

PERC 2020 Presentations

Contributed Poster Presentation Abstracts

- Akinyemi, Abolaji, [A tale of two approaches: Comparison of evaluation strategies in physics problem solving between first- and third-year students](#)
- Allen, Patricia E., [Longitudinal E-CLASS Study of Physics Majors at a Masters-granting, Comprehensive University](#)
- Altermatt, Ellen, [Teaching Experience, Community of Practice Beliefs, and Teaching Strategies Predict Perceived IPLS Course Effectiveness](#)
- Amin, Bahar, [STEM Students' Self-Efficacy and Sense of Belonging in Introductory Physics Labs](#)
- Amos, Nathaniel, [Excerpts from an exploratory survey of units/dimensional analysis in introductory physics](#)
- Archibeque, Benjamin, [Analyzing discussions of under-representation in a high school classroom](#)
- Arielle, Acacia, [Student ownership of lab projects: evolution across temporal project phases](#)
- Barthelemy, Ramón, [Graduate programs in physics education research: A USA based survey](#)
- Bauman, Lauren C., [Identifying student conceptual resources for understanding electric current](#)
- Bayat Barooni, Amin, [Investigating student design engagement in research-based activities](#)
- Bender, Lydia G, [How Faculty Take Up Ideas from a Professional Development Program](#)
- Bennett, Michael B., [Toward a Comprehensive Characterization of Pedagogy in Informal Physics Learning Spaces](#)
- Blackmon, Lena, [Characterizing the mathematical problem-solving strategies of advanced novice physics students](#)
- Bott, Theodore E., [Navigating computational thinking practices for high school physics curricula](#)
- Boudreaux, Andrew, [Toward a framework for the natures of proportional reasoning in introductory physics](#)
- Bradbury, Forrest R., [Open-inquiry experiments using sensors controlled by Arduinos in a pandemic-resilient lab course](#)
- Breakall, Jared B., [Maybe we aren't that different after all: Faculty perceptions of grade 7-12 teaching as a career](#)
- Broadfoot, Cheyenne, [Identifying student resources for understanding kinematics](#)
- Bugge, Danielle, [The long-term effects of learning in an ISLE approach classroom](#)
- Burde, Jan-Philipp, [Evaluating secondary school students' interest and conceptual understanding of circuits](#)
- Burkholder, Eric, [Hidden variables: predicting student performance in introductory physics](#)
- Canright, Jared, [Leveraging virtual reality for student development of force models in the introductory lab](#)
- Cao, Ying, [Emergent Explicit Group Regulation in Scientific Inquiry](#)
- Cao, Ying, [Shared Resources in Student Understanding of Spherical Unit Vectors in Upper-division E&M](#)
- Cardinot, Adriana, [An investigation of Irish students' alternative conceptions of astronomy](#)
- Chen, Zhongzhou, [Exploring the relation between students' online learning behavior and course performance by incorporation of contextual information in data analysis](#)
- Christman, Devon M, [Supporting undergraduate facilitators to strengthen physics outreach programs](#)
- Christman, Elaine, [Exploring the CLASS with Item Response Theory](#)
- Cochran, Geraldine L, [A framework for improving diversity work in physics](#)
- Conlin, Luke, [From 'having a day' to doing astronomy: Supporting families learning together](#)
- Corsiglia, Giaco, [Characterizing and monitoring student discomfort in upper-division quantum mechanics](#)
- Cowan, Erika, [Using Deliberate Innovation Methodologies to Enable Graduate Student Success](#)
- Crossette, Nate, [Investigating how graduate students connect microstates and macrostates with entropy](#)
- Cwik, Sonja, [How the learning environment predicts male and female students' motivational beliefs in algebra-based introductory physics](#)
- Dalka, Robert, [Scaffolding Collective Reflection in a Physics Education Research Group](#)
- DeStefano, Paul, [Rapid creation and assessment of introductory physics laboratory curriculum for distance-learning](#)

Dopatka, Liza, [Measuring students' interest in physics](#)

Doty, Constance M., [Impact of changing physical learning space on GTA and student behaviors](#)

Doucette, Danny, [What Makes a Good Physics Lab Partner?](#)

Dounas-Frazer, Dimitri R., [Student perceptions of laboratory classroom activities and experimental physics practice](#)

Dreyfus, Benjamin W, [How the Learning Assistant Experience Impacts Learning Assistants as Students](#)

Dreyfus, Benjamin W, [Longitudinal impact of flipped and traditional introductory physics courses](#)

Eblen-Zayas, Melissa, [Supporting student quantitative skills across introductory STEM courses: faculty approaches and perceived needs](#)

Euler, Elias, [The digital technologies of physics education research](#)

Fairfield, Jessamyn, [Bright Club: Using Stand-up Comedy for Informal Education](#)

Fields, Melanie, [The transition to online teaching during the COVID-19 pandemic at a regional, rural university: The experience of learning assistants](#)

Fischer, Christopher, [Changing pedagogy to help traditionally under-served populations](#)

Flowers, Abigail, [Development of computational thinking skills in an introductory physics lab.](#)

Fox, Michael, [Capturing modeling pathways using the Modeling Assessment for Physics Laboratory Experiments](#)

Franklin, Maxwell, [Physics education research's implicit views of physics faculty](#)

Franklin, Scott, [Who Goes where: patterns in academic field switching of successful college graduates](#)

Frazer, Laszlo, ["It's Fundamental": Quantum Dot Blinking Experiment to Teach Critical Thinking](#)

Fung, Anderson T., [Ordinary differential equations in physics: some preliminary observations of the role of rote procedure](#)

Gavrin, Andrew D., [Physics students' reactions to an abrupt shift in instruction during the COVID-19 pandemic](#)

Gifford, Julian D., [A framework for curriculum design to support mathematical sense making](#)

Giordano, Nicholas, [Developing Augmented Reality Modules to Teach Electromagnetism](#)

Goodhew, Lisa, [A case of resources-oriented instruction in calculus-based introductory physics](#)

Gray, Nickolas, [What do Students Know about Electromagnetic Wave Generation?](#)

Guthrie, Matthew, [A tale of two guessing strategies: interpreting the time students spend solving problems through online log data](#)

Gutmann, Brienne, ["I'm not that important": Barriers and bolsters to student agency during conversations about the intersections of physics and ethics](#)

Hamdan, Alia, [Contributing Effects to Students' Performance on the FCI as a Measure of Physics Knowledge](#)

Hamdan, Alia, [Lightning changes amidst Covid-19: A case study of how a large research institute moved physics classes and labs online and its impact on students and](#)

Head, Thomas, [Believe that they can achieve: How Teacher Attitudes Toward Physics Impact Student Outcomes](#)

Henderson, Rachel, [Implementing a mixed-methods approach to understand students' self-efficacy: A pilot study](#)

Her, Pachi, [Examining student understanding of matrix algebra and eigentheory](#)

Hertel, Matthew E, [A graduate teaching assistant's approach to building a supportive learning community for introductory physics students.](#)

Hoehn, Jessica R., [Investigating students' views about the role of writing in physics lab classes](#)

Holmes, Natasha, [Preliminary evidence for available roles in mixed-gender and all-women lab groups](#)

House, Lindsay, [Legacy of the Pale Blue Dot: Can introductory astronomy experiences impact mindset and self-efficacy?](#)

Huffman, James, [Investigating Upper-Division Students' Interpretations of the Divergence Theorem](#)

Hull, Michael M, [Respecting fluidity of student ideas: student-centered and enjoyable lessons about radioactivity](#)

Ibrahim, Bashirah, [Students' visual gaze in solving sequential and simultaneous synthesis problems](#)

Ives, Joss, [Exploratory Factor Analysis of a survey on group-exam experiences and subsequent investigation of the role of group familiarity](#)

Izadi, Dena, [Physics Communication through Art: Development of Intersecting Identities](#)

Jambuge, Amali Priyanka, [Assessment feedback: A tool to promote scientific practices in upper-division](#)

Jeon, Sophia, [How do gender and inchargeness interact to affect equity in lab group interactions?](#)

Jia, Ying, [Improving student understanding of a rigid body rolling without slipping](#)

Johnson, Brandon James, [A Case Study Exploring Reasons a Hard-Working Student Might Copy from Yahoo Answers](#)

Johnson, Nekeisha, [Examining consistency of student errors in vector operations using module analysis](#)

Justice, Paul, [Instructional Pragmatism: Using a Variety of Evidence-Based Approaches Flexibly to Improve Student Learning](#)

Kalender, Z. Yasemin, [Sense of agency, gender, and students' perception in open-ended physics labs](#)

Kamenetzky, Julia, [Using Student-Generated Reading Questions to Encourage Pre-Class Preparation in Introductory Physics](#)

Kapp, Sebastian, [Augmented Reality Visualizations in Undergraduate Physics Laboratory Courses](#)

Keebaugh, Christof, [Investigating student understanding of the stationary state wavefunction for a system of identical particles](#)

Kepple, Caitlin, [Pedagogy training for the development of GTA mindsets and inclusive teaching practices](#)

Khong, Hien, [Examining students engagement in Planning Investigations practice in a written exam](#)

Lassen, Ira Ché, [Student ownership of lab projects: manifestation in student-project interactions](#)

Leak, Anne E., [The influence of teacher questioning approaches on students' productive thinking](#)

Leuteritz, Robyn, [Investigating the Impact of Cognitive Training on Newton's 2nd Law](#)

Li, Yangqiuting, [How learning environment predicts male and female students' physics motivational beliefs in introductory physics courses](#)

Liu, Dan, [Decomposition of forces on inclined planes](#)

Liu, Raylor, [Modeling the Complexity of Change and Implications of Sensemaking](#)

Lo, William, [Insights into student understanding of statistical mechanics](#)

Logan, Savannah L., [College faculty support for grade 7-12 teaching careers: survey results and comparisons to student perceptions](#)

Malespina, Alysa, [The additional benefit of working in same-gender groups on students' self-efficacy in introductory physics](#)

Maries, Alexandru, [Promoting Problem-Solving Abilities through Web-based Interactive Video-Enhanced Tutorials](#)

Marshman, Emily, [Improving student understanding of Dirac notation by using analogical reasoning in the context of a three-dimensional vector space](#)

Martin, Makenna M., [A tool for documenting and analyzing the flow of conversation about teaching and learning in facilitated faculty conversations](#)

Mason, Andrew J., [Attitudes and approaches towards physics problem solving: by life science major, by course sequence, and by shutdown status](#)

May, Jason M., [Students' dynamic engagement with experimental data in a physics laboratory setting](#)

Mays, Mikayla, [Examining and supporting student construction of alternative lines of reasoning](#)

McCauley, Austin, [Understanding LA sensemaking: using "teacher hat" to prompt changes in discussion frame](#)

McColgan, Michele, [Team-based learning in physics courses](#)

McInerny, Alistair, [Investigating a collaborative group exam as an instructional tool to address student reasoning difficulties that remain even after instruction](#)

McQuade, Alexa, [Characteristics of institutions with Learning Assistant programs: An equity investigation](#)

Mellen, Jillian, [Qualitative analysis of student perceptions of their self-efficacy](#)

Mikota, Matthew, [Workplace Climate for LGBT+ Physicists: Predictor of Outness](#)

Mistades, Voltaire, [Students' Conceptual Understanding and Problem-Solving of the Work-Energy and Impulse-Momentum Theorems](#)

Mitchell-Polka, Khadjih, [The physics classroom as a space for empowerment](#)

Mondesir, Raphael, [Toward characterizing the demographics of introductory physics courses](#)

Monsalve, Camila, [Students of Color with transfer credits earn a large share of STEM degrees at Large Midwestern University: A quantitative study](#)

Morrison, Andrew, [Comparison of student-reported study habits with faculty expectations and predictions](#)

Moshfeghyeganeh, Saeed, [The Effect of Spirituality and Religiousness on Students' Physics Career Choice in the US](#)

Mullen, Claire, [A Community of Practice Approach to Identity Formation](#)

Mullen, Claire, [Computation for Science: Engaging university science students in computational thinking](#)

Muller, Alexandria, [Design Principles to Support Physics and Engineering Learning in Complementary Classrooms and Field Trip Activities](#)

Myers, Carissa, [Student perspective about the impacts of feedback](#)

Nadeau, Michael, [Participation in an online community of high school physics teachers](#)

Okwei, Eugene, [Understanding the Impact of Large-Scale Radio Astronomy Projects on Student Engagement With Physics in Ghana](#)

Oliver, Kristin, [Examining effective mentorship in undergraduate research experiences at a large research institution](#)

Olsho, Alexis, [Online administration of a reasoning inventory in development](#)

Ota, Shuya, [New measurements of BEMA performance based on the classical test theory](#)

Owens, Lindsay M., [Physics GRE Requirements Create Uneven Playing Field for Graduate Applicants](#)

Patterson, Zac, [Students' pre-instructional perspectives of quantum physics](#)

Pawlak, Alanna, [Improving education through departmental change: a comparison of approaches](#)

Pearson III, Richard L, [Results of faculty interviews during the development of the Perceptions of Teaching as a Profession in Higher Education \(PTaP.HE\) instrument](#)

Pollard, Benjamin, [MAPLE, the Modeling Assessment for Physics Laboratory Experiments](#)

Prefontaine, Brean, [Informal Physics Programs as Integral Experiences for Physics Identity Development](#)

Pugh, Samantha, [Developing Business Acumen and Employability in Physics Undergraduates: What do students really learn?](#)

Quaal, Adam, [Exploratory factor analysis of the QMCA](#)

Quichocho, Xandria R., [Understanding physics identity development through the identity performances of Black, Indigenous, and women of color and LGBTQ+ women in physics](#)

Rainey, Katherine D, [Developing coupled, multiple-response assessment items addressing scientific practices](#)

Rak, Gwendolyn, [Exploring the Durability of Student Attitudes Toward Interdisciplinarity](#)

Ramey II, Charles L., [Comparative analysis of letters and reports in an upper-division lab](#)

Ramírez Díaz, Mario Humberto, [Analysis of the evolution and results of Physics Teacher Professional Development projects for Preschool](#)

Ramírez Díaz, Mario Humberto, [Research Projects in Science Education for Preschool, Evolution, and Results in Curriculum Development, Evaluation Tools, and Teacher Workshops.](#)

Riihiluoma, William, [Student Use of Dirac Notation to Express Probability Concepts in Quantum Mechanics](#)

Ríos, Laura, [Analysis of students perceptions of classroom structure, belongingness, and motivation in an introductory physics course](#)

Rodelli, Liana, [Analyzing the impacts of a new mobile application on student understanding of and attitudes toward electric fields](#)

Rodriguez, Miguel, [The associations between conceptual learning, physics identity and social interdependence](#)

Rosauer, Jeffrey Robert, [Thematic analysis of student manipulations of the PhET simulation “Fluid Pressure and Flow”](#)

Rosenblatt, Rebecca, [Investigating partnerships and funding for the Physics Education Research community](#)

Rubien, Jack D, [The impact of IPLS in a senior biology capstone course](#)

Ryan, Qing, [Question Characteristics and Students' Epistemic Framing](#)

Sagear, Sheila, [Student learning outcomes with hybrid computer simulations and hands-on labs](#)

Salehi, Shima, [Implicit and unchecked assumptions interfere with problem-solving in physics](#)

Salmani, Fatema Al, [A Rubric for Assessing Thinking Skills in Free-Response Exam Problems](#)

Sammons, Amber, [Changes in student attitudes and curricular benefits as a new course activity becomes standard](#)

Sarriugarte, Paulo, [Students' understanding of the moment of inertia in a rotating rigid body](#)

Sayer, Ryan, [Advanced students' and faculty members' reasoning about the double slit experiment with single particles](#)

Scanlon, Erin M., [Practicing physicists' knowledge about disability: Development of the Disability and Physics Careers Survey \(DPCS\)](#)

Scherr, Rachel E, [Centering and marginalization in introductory university physics courses](#)

Shafer, Devyn, [When the Gatekeeper Says No: Mechanics Students' Resilience and Success](#)

Singh, Chandralekha, [Why equivalent structural equation models of physics identity have different instructional implications](#)

Sirnoorkar, Amogh, [Qualitative Analysis of Students' Epistemic Framing Surrounding Instructor's Interaction](#)

Smith, Emily M., ["Let's just pretend": Students' shifts in frames during a content-reinforcement lab](#)

Smith, Trevor, [Toward a valid instrument for measuring physics quantitative literacy](#)

Stang, Jared, [Exploring the contributions of self-efficacy and test anxiety to gender differences in assessments](#)

Stanley, Bryan, [Perspectives on informal programs: How site visits can help us learn more](#)

Starita, Jason T., [What makes a person a physicist? Learning Assistant and physics major views](#)

Stewart, John, [What does the Force and Motion Conceptual Evaluation pretest measure?](#)

Strubbe, Linda E., [PhysPort as professional development to foster creativity in teaching](#)

Stump, Emily M., [Student reasoning about sources of experimental measurement uncertainty in quantum versus classical mechanics](#)

Sulaiman, Nidhal, [Impact on students' views of experimental physics from a large introductory physics lab course](#)

Sundstrom, Meagan, [Problematizing in inquiry-based labs: how students respond to unexpected results](#)

Thacker, Beth, [Development of an Instrument to Measure Student Assistants' PCK-Q](#)

Tipton, Maya, [Does IPLS help students apply physics to biology?](#)

Topdemir, Zeynep, [Students' integration related to recognition](#)

Traxler, Adrienne, [Chili and mistakes: Students reflect on research](#)

Trucks, Jessica L., [Extending Learning Beyond the Planetarium with the Dome+ Model](#)

Ungermann, Matthias, [Do Hessian high schools foster understanding of Nature of Science?](#)

Van Dusen, Ben, [A critical examination of DFW rates in LA supported physics courses](#)

Vignal, Michael, [Comparing Unprompted and Prompted Student-Generated Diagrams](#)

Walsh, Cole, [Connecting the dots: Student social networks in introductory physics labs](#)

Walter, Paul J., [Comparing item response curves of matched pre-/post-FCI respondents](#)

Wang, Jianlan, [Scrutinize SA-student interaction in inquiry-oriented college physics courses](#)

Waterson, Alyssa C., [Analyzing time-to-degree for transfer students at a Large Midwestern University](#)

Weidner, Carrie A., [Investigating student use of a flexible tool for simulating and visualizing quantum mechanics](#)

Weller, Daniel P., [Video Analysis of Variation in Computational Thinking Practices in Physics](#)

Werth, Alexandra, [Process of transforming of an introductory mechanics lab course at Fort Lewis College](#)

Whitcomb, Kyle, [Recognition always matters: A cross-sectional study of the physics identity of physics majors](#)

White, Courtney, [Student evaluation of more or better experimental data in classical and quantum mechanics](#)

Wilcox, Bethany, [Understanding the student experience with emergency remote teaching](#)

Williams, Stephanie M, [Living Physics Portal: Designing analytics to map faculty's evolving participation](#)

Wilson, Michael B, [E&M Plane Wave Visualization Designed for Improved Student Understanding](#)
Winther-Larsen, Sebastian Gregorius, [Quantifying professors' effect on student grades](#)
Wood, Laura A. H., [Transfer Student's Narrative of Groupwork Characterized by Research Methods Course](#)
Young, Nicholas T., [The Physics GRE does not help "overlooked" applicants](#)
Young, Tamara, [A case of successful learning about magnetism through the use of evidence](#)
Zhang, Muxin, [Examining the Social Dynamics of Small-Group Discussions](#)
Zich, Raymond, [Changes to equipotential diagrams to improve student ranking of electric potential](#)
Zimmerman, Charlotte, [Exploring student facility with "goes like" reasoning in introductory physics](#)
Zwartz, Michael, [Examining student growth in laboratory notebook practices in introductory physics courses](#)

Custom Format Abstracts

Barthelemy, Ramón, [What was, is and will be Physics Education Research](#)
Fracchiolla, Claudia, [Expanding your network: IPER Community buildathon](#)
Henderson, Rachel, [Diverse Career Paths in Physics Education: A Panel Discussion](#)

Juried Talk Abstracts

Alicea-Muñoz, Emily, [Transforming the Preparation of Physics GTAs](#)
Cardinot, Adriana, [Game-based learning as a tool for promoting conceptual change in astronomy](#)
Felker, Zachary, [The impact of extra credit incentives on students' work habits when completing online homework assignments](#)
Gjerde, Vegard, [Providing learning opportunities based on cognitive psychology and PER: student adoption, attitudes, and results in introductory mechanics](#)
Hamerski, Patti C., [A Formative Feedback Mechanism Shaped by Learning Assistants](#)
Hechter, Richard, [Painted yellow lines: Exploring parameters of physics teacher self-efficacy in a new teaching landscape](#)
Langbeheim, Elon, [Constructing particle-level models to promote macro-level conceptualization of electric circuits in middle school](#)
Mellen, Jillian, [Qualitative analysis of students' perceptions of their self-efficacy in a flipped integral calculus course](#)
Rosen, Drew J., [Epistemological, socialization, and help seeking views in traditional and at-home undergraduate physics laboratories](#)
Van Dusen, Ben, [Associations Between Learning Assistants, passing introductory physics, and equity: a QuantCrit Investigation](#)
Vignal, Michael, [Investigating Similarities and Differences across Unprompted and Prompted Student-generated Diagrams](#)
Wan, Tong, [Evaluating impact of GTA training in a mixed-reality classroom simulator](#)

Symposium Poster Abstracts

Lindell, Rebecca, [Proposed Development Methodology for the Fluid Conceptual Evaluation \(FCE\)](#)
Meredith, Dawn, [Scaffolding student mechanistic reasoning about static and dynamic liquids](#)
Rosenblatt, Rebecca, [Visual Attention and Affordance Lenses for: Understanding Student Diagram Use and Designing Improved Instruction of Fluid Dynamics in a Physics for Li](#)

Symposium Talk Abstracts

Adams, Wendy K., [Faculty perceive they are more supportive than their perceptions may suggest...](#)
Bergeron, Paul, [Holistic Teaching Evaluations and Knowledge in Use](#)

Bertschinger, Edmund, [Educational Change from an Administrator's Perspective](#)

Bertschinger, Edmund, [Systemic Change: TEAM-UP and Beyond](#)

Brahmia, Suzanne White, [A conceptual blend analysis of student reasoning about Physics Quantitative Literacy Reasoning Inventory \(PIQL\) items](#)

Canright, Jared, [Design and student experience of novel physics systems delivered in virtual reality labs](#)

Doucette, Danny, [Making lab TA professional development work \(and some evidence that it does\)](#)

Dounas-Frazer, Dimitri R., [Taxonomy of teaching practices during group projects in lab courses](#)

Eynde, Sofie van den, [Dynamic conceptual blending analysis to model student reasoning processes while integrating mathematics and physics](#)

Finkelstein, Noah, [The Teaching Quality Framework Initiative: Valuing and Improving Teaching and Teaching Evaluation](#)

Gavrin, Andrew D., [Introducing Computational Physics Across the Curriculum](#)

Greenwald, Scott, [Vignettes on VR Learning Applications: 2D vs. 3D, and "Aha!" Moments in Collaborative Learning](#)

Henderson, Charles, [Assessment of teaching effectiveness: Lack of alignment between instructors, institutions, and research recommendations](#)

Hirsch, Andrew S., [Departmental Change Through Instructional Reform: How Purdue Transitioned to Matter & Interactions](#)

Isola, Drew, [Data mining: Helping faculty develop an accurate picture of the teaching profession in their region](#)

Kozminski, Joseph F., [Skill Development in Physics Labs Beyond the First Year](#)

Langley, Dorothy, [Training teachers as physics research mentors: four personal development stories](#)

Levy, Smadar, [Re-defining lab norms via professional learning communities of physics teachers](#)

Logan, Savannah L., [Research-based, User-tested Materials for Recruiting STEM Teachers](#)

Maries, Alexandru, [Using formative assessment to improve the teaching effectiveness of teaching assistants](#)

Marsh, L. Trenton S., [\(Re\)imagining Success Through Photovoice At a High-Achieving Urban Charter School](#)

McColgan, Michele, [Team-based Learning in Upper-Level Physics Courses: A Qualitative Case Study](#)

Nolte, David D., [Modernizing Upper-Division Mechanics: Preparing Students for a Complex World](#)

Porter, Chris, [Using Virtual Reality in Electrostatics Instruction: The Impact of Training](#)

Pyper, Brian, [Survey development and analysis for Getting the Facts Out](#)

Quan, Gina M., [Students' exploring and refining their equity ethic within the Access Network](#)

Rosenblatt, Rebecca, [Promoting Institution Change: PER and Policy Working Together](#)

Rosengrant, David, [Teaching Force and Motion in Augmented Reality](#)

Rutberg, Joshua, [Professional development and struggles of beginning instructors teaching design labs](#)

Schermerhorn, Benjamin P., [Modeling the construction and interpretation of equations: Incorporating symbolic forms into a conceptual blend](#)

Zamarripa Roman, Brian, [Explicating the goal contents of Latinx female physics students](#)

Workshop Abstracts

Wang, Jianlan, [Measuring and improving Pedagogical Content Knowledge of student assistants in introductory physics classes](#)

PERC 2020 Author Index

- Adams, Wendy K.: 51, 291, 394, 622
Agunos, Darwin Del: 442
Ahmed, Shaeema Z.: 563
Akinyemi, Abolaji: 617
Alicea-Muñoz, Emily: 622
Allen, Emily: 448
Allen, Patricia E.: 617
Altermatt, Ellen: 137, 617
Altieri, Emily: 497
Amezcuca, Fidel: 17
Amin, Bahar: 617
Amos, Nathaniel: 23, 617
Archibeque, Benjamin: 617
Arias-Bustamente, José: 228
Arielle, Acacia: 617
Barth-Cohen, Lauren A.: 315, 593
Barthelemy, Ramón: 28, 617, 622
Bauman, Lauren C.: 33, 617
Bayat Barooni, Amin: 617
Bender, Lydia G.: 617
Bennett, Michael B.: 617
Bergeron, Paul: 622
Bertschinger, Edmund: 39, 623, 623
Blackmon, Lena: 617
Bott, Theodore E.: 617
Boudreaux, Andrew: 45, 376, 490, 605, 617
Bradbury, Forrest R.: 617
Braden, Sarah K.: 593
Brahmia, Suzanne White: 45, 75, 376, 490, 605, 623
Breakall, Jared B.: 51, 291, 617
Broadfoot, Cheyenne: 57, 617
Buggé, Danielle: 63, 617
Buncher, John: 246
Burde, Jan-Philipp: 69, 111, 617
Burkholder, Eric: 617
Canright, Jared P.: 75, 617, 623
Cao, Ying: 617, 617
Cardinot, Adriana: 617, 622
Chen, Zhongzhou: 143, 185, 617
Chini, Jacquelyn: 117, 466
Christman, Devon M.: 358, 617
Christman, Elaine: 81, 617
Clark, Russell: 124
Close, Eleanor: 412
Coble, Kim: 272
Cochran, Geraldine L.: 617
Conlin, Luke: 87, 617
Connolly, Tarah: 358
Corcoran, Jonathan: 33
Corsiglia, Giaco: 92, 617
Cowan, Erika: 617
Crossette, Nathan: 98, 617
Cwik, Sonja: 104, 617
Dalka, Robert: 617
De Grandi, Claudia: 315
DeStefano, Paul: 617
Ding, Lin: 388
Dopatka, Liza: 69, 111, 618
Doty, Constance M.: 117, 618
Doucette, Danny: 124, 618, 623
Dounas-Frazer, Dimitri R.: 131, 424, 618, 623
Dreyfus, Benjamin W.: 618, 618
Dubois, Patrick J.: 228, 497
Duffy, Andrew: 448
Eaton, Philip: 376, 490, 605
Eblen-Zayas, Melissa: 137, 618
Etkina, Eugenia: 63
Euler, Elias: 618
Eynde, Sofie van den: 623
Fairfield, Jessamyn: 618
Felker, Zachary: 143, 622
Fields, Melanie: 149, 618
Finkelstein, Noah: 173, 623
Finn, Rose A.: 321
Fischer, Christopher: 618
Flowers, Abigail: 618
Fox, Michael F. J.: 155, 400, 618
Fracchiolla, Claudia: 622
Franklin, Maxwell: 161, 618
Franklin, Scott: 382, 442, 587, 618
Frazer, Laszlo: 618
Fung, Anderson T.: 618
Gailey, Sara: 593

Garcia, Tyler: 92
Gavrin, Andrew D.: 167, 618, 623
Geraets, Ashley A.: 117
Gerton, Jordan M.: 315
Gifford, Julian D.: 173, 618
Giordano, Nicholas: 618
Gjerde, Vegard: 622
Gomez-Bera, Manuel: 442
Goodhew, Lisa M.: 33, 57, 179, 618
Gray, Nickolas: 618
Greenwald, Scott: 623
Guthrie, Matthew W.: 185, 618
Gutmann, Brianne: 191, 618
Haagen-Schützenhöfer, Claudia: 69, 111
Hairston, W. Tali: 472
Hamdan, Alia: 618, 618
Hamerski, Patti C.: 622
Hansen, Brynna: 57
Harlow, Danielle: 358
Harris, David: 23
Hass, Christopher A. F.: 478
Hassel, George E.: 321
Hazari, Zahra: 198
Head, Thomas Blake: 198, 618
Hechter, Richard: 622
Henderson, Charles: 28, 623
Henderson, Rachel: 204, 352, 364, 618, 622
Her, Pachi: 210, 618
Heron, Paula: 179
Hertel, Matthew E.: 618
Hewagallage, Dona Sachini: 515
Hinko, Kathleen: 503, 545
Hirsch, Andrew S.: 623
Hoehn, Jessica R.: 216, 618
Hofmann, Analise: 228
Holmes, N. G.: 240, 259, 484, 527, 539, 557, 575, 618
Hopf, Martin: 69, 111
House, Lindsay: 618
Huffman, James A.: 222, 618
Hull, Michael M.: 618
Hutchinson, Jeffrey: 23
Ibrahim, Bashirah: 618
Irving, Paul: 364
Isola, Drew: 623
Ivanjek, Lana: 69, 111
Ives, Joss: 228, 497, 618
Izadi, Dena: 503, 619
Jambuge, Amali Priyanka: 234, 418, 619
Jariwala, Manher: 334, 448
Jensen, Jesper H. M.: 563
Jeon, Sophia M.: 240, 619
Jia, Ying: 619
Johnson, Brandon James: 619
Johnson, Kimme S.: 131
Johnson, Nekeisha: 246, 619
Justice, Paul: 252, 619
Kalender, Z. Yasemin: 240, 259, 619
Kamenetzky, Julia: 619
Kanim, Stephen: 45
Kapach, Zehorit: 278
Kapp, Sebastian: 619
Keebaugh, Christof: 266, 619
Kepple, Caitlin: 272, 619
Khatri, Raina: 198
Khong, Hien: 619
Knaub, Alexis: 28
Kozminski, Joseph F.: 611, 623
Kryjevskaja, Mila: 327
Kushaliev, Daniyar: 557
Langbeheim, Elon: 622
Langley, Dorothy: 623
Lassen, Ira Ché: 619
Laverty, James: 234, 418
Leak, Anne E.: 619
Leamon, Jonathan: 137
Leuteritz, Robyn: 619
Levy, Smadar: 278, 623
Lewandowski, H. J.: 131, 155, 216, 400, 533, 563, 569
Li, Yangqiuting: 284, 619
Lindell, Rebecca: 622
Lindsay, William E.: 340
Liu, Dan: 619
Liu, Raylor: 619
Lo, William: 619
Lock, Robynne: 149, 198, 370
Logan, Savannah L.: 51, 291, 394, 619, 623
López-Tavares, Diana Berenice: 297
Loverude, Michael: 210

Luce, Megan R.: 87
Madsen, Adrian: 521
Magen, Esther: 278
Malespina, Alysa: 619
Maries, Alexandru: 460, 619, 623
Marsh, L. Trenton S.: 303, 623
Marshman, Emily: 252, 266, 309, 619
Martin, Makenna M.: 619
Martins, Julian Stenzel: 340
Mason, Andrew J.: 619
Matti, Natalia: 272
May, Jason M.: 315, 619
Mays, Mikayla: 619
McCauley, Austin: 619
McColgan, Michele W.: 321, 619, 623
McInerny, Alistair: 327, 619
McKagan, Sarah B.: 472, 521
McPadden, Daryl: 364
McQuade, Alexa: 334, 619
Mellen, Jillian: 619, 622
Meredith, Dawn: 622
Mikota, Matthew: 619
Miller, Casey: 382
Miller, Paul: 81
Mistades, Voltaire: 619
Mitchell-Polka, Khadíjih: 340, 620
Modir, Bahar: 149, 370
Mohamed, Mirna: 28
Mondesir, Raphael: 346, 620
Monsalve, Camila: 352, 620
Morrison, Andrew: 620
Moshfeghyeganeh, Saeed: 620
Mullen, Claire: 620, 620
Muller, Alexandria: 358, 620
Muller, Laura J.: 137
Myers, Carissa: 364, 620
Nadeau, Michael: 370, 620
Newton, William G.: 149, 370
Nissen, Jayson: 334
Nix, Christopher A.: 117
Nolte, David D.: 623
Ochoa-Madrid, Eglá: 191
Okwei, Eugene: 620
Oleynik, Dan P.: 466
Oliver, Kristin: 620
Olmstead, Alice R.: 191
Olsen, Jack R.: 75
Olsho, Alexis: 45, 376, 490, 605, 620
Ota, Shuya: 620
Otero, Valerie: 340
Owens, Lindsay M.: 382, 620
Park, Soojin E.: 131
Passante, Gina: 92, 406, 527, 575
Patterson, Zac: 388, 620
Pawlak, Alanna: 620
Pearson III, Richard L.: 51, 291, 394, 620
Phillips, Anna: 539
Pollard, Benjamin: 155, 400, 533, 620
Pollock, Steven: 92, 406
Porter, Chris: 623
Potvin, Geoff: 198, 430
Prefontaine, Brean: 620
Princer, Andrew: 599
Pugh, Samantha: 620
Pyper, Brian: 51, 623
Quaal, Adam: 406, 620
Quan, Gina M.: 17, 623
Quichocho, Xandria R.: 412, 620
Rainey, Katherine D: 234, 418, 620
Rak, Gwendolyn: 620
Ramey II, Charles L.: 424, 620
Ramírez Díaz, Mario Humberto: 297, 620, 620
Richard, Sundi: 137
Riihiluoma, William: 620
Ríos, Laura: 155, 400, 454, 620
Robertson, Amy: 33, 57, 179, 346
Rodelli, Liana: 620
Rodriguez, Miguel: 430, 620
Rosauer, Jeffrey Robert: 599, 620
Rosen, Drew J.: 622
Rosenblatt, Rebecca: 436, 599, 620, 622, 623
Rosengrant, David: 623
Rubien, Jack D: 620
Rutberg, Joshua: 623
Ryan, Qing: 442, 478, 621
Sadaghiani, Homeyra: 92, 406
Sagear, Sheila: 448, 621
Saitta, Erin K. H.: 117

Salehi, Shima: 621
Salmani, Fatema Al: 621
Sammons, Amber: 599, 621
Sánchez, Alfredo X.: 454
Sarriugarte, Paulo: 621
Sawtelle, Vashti: 204, 352
Sayer, Ryan: 460, 621
Sayre, Eleanor: 161, 240, 442, 478, 521
Scanlon, Erin M.: 466, 621
Schermerhorn, Benjamin P.: 92, 623
Scherr, Rachel E.: 472, 621
Schipull, Erin M.: 412
Schmoll, Shannon: 545
Schubatzky, Thomas: 69, 111
Shafer, Devyn: 621
Sherson, Jacob F.: 563
Sikorski, Tiffany-Rose: 509
Singh, Chandralekha: 104, 124, 252, 266, 284, 309, 460, 621
Sirnoorkar, Amogh: 478, 621
Skinner, Ron K.: 358
Smith, Emily M.: 484, 621
Smith, Trevor L.: 45, 376, 490, 605, 621
Spatz, Verena: 69, 111
Stanfield, J. Clay: 149
Stang, Jared B.: 228, 497, 621
Stanley, Bryan: 503, 621
Stanley, Jacob T.: 131
Starita, Jason T.: 509, 621
Stein, Martin M.: 259
Stewart, John: 81, 515, 621
Strubbe, Linda E.: 161, 521, 621
Stump, Emily M.: 527, 575, 621
Sulaiman, Nidhal: 533, 621
Sundstrom, Meagan: 539, 621
Thacker, Beth Ann: 424, 621
Tilahun, Marakee: 272
Tipton, Maya: 621
Topdemir, Zeynep: 621
Traxler, Adrienne: 621
Trucks, Jesica L.: 545, 621
Turpen, Chandra: 17
Ungermann, Matthias: 621
Van Dusen, Ben: 621, 622
Vignal, Michael: 98, 222, 551, 581, 621, 622
Walsh, Cole: 557, 621
Walter, Paul J.: 621
Wan, Tong: 117, 622
Wang, Jianlan: 621, 623
Waterson, Alyssa C.: 621
Weidner, Carrie A.: 563, 621
Weller, Daniel P.: 621
Werth, Alexandra: 569, 621
Whitcomb, Kyle M.: 104, 284, 621
White, Courtney: 527, 575, 621
White, Gary D.: 509
Wilcox, Bethany: 98, 222, 234, 418, 551, 581, 621
Wilhelm, Thomas: 69, 111
Williams, Stephanie M.: 621
Wilson, Emily C.: 587
Wilson, Michael B.: 622
Winther-Larsen, Sebastian Gregorius: 622
Wood, Laura A. H.: 622
Yerushalmi, Edit: 278
Young, Nicholas T.: 622
Young, Tamara G.: 593, 622
Yukse, Zuleyha: 321
Zamarripa Roman, Brian: 623
Zhang, Muxin: 622
Zhang, Tom: 185
Zich, Raymond: 599, 622
Zimmerman, Charlotte: 45, 376, 490, 605, 622
Zúñiga-Martínez, Soraida: 297
Zwartz, Michael: 611, 622
Zwickl, Benjamin: 382