Curriculum Vita
Spring 2026

Instructor: Dr. Robynne Lock, Associate Professor
Academic Department: Physics and Astronomy

University Address: Department of Physics & Astronomy
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East Texas A&M University
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Commerce, TX 75429-3011
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EDUCATION

- *University of Colorado at Boulder, Boulder, CO*

Ph.D., Physics, May 2011
Advisors: Drs. Margaret Murnane and Henry Kapteyn

- *University of Texas at Austin, Austin, TX*

B.S., Physics, May 2005
Cumulative GPA: 4.0/4.0

TEACHING EXPERIENCE

- *Associate Professor, Department of Physics & Astronomy, East Texas A&M University (formerly Texas A&M University-Commerce), 2020-present*
- *Assistant Professor, Department of Physics & Astronomy, East Texas A&M University (Texas A&M University-Commerce), 2014-2020*
- *Teaching Assistant and Co-Instructor, Department of Physics, Clemson University, Clemson, SC.*

Teaching Assistant (Spring 2013): PHYS 207 General Physics I (algebra-based physics)
Co-instructor (Fall 2012): PHYS 207 General Physics I (algebra-based physics)

- *Teaching Assistant and Guest Lecturer, Physics Department, University of Colorado at Boulder, Boulder CO.*

Guest Lecturer (Spring 2011):
PHYS 1230 Light and Color for Nonscientists: Taught one lecture on the subject of optics and anatomy of the eye.
Teaching Assistant (Fall 2005):
PHYS 1120 General Physics 2: Electricity, Magnetism, & Optics: Taught four recitation sections using University of Washington tutorials

Courses taught (2014 – present):
PHYS 2425 University Physics I (calculus-based introductory physics)
IS 351 Science Inquiry I (for pre-service elementary and middle school teachers)

IS 352 Science Inquiry II (for pre-service elementary and middle school teachers)
PHYS 530 Physics Mathematical Methods for Educators (Master's program for in-service high school teachers)
PHYS 531 Classical Mechanics for Educators (Master's program for in-service high school teachers)
PHYS 532 Electricity and Magnetism for Educators (Master's program for in-service high school teachers)
PHYS 371 Science and Math Education Theory and Practice (pedagogy course for Learning Assistants)
PHYS 270 Science Education Theory and Practice (pedagogy course for Learning Assistants)
PHYS 345 Teaching and Learning Physics (physics education research course)

Co-Director of Learning Assistant Program, 2014-present
Created learning assistant program; recruit learning assistants; coordinate hiring of learning assistants; conduct weekly preparation meetings; teach learning assistant pedagogy course; supervise Learning Assistant Program Manager.

PUBLICATIONS

PEER-REVIEWED PUBLICATIONS

1. Geoff Potvin, Zahra Hazari, Raina Khatri, Hemeng Cheng, T. Blake Head, Robynne M. Lock, Anne F. Kornahrens, Kathryne Sparks Woodle, Rebecca E. Vieyra, Beth A. Cunningham, Laird Kramer, and Theodore Hodapp, "Examining the effect of counternarratives about physics on women's physics career intentions," Physical Review Physics Education Research 19, 010126 (2023).

2. Robynne M. Lock, Zahra Hazari, and Geoff Potvin, "Impact of Out-of-Class Science and Engineering Activities on Physics Identity and Career Intentions," Physical Review Physics Education Research 15, 020137 (2019).

3. Jianlan Wang, Zahra Hazari, Cheryl Cass, and Robynne Lock, "Episodic memories and the longitudinal impact of high school physics on female students' physics identity," International Journal of Science Education (2018). DOI: 10.1080/09500693.2018.1486522

4. Robynne M. Lock and Zahra Hazari, "Discussing underrepresentation as a means to facilitating female students' physics identity development," Physical Review Physics Education Research 12, 020101 (2016). Featured in M. McCartney, "The physics of a gender gap," in S. Vignieri and J. Smith (Eds.), "In Other Journals," Science 353, 787 (2016).

5. Allison Godwin, Geoff Potvin, Zahra Hazari, and Robynne Lock, "Identity, Critical Agency, and Engineering: An Affective Model for Predicting Engineering as a Career Choice," Journal of Engineering Education 105, 312 (2016).

6. Zahra Hazari, Geoff Potvin, Robynne M. Lock, Florin Lung, Gerhard Sonnert, and Philip M. Sadler, "Factors that Affect the Physical Science Career Interest of Female Students: Testing Five Common Hypotheses," Physical Review Special Topics – Physics Education Research 9, 020115 (2013).

7. R.M. Lock, S. Ramakrishna, X. Zhou, H.C. Kapteyn, M.M. Murnane, and T. Seideman, "Extracting Continuum Electron Dynamics from High Harmonic Emission from Molecules," Physical Review Letters 108, 133901 (2012).
8. Robynne M. Lock, Xibin Zhou, Wen Li, Henry C. Kapteyn, and Margaret M. Murnane, "Measuring the Intensity and Phase of High-Order Harmonic Emission from Aligned Molecules," Chemical Physics 366, 22 (2009).
9. Xibin Zhou, Robynne Lock, Nick Wagner, Wen Li, Henry C. Kapteyn, and Margaret M. Murnane, "Elliptically Polarized High-Order Harmonic Emission from Molecules in Linearly Polarized Laser Fields," Physical Review Letters 102, 073902 (2009).
10. Wen Li, Xibin Zhou, Robynne Lock, Henry Kapteyn, Margaret Murnane, Serguei Patchkovskii, and Albert Stolow, "Time-Resolved Dynamics in N2O4 Probed Using High Harmonic Generation," Science 322, 1207 (2008).
11. Isabell Thomann, Robynne Lock, Vandana Sharma, Etienne Gagnon, Stephen T. Pratt, Henry C. Kapteyn, Margaret M. Murnane, and Wen Li, "Direct Measurement of the Angular Dependence of the Single-Photon Ionization of Aligned N2 and CO2," Journal of Physical Chemistry A 112, 9382 (2008).
12. Xibin Zhou, Robynne Lock, Wen Li, Nick Wagner, Margaret M. Murnane, and Henry C. Kapteyn, "Molecular Recollision Interferometry in High Harmonic Generation," Physical Review Letters 100, 073902 (2008).
13. Nicholas Wagner, Xibin Zhou, Robynne Lock, Wen Li, Andrea Wüest, Margaret Murnane, and Henry Kapteyn, "Extracting the Phase of High-Order Harmonic Emission from a Molecule Using Transient Alignment in Mixed Samples," Physical Review A 76, 061403 (2007).

PEER-REVIEWED CONFERENCE PROCEEDINGS PAPERS

1. G.D. Dunford, B. Modir, R.M. Lock, and W.G. Newton, "Categorization and framing teaching discussions in an online physics classroom," International Conference of the Learning Sciences Proceedings 2235 (2022).
2. M. Fields, B. Modir, W. G. Newton, R. M. Lock, and J. C. Stanfield, The transition to online teaching during the COVID-19 pandemic at a regional, rural university: The experience of learning assistants, 2020 PERC Proceedings [Virtual Conference, July 22-23, 2020], edited by S. Wolf, M. B. Bennett, and B. W. Frank, doi:10.1119/perc.2020.pr.Fields.
3. M. Nadeau, B. Modir, R. M. Lock, and W. G. Newton, Participation in an online community of high school physics teachers, 2020 PERC Proceedings [Virtual Conference, July 22-23, 2020], edited by S. Wolf, M. B. Bennett, and B. W. Frank, doi:10.1119/perc.2020.pr.Nadeau.
4. T. B. Head, R. Khatri, Z. Hazari, G. Potvin, and R. M. Lock, Believe that they can achieve: How Teacher Attitudes Toward Physics Impact Student Outcomes, 2020 PERC Proceedings [Virtual Conference, July 22-23, 2020], edited by S. Wolf, M. B. Bennett, and B. W. Frank, doi:10.1119/perc.2020.pr.Head.
5. Robynne M. Lock, Ben Van Dusen, Steven Maier, and Liang Zeng, Impact of the Next Gen PET curriculum on Science Identity, 2019 PERC Proceedings [Provo, UT, July 24-25], edited by Y. Cao, S. Wolf, and M. Bennett.

6. T. Blake Head, Robynne M. Lock, Raina Khatri, Zahra Hazari, and Geoff Potvin, Student response to a careers in physics lesson, 2019 PERC Proceedings [Provo, UT, July 24-25], edited by Y. Cao, S. Wolf, and M. Bennett.
7. Hemeng Cheng, Geoff Potvin, Raina Khatri, Laird H. Kramer, Robynne M. Lock, and Zahra Hazari, Examining physics identity development through two high school interventions, 2018 PERC Proceedings [Washington, DC, August 1-2, 2018], edited by A. Traxler, Y. Cao, and S. Wolf.
8. Robynne M. Lock, Melanie Schroers, and William G. Newton, Examining the factors that impact group work effectiveness in studio physics, 2017 PERC Proceedings [Cincinatti, OH, July 26-27, 2017], edited by Lin Ding, Adrienne Traxler, and Ying Cao.
9. Robynne M. Lock, Jordan Castillo, Zahra Hazari, and Geoff Potvin, Determining Strategies that Predict Physics Identity: Emphasizing Recognition and Interest, 2015 PERC Proceedings [College Park, MD, July 29-30, 2015], edited by A.D. Churkian, D.L. Jones, and Lin Ding.
10. Robynne M. Lock, Zahra Hazari, and Geoff Potvin, "Physics Career Intentions: The Effect of Physics Identity, Math Identity, and Gender," AIP Conference Proceedings 1513, 262 (2013). Finalist for 2012 PERC Proceedings Paper Award.
11. Geoff Potvin, Zahra Hazari, Leidy Klotz, Allison Godwin, Robynne M. Lock, Jennifer Dawn Cribbs, and Nicole Barclay, "Disciplinary Differences in Engineering Students' Aspirations and Self-Perceptions," 2013 American Society for Engineering Education Conference Proceedings (2013).
12. Allison Godwin, Geoff Potvin, Zahra Hazari, and Robynne Lock, "Understanding Engineering Identity Through Structural Equation Modeling," 2013 IEEE Frontiers in Education Conference, IEEE Press (2013).
13. Robynne M. Lock, Xibin Zhou, Margaret M. Murnane , and Henry C. Kapteyn, "Elliptical Dichroism of High Harmonics Emitted from Aligned Molecules," in Ultrafast Phenomena XVII: Proceedings of the 17th International Conference, The Silvertree Hotel and Snowmass Conference Center, Snowmass, Colorado, United States, July 2010. M. Chergui, D. Jonas, E. Riedle, R. Schoenlein, A. Taylor Eds., Oxford University Press, 2011. pp. 53-55.
14. Xibin Zhou, Robynne Lock, Henry C. Kapteyn, and Margaret M. Murnane, "Observation of Elliptically Polarized High Harmonic Emission from Molecules Driven by Linearly Polarized Light," in Ultrafast Phenomena XVI: Proceedings of the 16th International Conference on Ultrafast Phenomena, Stresa Italy, June 2008. P. Corkum, S. Silvestri, K.A. Nelson, E. Riedle, R.W. Schoenlein Eds., Springer Series in Chemical Physics Vol. 92, 2009. pp. 21-23.
15. I. Thomann, R. Lock, C. La-O-Vorakiat, E. Gagnon, A. Sandhu, H. C. Kapteyn, M. M. Murnane, and W. Li, "Direct Measurement of the Angular-Dependence of Molecular Ionization Cross-Sections by Time-Resolved Extreme-Ultraviolet Spectroscopy," in Ultrafast Phenomena XVI: Proceedings of the 16th International Conference on Ultrafast Phenomena, Stresa Italy, June 2008. P. Corkum, S. Silvestri, K.A. Nelson, E. Riedle, R.W. Schoenlein Eds., Springer Series in Chemical Physics Vol. 92, 2009. pp. 72-74.
16. W. Li, X. B. Zhou, R. Lock, S. Patchkovskii, O. Smirnova, A. Stolow, M. Murnane, and H. Kapteyn, "Probing Dynamics in Polyatomic Molecules Using High Harmonic Generation: the Role of Ionization Continua," in Ultrafast Phenomena XVI: Proceedings

of the 16th International Conference on Ultrafast Phenomena, Stresa Italy, June 2008. P. Corkum, S. Silvestri, K.A. Nelson, E. Riedle, R.W. Schoenlein Eds., Springer Series in Chemical Physics Vol. 92, 2009. pp. 63-65.

17. Xibin Zhou, Robynne Lock, Nick Wagner, Wen Li, Henry C. Kapteyn, and Margaret M. Murnane, "Molecular Recollision Interferometry in High Harmonic Generation," in Ultrafast Phenomena XVI: Proceedings of the 16th International Conference on Ultrafast Phenomena, Stresa Italy, June 2008. P. Corkum, S. Silvestri, K.A. Nelson, E. Riedle, R.W. Schoenlein Eds., Springer Series in Chemical Physics Vol. 92, 2009. pp. 87-89.

NON-PEER-REVIEWED PUBLICATIONS

1. Robynne Lock and William Newton, "In-service physics teacher education through an online Master of Physics Degree," APS Forum on Education Newsletter (Fall 2021).

2. Robynne Lock, "Physics together: Engaging young women in physics with STEP UP," APS Forum on Education Summer Newsletter (2019).

3. Rodolfo Valdes-Vasquez, Leidy Klotz, Tripp Shealy, Jennifer Cribbs, Allison Godwin, Robynne Lock, Geoff Potvin, and Zahra Hazari, "College students who exhibit pro-sustainability attitudes and behaviors," Journal of College Admission Fall 2014, 17 (2014).

NON-PEER-REVIEWED CONFERENCE PROCEEDINGS PAPERS

1. Zahra Hazari, Robynne M. Lock, Cheryl A.P. Cass, and Carrie Beattie, Obscuring Power Structures in the Physics Classroom: Implications for Student Engagement and Physics Identity Development, 2013 PERC Proceedings [Portland, OR, July 17-18, 2013], edited by P. V. Engelhardt, A. D. Churukian, and D. L. Jones.

PRESENTATIONS BY RL

1. Workshop, Robynne Lock, "Regional workshops for in-service and pre-service teachers," PhysTEC Conference (2025).

2. Workshop, Eleanor Close and Robynne Lock, "Learning assistant programs for early teaching experiences and recruitment," PhysTEC Conference (2025).

3. Seminar, Robynne M. Lock, "An intersectional analysis of the impact of a summer physics camp on high school girls," Texas Tech University Discipline-Based Education Research (DBER) Virtual Seminar (2025).

4. Invited talk, Robynne M. Lock, "Supporting secondary physics teachers through an online physics master's program," AAPT Summer Meeting (2024).

5. Workshop, Robynne M. Lock and T. Blake Head, "Physics Together: Engaging young women in physics with STEP UP," Joint Fall 2022 Meeting of the Texas Sections of APS, AAPT, and SPS Zone 13 (2023).

6. Contributed talk, Robynne M. Lock, "STEP UP: Engaging young women in physics," Joint Fall 2022 Meeting of the Texas Sections of APS, AAPT, and SPS Zone 13 (2022).

7. Poster, Robynne M. Lock, Bahar Modir, and Wiliam G. Newton, "Reimagining graduate physics: Electricity and magnetism for educators," AAPT Summer Meeting (2022).

8. Panel, Robynne Lock, Abby Noble, and Josh Veazey, "What could reassessments look like?" The Grading Conference: Higher Ed STEM Focus (2022).
9. Contributed talk, Robynne M. Lock, "STEP UP: Engaging students in discussion of the underrepresentation of women," Joint Spring 2022 Meeting of the Texas Sections of AAPT, APS, and SPS Zone 13 (2022).
10. Contributed talk, Robynne Lock, "An alternative to alternative physics teacher certification in Texas," AAPT Summer Meeting (2021).
11. Invited talk, Robynne Lock, "Physics Together: Engaging young women in physics with STEP UP," APS March Meeting (2021).
12. Plenary panel, Robynne Lock, William Newton, Eugenia Etkina, Jennifer Porter, "New online teaching strategies for physics teacher education," PhysTEC conference (2021).
13. Poster, "STEP UP: Engaging students in discussion of the underrepresentation of women in physics," PhysTEC Conference (2021).
14. Poster, Robynne M. Lock, "Physics Together: Engaging young women in physics with STEP UP." PhysTEC Conference (2020).
15. Contributed talk, Robynne M. Lock, "Impact of the Next Gen PET Curriculum on Science Identity," Virtual conference, Next Gen PET FOLC Virtual Conference (2020).
16. Workshop, Robynne M. Lock and Nicole Harvey, "Physics Together: Engaging young women in physics with STEP UP," Conference for the Advancement of Science Teaching (2019).
17. Colloquium, Robynne M. Lock, "Physics Together: Engaging young women in physics with STEP UP," Kansas State University Colloquium Series (2019).
18. Poster, Robynne M. Lock, Ben Van Dusen, Steven Maier, and Liang Zeng, "Impact of the Next GEN PET curriculum on science identity," Physics Education Research Conference (2019).
19. Contributed talk, Robynne M. Lock, Ben Van Dusen, Steven Maier, and Liang Zeng, "Impact of the Next GEN PET curriculum on science identity," American Association of Physics Teachers Summer Meeting (2019).
20. Workshop, Robynne M. Lock and John Metzler, "STEP UP: Take action to engage women in physics," American Association of Physics Teachers Summer Meeting (2019).
21. Workshop, Robynne M. Lock, "STEP UP 4 Women: Supporting Teachers to Encourage the Pursuit of Undergraduate Physics for Women," PhysTEC Conference (2019).
22. Poster, Robynne M. Lock, William G. Newton, Melanie Schroers, and Zackary Hutchens, "Transforming introductory physics: The impact of studio mode and the learning assistant program," PhysTEC Conference (2019).
23. Invited talk, Robynne M. Lock, Zahra Hazari, Theordore Hodapp, Rebecca Vieyra, and Raina Khatri, "STEP UP 4 Women: Supporting Teachers to Encourage the Pursuit of Undergraduate Physics for Women," American Association of Physics Teachers Winter Meeting (2019).
24. Workshop, Robynne M. Lock and T. Blake Head, "STEP UP 4 Women," American Association of Physics Teachers Winter Meeting (2019).

25. Seminar, Robynne M. Lock, "Using physics identity to understand students' experiences in high school and introductory university physics courses," Michigan State University Physics Education Research Seminar Series (2019).
26. Workshop, Robynne M. Lock and Kristin Cotton, "STEP UP 4 Women: Ignite the future of physics," Conference for the Advancement of Science Teaching (2018).
27. Workshop, William G. Newton and Robynne M. Lock, "Bringing high school physics into the modern world," Conference for the Advancement of Science Teaching (2018).
28. Contributed talk, Robynne M. Lock, Melanie Schroers, Trever Bench, Nicole Gentry, and William G. Newton, "Evidence for effective group work in studio physics", American Association of Physics Teachers Summer Meeting (2018).
29. Poster presentation, Robynne M. Lock, Melanie Schroers, Trever Bench, Nicole Gentry, and William G. Newton, "Evidence for effective group work in studio physics," Physics Education Research Conference (2018).
30. Contributed talk, Robynne M. Lock, Allan Teer, Matthew Witt, Deanna Rogers, and Zahra Hazari, "Physics identity in high school: Impact of discussing women's underrepresentation," American Association of Physics Teachers Summer Meeting (2017).
31. Poster presentation, Robynne M. Lock, Melanie Schroers, and William G. Newton, "Examining the factors that impact group work effectiveness in studio physics," Physics Education Research Conference (2017).
32. Contributed talk, Robynne M. Lock, William G. Newton, Melanie Schroers, and Zachary Hutchens, "Implementing studio physics: The effect on Physics Identity Development," American Association of Physics Teachers Summer Meeting (2016).
33. Invited poster presentation, Robynne M. Lock, Zahra Hazari, Geoff Potvin, and Jennifer Cribbs, "Using structural equation modeling to test the physics identity framework," Physics Education Research Conference (2016).
34. Invited talk, "The Role of Recognition and Interest in Physics Identity Development," American Physical Society April Meeting (2016).
35. Seminar, Robynne M. Lock, "Understanding Physics Career Choice through Identity," Biology seminar series, Texas A&M University-Commerce (2015).
36. Contributed talk, Robynne M. Lock, Zahra Hazari, and Geoff Potvin, "Determining Strategies that Predict Physics Identity: Emphasizing Recognition and Interest," American Association of Physics Teachers Summer Meeting (2015).
37. Poster presentation, Robynne M. Lock, Zahra Hazari, and Geoff Potvin, "Determining Strategies that Predict Physics Identity: Emphasizing Recognition and Interest," Physics Education Research Conference (2015).
38. Contributed talk, Robynne M. Lock and Zahra Hazari, "Discussing Underrepresentation as a Means to Increasing Female Physics Identity," American Association of Physics Teachers Summer Meeting (2014).
39. Poster presentation, Robynne M. Lock and Zahra Hazari, "Discussing Underrepresentation as a Means to Increasing Female Physics Identity," Physics Education Research Conference (2014).
40. Contributed talk, Robynne M. Lock, Reganne Tompkins, and Zahra Hazari, "Examining How Discussing Underrepresentation May Mediate Female Engagement in Physics," American Physical Society April Meeting (2013).

41. Poster presentation, Robynne M. Lock, Zahra Hazari, and Geoff Potvin, "Physics Career Intentions: The Effect of Physics Identity, Math Identity, and Gender," Physics Education Research Conference (2012).
42. Invited talk, Robynne Lock, "Development of a Physics Identity in High School," STEM Think Tank and Conference (2012).
43. Contributed talk, Robynne M. Lock, Zahra Hazari, Philip M. Sadler, and Gerhard Sonnert, "Examining Physics Career Interests: Recruitment and Persistence into College," American Physical Society April Meeting (2012).
44. Poster presentation, Robynne M. Lock, Xibin Zhou, Margaret M. Murnane, and Henry C. Kapteyn, "Elliptical Dichroism of High Harmonics Emitted from Aligned Molecules," 17th International Conference on Ultrafast Phenomena (2010).
45. Poster presentation, Robynne Lock, Xibin Zhou, Margaret Murnane, and Henry Kapteyn, "Polarization-Resolved Measurements of High Harmonic Emission from Aligned Molecules", Multiphoton Processes Gordon Research Conference (2010).
46. Seminar, Robynne Lock, Xibin Zhou, Margaret Murnane, and Henry Kapteyn, "Probing Molecular Structure and Dynamics Using High Harmonic Generation," Eric Cornell/Debbie Jin Bi-group seminar (2010).
47. Contributed talk, Robynne Lock, Xibin Zhou, Wen Li, Margaret Murnane, and Henry Kapteyn, "Polarization Measurements of High-Order Harmonics from Transiently Aligned Molecules," Conference on Lasers and Electro-Optics/ Quantum Electronics and Laser Science Conference (2009).
48. Invited talk, Robynne Lock, Xibin Zhou, Margaret Murnane, and Henry Kapteyn, "Probing Molecular Structure and Dynamics Using High Harmonic Generation," Workshop on Studies of Atoms and Molecules with "New Light Sources" (2009).
49. Poster presentation, Robynne Lock, Xibin Zhou, Wen Li, Nicholas Wagner, Margaret Murnane, and Henry Kapteyn, "Molecular Recollision Interferom etry in High Harmonic Generation," 16th International Conference on Ultrafast Phenomena (2008).
50. Contributed talk, Robynne Lock, Wen Li, Xibin Zhou, Margaret Murnane and Henry Kapteyn, Serguei Patchkovskii and Albert Stolow, "Understanding High-Order Harmonic Generation from Polyatomic Molecules Undergoing Large Dynamic Structural Changes," 16th International Conference on Ultrafast Phenomena (2008).
51. Contributed talk, Robynne Hooper, Nick Wagner, Xibin Zhou, Wen Li, Margaret Murnane and Henry Kapteyn, "Extracting the Phase of HHG Emission from Aligned Molecules using Gas Mixtures," American Physical Society Division of Atomic, Molecular, and Optical Physics Annual Meeting (2007).

PRESENTATIONS BY STUDENTS

1. Contributed talk, Madison Smith and Robynne Lock, "An intersectional analysis on the impact of a summer physics camp on high school girls," American Association of Physics Teachers Summer Meeting (2022).
2. Contributed talk, Madison Smith, "An intersectional analysis on the impact of a summer physics camp on high school girls," A&M-Commerce Annual Research Symposium (2022). College of Science and Engineering Undergraduate Oral Presentation Award

3. Contributed poster, Keely Scott, Conner Kelley, Robynne M. Lock, Zahra Hazari, and Geoff Potvin, "STEP UP: The impact of a women in physics lesson on students' figured worlds," A&M-Commerce Annual Research Symposium (2022).
4. Contributed talk, Keely Scott, Robynne M. Lock, Zahra Hazari, and Geoff Potvin, "STEP UP: Engaging students in discussion of the underrepresentation of women in physics," Joint Fall 2021 Meeting of the Texas Sections of APS, AAPT, and SPS Zone 13 (2021).
5. Contributed talk, Conner Kelley, Keely Scott, Robynne Lock, Zahra Hazari, and Geoff Potvin, "Impact of women in physics lesson on students' bias perceptions," American Association of Physics Teachers Summer Meeting (2020).
6. Poster, Keely Scott, Conner Kelley, Robynne M. Lock, Zahra Hazari, and Geoff Potvin, "STEP UP: The impact of a women in physics lesson students' figured worlds," Pathways Student Research Symposium (2019).
7. Poster, Keely Scott, Conner Kelley, Robynne M. Lock, Zahra Hazari, and Geoff Potvin, "STEP UP: The impact of a women in physics lesson on students' figured worlds," Physics Education Research Conference (2019).
8. Poster, Thomas Blake Head, Robynne M. Lock, Raina Khatri, Allan Teer, Zahra Hazari, and Geoff Potvin, "STEP UP: Analyzing student perceptions of physics following a career in physics lesson," Physics Education Research Conference (2019).
9. Contributed talk, Thomas Blake Head, Robynne M. Lock, Raina Khatri, Allan Teer, Zahra Hazari, and Geoff Potvin, "STEP UP: Analyzing student perceptions of physics following a career in physics lesson," American Association of Physics Teachers Summer Meeting (2019).
10. Contributed talk, Thomas Blake Head and Robynne M. Lock, "Impact on young women's career goals," 2018 Joint Fall Meeting of the Texas Sections of APS, AAPT, and Zone 13 of the SPS (2018).
11. Poster presentation, Tessa Bench, Robynne M. Lock, Melanie Schroers, Nicole Gentry, and William G. Newton, "Evidence for effective group work in studio physics," American Association of Physics Teachers Summer Meeting (2018).
12. Contributed talk, Thomas Blake Head, Allan Teer, Robynne M. Lock, and Zahra Hazari, "Examing students' responses to a career exploration lesson," American Association of Physics Teachers Summer Meeting (2018).
13. Poster presentation, Thomas Blake Head, Robynne M. Lock, Allan Teer, Tessa Bench, Zahra Hazari, and Geoff Potvin, "STEP UP 4 Women: Examining students' responses to lesson interventions," Physics Education Research Conference (2018).
14. Poster presentation, Melanie Schroers, Robynne M. Lock, William G. Newton, and Zackary Hutchens, "Examining the factors that impact group work in studio physics," Pathways Symposium (2017).
15. Contributed talk, Melanie Schroers, Robynne M. Lock, and William G. Newton, "Examining the factors that impact group work in studio physics," Joint Fall 2017 Meeting of the Texas Section of the APS, Texas Section of AAPT, and Zone13 of the Society of Physics Students (2017).
16. Poster presentation, Zackary Hutchens and Robynne Lock, "The impact of studio mode on conceptual understanding and physics identity development," North Carolina AAPT Section Meeting (2017).

17. Poster presentation, Zackary Hutchens and Robynne Lock, "The impact of studio mode on conceptual understanding and physics identity development," AAPT Winter Meeting (2017).
18. Poster presentation, Zackary Hutchens and Robynne Lock, "The impact of studio mode on conceptual understanding and physics identity development," 2016 Quadrennial Physics Congress (PhysCon) (2016).

RESEARCH

Research summary: I study discipline-based identity development in high school and college physics classes with a focus on encouraging more students, especially women, to pursue physics careers. Additionally, I seek to improve elementary science education through studying the identity development of students enrolled in science inquiry courses. I examine group interactions in studio physics courses with the goal of improving students' conceptual understanding, problem-solving skills, teamwork abilities, and physics identities. Furthermore, I am engaged in improving physics teacher preparation and STEM teacher preparation more broadly.

PREVIOUS POSITIONS

• Postdoctoral Researcher, Department of Engineering and Science Education, Clemson University, 2011-2013
Dr. Zahra Hazari
Studied students' career intentions and physics identities at the end of high school and beginning of college; conducted national survey of first year college students about career intentions, high school science experiences, and sustainability; conducted case studies of high school physics teachers; analyzed both quantitative and qualitative data using an identity framework with an emphasis on gender issues
•Drs. Margaret Murnane and Henry Kapteyn
Measured properties of high harmonic generation in order to study molecular structure and dynamics; modeled high harmonic generation using a two-center interference model; calculated molecular alignment of rotational wavepackets in small linear molecules

STUDENT MENTORING

• Graduate Thesis Advisor, Fall 2017-present
Department of Physics & Astronomy, Texas A&M University-Commerce, Commerce, TX
Antonio Cascio: Antonio has defended and submitted his thesis proposal. Note: T. Blake Head is Antonio's true advisor, but is unable to officially be the chair of his thesis committee due to graduate faculty rules.
Conner Kelley: Conner successfully defended his thesis in October 2021. Conner presented his work at the 2020 AAPT Summer Meeting. Keely Scott presented their joint work at the 2019 AAPT Summer Meeting.
Thomas Blake Head: Blake successfully defended his thesis in June 2019. He presented his work at the 2018 and 2019 AAPT Summer Meetings and PERCs.
• Undergraduate Honors Thesis Advisor, Spring 2016-present
Department of Physics & Astronomy, Texas A&M University-Commerce, Commerce, TX
Grace Koone: Grace defended her thesis in May 2024.

Madison Smith: Madison successfully defended her thesis in Fall 2022. Madison presented her work at the 2022 AAPT Summer Meeting. She won the College of Science and Engineering Undergraduate Oral Presentation Award for her talk on her honors thesis at the A&M-Commerce Annual Research Symposium 2022.
Keely Scott: Keely successfully defended her thesis in May 2022. Keely presented her work at the 2019 AAPT Summer Meeting.
Melanie Schroers: Melanie successfully defended her thesis proposal in Spring 2018. Melanie presented her results at the APS/AAPT Texas Regional Meeting Fall 2017 and at the Pathways Symposium, Fall 2017. RL presented results at 2017 PERC. RL and T. Bench presented results at 2018 AAPT Summer Meeting and PERC.

- Graduate Student co-advisor, Spring 2017

Department of Physics & Astronomy, Texas A&M University-Commerce, Commerce, TX
Matthew Witt: RL presented results at 2017 AAPT Summer Meeting.

- Undergraduate student researcher advisor, Summer 2016-present

Department of Physics & Astronomy, Texas A&M University-Commerce, Commerce, TX
Carol Todd: Kitty is examining the history of the teaching of vectors through textbooks.
Star Nouanesengy: Star is examining the history of the teaching of vectors through textbooks.
Jacob Ward: Jacob worked on STEP UP data.
David Williamson: David analyzed studio physics quantitative data.
Tessa Bench: Tessa presented results at 2018 AAPT Summer Meeting. RL presented results at 2018 PERC.
Nicole Gentry: RL and T. Bench presented results at 2018 AAPT Summer Meeting and PERC.
Allan Teer: RL presented results at 2017 AAPT Summer Meeting.
Deanna Rogers: RL presented results at 2017 AAPT Summer Meeting.
Tyrone Sheehan: Tyrone worked on studio physics data.

- Research Experience for Undergraduates, Summer 2014, Summer 2015, Summer 2016

Department of Physics & Astronomy, Texas A&M University-Commerce, Commerce, TX
Zackary Hutchens: RL presented his work at the 2016 AAPT Summer Meeting. Zack presented his work at the 2016 Quadrennial Physics Congress (PhysCon), the 2017 AAPT Winter Meeting, and the 2017 North Carolina section APS/AAPT regional meeting 2017. He continued to work on his project remotely through Spring 2018.
Jordan Castillo: Jordan is a co-author on Lock et al. (2015). RL presented results at PERC 2017.
Stephen Milburn

- Group of Dr. Zahra Hazari, 2012-2013

Department of Engineering and Science Education, Clemson University, Clemson, SC
Trained one junior graduate student in coding qualitative video and interview data and one undergraduate student in conducting interviews and analyzing video data. Trained three junior graduate students in conducting school site visits, including collecting video data, writing field notes, and conducting interviews.

- Laboratory of Drs. Margaret Murnane and Henry Kapteyn, 2009-2010

JILA and University of Colorado at Boulder, Boulder, CO

Trained two junior graduate students in laboratory safety, laser alignment, vacuum system maintenance; supervised one undergraduate student in adapting a pulsed gas jet for use in a specific vacuum chamber

GRANTS

- "Texas Regional PhysTEC Network"

PhysTEC Regional Network
PI: W.G. Newton; Co-PIs: R.M. Lock; B. Modir; M. Fields
Award amount: $15,000
Support period: 8/1/2020-7/31/2023

- "Physics Teacher Preparation at Texas A&M University-Commerce"

PhysTEC Comprehensive Site
PI: R.M. Lock; Co-PIs: W.G. Newton, M. Fields
Award amount: $288,397
Support period: 9/1/2019-8/30/2023

- "Noyce STEM Scholars at Texas A&M University-Commerce"

National Science Foundation – Noyce Track 1
PI: W.G. Newton; Co-PIs: R.M. Lock, R. Dibbs, J. Delgado-Acevedo, M. Fields, S. Starnes
Award #1758395
Award amount: $1,199,473
Support period: 7/1/2018-present

- "Collaborative Research: Mobilizing Teachers to Increase Capacity and Broaden Women's Participation in Physics"

National Science Foundation – Discovery Research PreK-12 (DRK-12)
PI (at A&M-Commerce): R.M. Lock; Florida International University (PI: Z. Hazari) is the lead institution. AAPT (PI: R. Vieyra) and APS (PI: T. Hodapp) are collaborating institutions.
Award #1720917
Award amount: $2,999,435
Support period:5/15/17-5/14/22

- "A Community-Based Approach to Building the Capacity of Physics Teacher Preparation at Texas A&M University-Commerce"

National Science Foundation Division of Undergraduate Education – Noyce Capacity Building
PI: W.G. Newton; Co-PIs: R.M. Lock, G. Naizer
Award #DUE-1557398
Award amount: $74,941
Support period: 7/15/2016-12/31/2017

SERVICE

ACADEMIC SERVICE – University, College and Department

- Chair, Post Tenure Review Committee, 2025-2026

Review materials for Matt Wood's post tenure review and write letter

- Member, Strategic Plan Implementation Committee, Spring 2024

Develop metrics for specific pillars of the university strategic plan

- Panelist, New Faculty Orientation, Fall 2023, Fall 2024, Fall 2025

Shared experiences and advice on a panel of four faculty and new faculty orientation

- Physics & Astronomy Search Committee, Chair, 2022-2023, 2023-2024

Chaired the Department of Physics & Astronomy Search Committee for an Assistant Professor in the area of Physics Education Research. I assisted in writing the job description and advertising

- Advisor for M.S. in Physics with Teaching Emphasis and M.S. in Physics with Teaching Certification programs, 2020-2025

Advise graduate students on course selection and program requirements and advise prospective graduate students

- Assessment Committee, Chair 2014-present

Wrote the Department of Physics & Astronomy Institutional Effectiveness Academic Program Plans and Results documents annually.

- Department Curriculum Committee, 2014-2016, 2023-present

Discuss and implement changes to department curriculum

- Departmental Action Team, 2023

Collected input from faculty and students to create goals for the department in order to increase the number of physics majors

- Honors thesis committee member, 2019

P. Flint Morgan, Alex Westbrook, Madeline Phillips

- Master's thesis committee member, 2019

Brianna Douglas, Josilyn Valencia, Rebecca Preston

- University Studies Council, 2018-2021

Reviewed changes to the university core curriculum

- Physics & Astronomy Search Committee, 2018

Served on the search committee for Department Head for Physics & Astronomy. Evaluated applicants according to rubric.

- Physics & Astronomy Search Committee, Chair, 2018

Chaired the Department of Physics & Astronomy Search Committee for an Assistant Professor in the area of Physics Education Research. I assisted in writing the job description, collated applicants' rankings, conducted phone and face-to-face interviews.

- Physics & Astronomy search committee, 2015-2016,

Served on the Department of Physics & Astronomy Search Committee. I assisted in revising the job description and the hiring matrix. I emailed the advertisement to my contacts and had the advertisement posted on the PER jobs blog. Participated in phone interviews and on campus interviews.

- Biological & Environmental Sciences search committee, 2015-2016

Served on the Biological & Environmental Sciences search committee for hiring an environmental scientist. I reviewed the hiring matrix and participated in on campus interviews.

- Organizer of Department of Physics & Astronomy Mentoring Program, 2015-2017

Created mentoring program; assigned every freshmen, sophomore, and new physics major a faculty mentor; organized a mentoring meet-up; collaborated with Society of Physics Students to transition to student led program.

- Doubling Committee, 2015-2020

Charged with doubling the number of physics majors graduating from the department
- College Curriculum Committee, 2015-2019

Reviewed curriculum changes in College of Science and Engineering.
- Department Curriculum Committee, Chair 2016-2020

Revise physics teacher preparation program, review changes in physics major and minor, and enter changes into CourseLeaf.

ACADEMIC SERVICE – Community Outreach
- Community of Science Instructors of North East Texas (COSINE TX) workshops, Fall 2019, Spring 2020, Summer 2020, Fall 2020, Spring 2021, Summer 2021, Fall 2021, Spring 2022, Summer 2022, Fall 2022, Fall 2023, Spring 2024, Fall 2025

Co-organized and ran workshops for high school physics, math, chemistry, and biology teachers. Fall and Spring workshops are half-day and Summer workshops are 2.5 days. Topics include online instruction and culturally sensitive teaching and focus on lesson plan development.
- PhysTEC Workshop, Summer 2020, 2021, 2022

Co-organized and ran 1.5 day workshop for high school physics teachers with emphasis on lab instruction for remote learning.
- Speaker at Chavez High School, 2021

Presented physics career opportunities and my own career path to 2 classes of high school physics students
- STEP UP Ambassador Summit, Summer 2019

Co-organized and presented at a 2 day workshop for ~50 high school teachers who are serving as ambassadors for the STEP UP project. Trained teachers on the Women in Physics lesson and presented project overview.
- Noyce Workshop, Summer 2019

Co-organized and ran a 2.5 day workshops for high school physics, math, chemistry, and biology teachers; Noyce scholars; and learning assistants. Workshop focused on 5E lesson plan development with emphasis on modern research connections.
- Speaker at Design, Connect, Create Physics Camps for Young Women, 2018-2019

Presented physics career opportunities and my own career path to four groups of~20 students in a summer camp for young women about to take their first high school physics class.
- LeoTeach Colloquium, 2018

Presented a workshop on studio physics to ~ 15 teachers and students
- Community for the Advancement of Physics Education (CAPE) Teacher Workshops, Summer 2017, Fall 2017, Spring 2018, Fall 2018, Spring 2019

Co-organized and ran workshops for high school physics teachers beginning as part of Noyce Capacity Building grant. Workshops focused on lab development and other physics topics.
- Speaker at Southwest High School, 2017

Presented physics career opportunities and my own career path to 2 classes of high school physics students
- Region X Physics Panel Meeting, 2016

Attended two meetings of high school physics teachers; Summer meeting involved roundtable discussions of issues relevant to teaching high school physics; Fall meeting involved presentations on electricity and magnetism topics; LAs presented; distributed information about M.S. in Physics with Teaching Emphasis

- LeoTeach Colloquium, 2016

Co-presented a workshop on studio physics to ~ 40 teachers and students

- Physics Day Speaker, Texas A&M University-Commerce, 2015-2018

Presented talks about physics career opportunities and served on panels about career experiences.

- Career Day Speaker, L.V. Stockard Middle School, Dallas, TX, Spring 2015

Presented physics career opportunities and my own career path to 4 classrooms of middle school students.

- Partnerships for Informal Science Education in the Community, Spring 2010, Fall 2010

JILA and University of Colorado at Boulder, Boulder, CO
Worked with middle school (sixth and eighth grade) students on inquiry-based activities about circuits and kinematics

- Middle School Outreach, April 2010

Vikan Middle School, Brighton, CO
Gave a presentation about lasers and supervised laser activities for four class periods of eighth graders

ACADEMIC SERVICE – Professional Organizations

- Member, American Physical Society Climate Site Visit Subcommittee, 2024-2025

Conduct site visits to evaluate the climate of physics departments

- Past President (2024-present), President (2023-2024), President-Elect (2022-2023), and Vice President (2021-2023) of Texas Section of the American Association of Physics Teachers (AAPT), 2021-present

Support Texas Section of AAPT activities, including hosting regional meetings

- Reviewer for Nature Physics, 2024-present

Reviewed journal articles for publication.

- Texas PhysTEC Regional Network Meeting, May 2022

Organized and facilitated meeting of Texas physics teacher educators

- Steering Committee for the 2023 Graduate Education Conference, 2021-present

Give feedback on NSF proposal, suggest speakers, provide feedback on conference agenda, advertise, lead sessions and discussion groups

- Reviewer for Journal of Pre-College Engineering Education Research (J-PEER), 2019-present

Reviewed journal articles for publication.

- Society for College Science Teachers Outstanding Undergraduate Science Teaching Award Committee, 2017 and 2019

Evaluated and ranked nominees for award.

- Reviewer for Physics Education Research Conference Proceedings, 2012-present

Reviewed conference papers for publication.

- Reviewer for Physical Review Physics Education Research, 2015-present

Reviewed journal articles for publication.

PROFESSIONAL AFFILLIATIONS AND PROFESSIONAL DEVELOPMENT

PROFESSIONAL AFFILIATIONS

- American Association for the Advancement of Science (AAAS), 2016-present
- American Association of Physics Teachers (AAPT), 2011-present
- American Physical Society (APS), 2001-present
- National Association for Research in Science Teaching (NARST), 2012-2013
- Optical Society of America (OSA), 2007-2011

PROFESSIONAL DEVELOPMENT

- Inclusive STEM Teaching Project, Virtual, Completed October 8, 2024

Completed EdX course on inclusive teaching and participated in discussions with PhysTEC cohort

- 2021 Mastery Grading – University Conference, Virtual

Attended sessions on standards-based grading and specifications-based grading

- 2018 Building Thriving Programs Workshop, College Park, MD

Attended sessions on increasing enrollment of physics majors

- 2018 PhysTEC Conference, College Park, MD

Attended sessions on physics teacher preparation

- Next Gen Physical Science and Everyday Thinking (PET) Workshop, Covington, KY, July 2017

Participated in workshop for pilot instructors of the Next Gen PET curriculum

- 2017 Western Regional Noyce Conference, Fresno, CA

Attended sessions on STEM teaching, managing current Noyce grants, and applying for Noyce grants

- 2016 APS National Mentoring Community Conference, Houston, TX

Attended workshops on mentoring students with special attention to underrepresented minorities

- Proposal Development Workshop, A&M-Commerce, Spring 2015

Attended weekly meetings at ORSP to learn more about writing a successful grant proposal; prepared a logic model

- AAPT New Faculty Workshop, College Park, MD, Fall 2014

Attended sessions on practical details of teaching using techniques grounded in physics education research and on grant proposal preparation

- 2014 PhysTEC Conference, Austin, TX

Attended sessions on physics teacher preparation

- Southwest Regional Learning Assistant Workshop, San Marcos, TX, 2014

Participated in workshop on how to best to implement a learning assistant program

AWARDS

- Chancellor's Academy of Teacher Educators of the Texas A&M University System 2021 Inductee

A&M Commerce STEM Education Alliance Team: W.G. Newton, R.M. Lock, B. Modir, and M. Fields

Award to recognize and honor both individuals and university teams who are making noteworthy and exemplary contributions to quality, innovation, and continuous improvement in teacher preparation.

- 2021 Texas A&M University-Commerce Paul W. Barrus Distinguished Faculty Award for Teaching

Award for tenure-track/tenured faculty members who have performed in an outstanding manner in teaching

- Faculty Senate Award for Professional Excellence: Teaching – Innovation, 2019-2020

Award for faculty for excellence in teaching innovation at Texas A&M University-Commerce

- Augustine "Chuck" Arize Junior Faculty Award, 2019

Award for tenure-track faculty members for outstanding teaching, research, and service at Texas A&M University-Commerce

- PhysTEC fellow, 2017-2019

Recognized as leader in physics teacher preparation.

- Finalist for 2017 Tech Titans of the Future – University Level Award

For the implementation of studio physics in University Physics

- 2017 Texas A&M University-Commerce Paul W. Barrus Distinguished Faculty Award for Teaching

Award for tenure-track/tenured faculty members who have performed in an outstanding manner in teaching

- 2015-2016 Center for Faculty Excellence & Innovation (CFEI) Faculty Fellow for Teaching & Learning, Texas A&M University-Commerce

"Development of Studio Mode in Physics"

Led Transformation of University Physics I and II to studio mode, a student-centered, active-learning environment