduate student TA training, Fall 2022
- **Discipline-Based Science Education Research Center (dB-SERC)** Undergraduate student TA workshop, Fall 2021
- **dB-SERC** Graduate student TA workshop, Fall 2021
- **dB-SERC** Undergraduate student TA workshop, Spring 2021
- **dB-SERC** Graduate student TA workshop, Fall 2020
- **dB-SERC** Undergraduate student TA workshop, Fall 2020
- **APS Conferences for Undergraduate Women in Physics (CUWiP) 2020 Pittsburgh,** "Cultivating a Growth Mindset", January 2020

HONORS and AWARDS

- Arts and Sciences Graduate Student Organization Travel Grant, Summer 2022
- Graduate and Professional Student Government Travel Grant, Summer 2022
- Myron P. Garfunkel Excellence in Graduate Student Teaching Award nominee, 2021
- Arts and Sciences Graduate Student Organization Travel Grant, Summer 2019
- Graduate and Professional Student Government Travel Grant, Summer 2019
- Outstanding Graduate Award, Summer 2017
- People's Scholarship, Fall 2016
- People's Scholarship, Fall 2015
- Advanced Individual of Campus Cultural Construction, Spring 2014

MENTORING STUDENTS

- Major Advisor:
  1. Noah Leibnitz (Ph.D. student, Fall 2023 - Present).
- Senior Project Mentor:
  1. Diego Menendez (B.S. Physics student, Spring 2024 - Present).
- Graduate Committee Member:
  1. Luke Nearhood (Ph.D. student)
  2. Pachi Her (Ph.D. student)
  3. Adam Frye (Master student)

- Graduate Council Representative:
    1. Ngoc Ha (Current Ph.D. student)
    2. Michelle Reneé Etchart (Current Ph.D. student)
- Graduate student: Peter Hu (Fall 2020 - Spring 2022).
- Mentored undergraduate physics students in developing tutorials for quantum mechanics (Spring 2021).

SERVICES

- Graduate admission committee (2024 Winter)
    1. Reviewed graduate applications
    2. Hosted open house
- Graduate curriculum committee (2023 Fall-2024 Spring)
- Upper division curriculum committee (2023 Fall-2024 Spring)

MEMBERSHIP IN SOCIETY AND LEADERSHIP POSITIONS

Reviewer for NSF Improving Undergraduate STEM Education (IUSE)

Reviewer for Physics Education Research Conference Proceedings (2019-present)

Reviewer for Physical Review: Physics Education Research (2020-present)

Reviewer for International Journal of Innovation in Science and Mathematics Education (2023)

Reviewer for International Journal of Engineering Education (2022)

Member of the College of Science Community of Instructional Excellence Scholarly Fellows (Fall 2023-Spring 2024)

Member of the Area Committee on Professional Concerns of AAPT (Winter 2021-Winter 2024)

Member of Discipline-Based Science Education Research Center (dB-SERC) (2019 – 2022)

Member of American Association Physics Teacher (AAPT) (2019 – present)

Group Leader of Summer Holiday Social Practice "Doctor-Patient Relationship" (Summer 2016)

The Vice-President of Student Union (Fall 2014-Fall2015)

Member of Recreation Department & Liaison Department of Student Union (Fall 2013-Fall 2014)

COMPUTER SKILLS

Statistical Software: R, SPSS, Stata, Python, HLM (Hierarchical Linear Modeling software)

Numerical-analysis Software: Origin, Mathematica, Matlab

Others: C language, Microsoft Office, NVivo