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Sacramento - California (SM16 ) / Status: Inactive

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## Approved Topics' Abstracts

## Collapsed All View

Click on abstract titles to see more information

## Adaptaton of Physics Activities to Three Major Components of NGSS

Committee on Physics in High Schools | Type: Inv/Con | Organizer: Trina Cannon

## Description:

**Call for Papers:** NGSS is taking hold and we have many physics lessons that have stood the test of time. Now is the time to wed the two and update the the concepts we have taught in many forms. Share the new products that are clearly designed for the NGSS curriculum plan. Since many teachers are being directed to the NGSS, this is the time to share your work and understanding of the NGSS directives.

Abstracts Submitted (# 2) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">NGSSifying Exploratorium Snacks (Activities)</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>
01 Invited	<input type="checkbox"/>	<a href="#">Integrating NGSS Physics Concepts with Common Core Mathematics and English</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>

## CIRTL: A Network Model to Transform STEM Education and Prepare Future Faculty

Committee on Graduate Education in Physics | Type: Inv/Con | Organizer: Manher Jariwala

## Description:

**Call for Papers:** The CIRTL (Center for the Integration of Research, Teaching, and Learning) Network of 22 leading U.S. research universities uses graduate education as the leverage point to develop a national STEM faculty committed to implementing and advancing effective, evidence-based teaching practices. In this session, we will discuss the impact of CIRTL, both network-wide and in individual member institutions across the country.

Abstracts Submitted (# 4) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Teaching and Research Training: A Graduate Student Perspective</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">The CIRTL Network and Graduate Professional Development at Texas A&amp;M University</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>
01 Invited	<input type="checkbox"/>	<a href="#">The Integration of Research, Teaching and</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>

[Learning:  
Preparation of  
the Future  
STEM Faculty](#)

02 Invited

☐

[New doorways  
to physics  
instruction:  
Blending a  
MOOC and  
classroom  
discussion to  
train graduate  
students and  
postdocs in  
evidence-based  
teaching](#)

☒ No ☐ Yes

--Select here if you would like to change the session --

Submit

## Climate Change

Committee on Physics in Two-Year Colleges | Type: Inv/Con | Organizer: Tom Carter

### Description:

**Call for Papers:** This session will review current research in climate change along with innovative techniques used in the teaching of the physics of climate change.

Abstracts Submitted (# 7) | Abstracts You Have Reviewed: 0

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Invited	<input type="checkbox"/>	<a href="#">Worldwide Climate Change: Darkest Just before the Dawn</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
	Contributed	<input type="checkbox"/>	<a href="#">Climate Change Films for the Physics Classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
	Contributed	<input type="checkbox"/>	<a href="#">A selection of climate myths from AAPT posters</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
01	Invited	<input type="checkbox"/>	<a href="#">Climate Physics in the Classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
02	Invited	<input type="checkbox"/>	<a href="#">Climate Change and California: Potential Impacts and Solutions</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
5	Contributed	<input type="checkbox"/>	<a href="#">Physics of Climate</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
6	Contributed	<input type="checkbox"/>	<a href="#">The effect of place attachment on Learning Sustainable Energy at the undergraduate level</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit

## Course Program Assessments

Committee on Physics in Two-Year Colleges | Type: Con | Organizer: Tom Herring

### Description:

**Call for Papers:** Ideas concerning course and program assessment in physics at all levels. Best practices, avoiding problems, and communicating results of assessments are welcome topics.

Abstracts Submitted (# 0)

## Developing Experimental Skills at all Levels

**Committee on Laboratories** | **Type:** Inv/Con | **Organizer:** Mary Ann Klassen

### Description:

**Call for Papers:** One of the principal goals of the physics laboratory is the development of experimental and analytical skills. We expect our students to acquire this expertise in the laboratory, yet often we give no explicit framework in which to do so. This invited/contributed session is a forum to share ways of structuring the physics lab curriculum at all levels to teach these valuable skills to majors and non-majors alike.

**Abstracts Submitted (# 17) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Contributed	<input type="checkbox"/>	<a href="#">Assignment Sequences for Experimental Skill Development in Physics Advanced Lab</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Scientific Reasoning Curriculum Effect on Students' Control of Variables Skills</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Design, Build, Measure!: "Do-It-Yourself" Experimental Atmospheric Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Normal Modes and Symmetry Breaking in single Two-Dimensional Pendulum</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Identifying Statistical Reasoning Abilities Necessary for Informed Decision Making</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Flipped modular skills-based introductory electronics course: first-year results</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Developing student attitudes about experimental science and being a scientist</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">A Pedagogical Method for Advanced Laboratory Writing: Letters Home Project</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Enhancing student-designed experiments using a real-world funding scenario</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

Contributed	<input type="checkbox"/>	<a href="#">Teaching techniques for experimental success</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit	
Contributed	<input type="checkbox"/>	<a href="#">Assessing students' laboratory skills in introductory and intermediate physics courses</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit	
Contributed	<input type="checkbox"/>	<a href="#">Changes in lab curriculum to develop lab skills.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit	
Contributed	<input type="checkbox"/>	<a href="#">Troubleshooting in the electronics lab: A study of instructor practices</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit	
Contributed	<input type="checkbox"/>	<a href="#">From cookbook to authentic research - what skills should they be learning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit	
Contributed	<input type="checkbox"/>	<a href="#">AP Chemistry Content Knowledge and Guided Inquiry Lab Instructional Strategies</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit	
01	Invited	<input type="checkbox"/>	<a href="#">Developing scientific communication skills using lab notebooks</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
02	Invited	<input type="checkbox"/>	<a href="#">Physics Laboratory Activities for Pre-health and Life Science Students</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit

### Different Ways to Flip a Classroom

**Committee on Educational Technologies** | **Co-Sponsor:** Committee on Physics in Two-Year Colleges | **Type:** Inv/Con | **Organizer:** Daniel Sanchez Guzman

#### Description:

**Call for Papers:** Implementation of physics courses that use different technologies and scenarios has created a diversity of combinations and approaches. But, what is the real perception and feeling of students and teachers to all these recent scenarios and how are they facing new challenges and adapt in their instruction. This session tries to present an overview of how teachers have improved their class with the adoption of technologies and to be a reflective scenario for future actions.

**Abstracts Submitted (# 0)**

### Do Try This At Home!

**Committee on Apparatus** | **Type:** Inv/Con | **Organizer:** Stephen Irons

#### Description:

**Call for Papers:** We seek talks that describe safe, interesting, and fun activities and demonstrations that anyone can try at home either for their own enjoyment or as part of a more formal learning environment (hands-on homework, distance learning, etc.) Presentations can describe demonstrations or lab experiments that can be conducted using common household items or easily available supplies. We are interested in materials for all grade levels and abilities.

**Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0**

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Try This Experiment Right Now!</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit

**Educational Hacking: Repurposing Technology for Teaching**  
**Committee on Educational Technologies** | **Co-Sponsor:** Committee on Apparatus | **Type:** Con | **Organizer:** Jeff Groff  
**Description:**  
**Call for Papers:** This session will explore innovative ways that physics instructors and students are modifying, reconfiguring, refurbishing, and/or repurposing hardware and software to enhance this technology's usefulness for the teaching and learning of physics.  
**Abstracts Submitted (# 0)**

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Smartphone and Tablet Physics: Unanswered Questions in Educational Technology</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Two Visualizations of Momentum Conservation in Introductory Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Vignette Studio Software for Interactive Online Teaching*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Investigating Students' Usage Pattern of Web-based Computer Coaches</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Innovative Ways to Use</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

	<a href="#">Web-based Technologies in Introductory Physics</a>			
Contributed <input type="checkbox"/>	<a href="#">Creating Learning Communities with Web Technology in Professional Development Programs</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Usage of Web-based Personal Response System</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Model Making and Model Breaking with Direct Measurement Video</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Let's Code Physics: A Playful Approach to Learning Computational Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Update on the Development of Distance Learning Labs for Introductory Physics Using IOLab</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">An Interactive Video Vignette on Fall Rates for Different Masses</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Space Taxi paradigm for freebody analysis</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Teaching Physics in a 3D Immersive World</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">iTunes U and iBooks: Pathway to OER</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Personalized learning in Physics with TabletKoulu learning environment</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Lab Away From Lab: The IOLab's Potential for Avoiding the Space and Equipment Constraints of The traditional General Physics Lab</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Exploring JITT with Traditional</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

[Classroom and  
Modern  
Technologies](#)



## Favorite TPT Articles

**Committee on the Interests of Senior Physicists** | **Type:** Inv/Con | **Organizer:** Karl Mamola

### Description:

**Call for Papers:** This session will call attention to especially useful and interesting materials that have appeared in the pages of The Physics Teacher.

**Abstracts Submitted (# 8) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
01	Invited	<input type="checkbox"/>	<a href="#">TPT Favorites-- Overall trends and individual impact</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
02	Invited	<input type="checkbox"/>	<a href="#">Favorites from The Physics Teacher</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
3	Contributed	<input type="checkbox"/>	<a href="#">Coming Full Circle: TPT for All Phases of Teaching</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
4	Contributed	<input type="checkbox"/>	<a href="#">Ron Edge : String and Sticky Tape</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
5	Contributed	<input type="checkbox"/>	<a href="#">The Sand Pendulum</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
6	Contributed	<input type="checkbox"/>	<a href="#">Why</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
7	Contributed	<input type="checkbox"/>	<a href="#">Memorable Gems</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
8	Contributed	<input type="checkbox"/>	<a href="#">EQUATIONS AS DELIGHTFUL GUIDES TO THINKING</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

## Innovation Share-a-Thon for Astronomy Education

**Committee on Space Science and Astronomy** | **Type:** Con | **Organizer:** Joe Heafner

### Description:

**Call for Papers:** Participants will have 5-10 minutes each to share a demo, an activity, a lab, or other teaching component for introductory or intermediate astronomy. After everyone has shared, there will be time for the audience to ask questions, experiment with equipment, and discuss the shared information with presenters. Time allotted may vary depending on the number of presenters.

**Abstracts Submitted (# 0)**

## Innovative Uses of Technology Enabled Spaces

**Committee on Educational Technologies** | **Type:** Inv/Con | **Organizer:** Ben Van Dusen

### Description:

**Call for Papers:** This session examines novel uses of technology within classrooms and their impacts on students' outcomes.

**Abstracts Submitted (# 4) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Contributed	<input type="checkbox"/>	<a href="#">Smartphones in Labs Don't Have to Be "Black Boxes"</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

	Contributed	<input type="checkbox"/>	<a href="#">The Ubiquitous Use of "IO-Lab" Digital Sensors in Secondary Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>
01	Invited	<input type="checkbox"/>	<a href="#">Appreciating the "space" in technology enabled spaces</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>
02	Invited	<input type="checkbox"/>	<a href="#">Leveraging "Teaching-to-Learn" with Technology to Enhance Student Learning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>

### Innovative Uses of Technology Enabled Students

**Committee on Educational Technologies** | **Type:** Con | **Organizer:** Larry Engelhardt

#### Description:

**Call for Papers:** Our students have a different set of skills than we had at that age. They know how to operate their smart phones, use social media (Twitter, Instagram, Tumblr, etc.), surf the web, as well as other skills that we might not have heard of yet! So how do we harness these skills for good instead of evil?? This session will be devoted to innovative and/or effective ways that have been developed to make use of students' prowess with technology.

**Abstracts Submitted (# 0)**

### Interactive Lecture Demonstrations: What's New? ILDs Using Clickers and Video Analysis

**Committee on Research in Physics Education** | **Co-Sponsor:** Committee on Educational Technologies | **Type:** Inv/Con | **Organizer:** Davied Skoloff

#### Description:

**Call for Papers:** We invite papers on creation, presentation and research on Interactive Lecture Demonstrations at the college and high school levels.

**Abstracts Submitted (# 2) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
01	Invited	<input type="checkbox"/>	<a href="#">Interactive Lecture Demonstrations: Active Learning in Lecture Including Clickers and Video Analysis</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>
02	Invited	<input type="checkbox"/>	<a href="#">ILDs and Other Strategies that Enable Students to Understand Newton's Third Law</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>

### Lab Guidelines Focus Area 3: Modeling

**Committee on Laboratories** | **Type:** Inv/Con | **Organizer:** Joe Kozminski

#### Description:

**Call for Papers:** According to the AAPT Laboratory Recommendations document, students should "develop abstract representations of real systems studied in the laboratory, understand their limitations and uncertainties, and make predictions using models." How do students develop and reinforce these these skills in your lab/lab curriculum?

**Abstracts Submitted (# 3) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Contributed	<input type="checkbox"/>	<a href="#">National Survey: computation uses, resources, and attitudes in undergraduate physics*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>
01	Invited	<input type="checkbox"/>	<a href="#">Model-Based Reasoning in Upper-division</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	<input type="button" value="Submit"/>



[Lab Courses](#)

02	Invited	<input type="checkbox"/>	<a href="#">Modeling the Physical World with RealTime Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div> <div></div>	Submit
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**Leadership and Other Skills in the Undergraduate Curriculum****Committee on Women in Physics** | **Type:** Inv/Posters | **Organizer:** Juan Burciaga**Description:**

**Call for Papers:** Colleges are being asked to incorporate leadership and other "21st century" skills into the curriculum. How do we incorporate these skills into the major? ... in or out of the classroom. What are the pedagogical challenges? What skills can we introduce and develop? ... Please contribute a poster on education for leadership and other 21st century skills.

**Abstracts Submitted (# 6) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Poster	<input type="checkbox"/>	<a href="#">Leadership Development in a Workshop Environment</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
	Poster	<input type="checkbox"/>	<a href="#">Motivation and Learning Strategies: Adaptation and Validation of an Instrument</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
01	Invited	<input type="checkbox"/>	<a href="#">Strategies for Gender Equity in STEM</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
02	Invited	<input type="checkbox"/>	<a href="#">Students Leading for Change: Collaboration Outside the Classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
03	Invited	<input type="checkbox"/>	<a href="#">A Fleet of Ships – From Scholarship to Entrepreneurship to Leadership</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
04	Invited	<input type="checkbox"/>	<a href="#">Educating the Whole Student</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit

**Modern Physics Demonstrations and Labs****Committee on Apparatus** | **Type:** Inv/Con | **Organizer:** Roger Key**Description:**

**Call for Papers:** Contributed papers which reveal new and exciting ways to illustrate modern physics principles are encouraged.

**Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Contributed	<input type="checkbox"/>	<a href="#">The teaching research of 2-dimensional standing waves on metal plates</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
	Contributed	<input type="checkbox"/>	<a href="#">Two-photon momentum entanglement and interference</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
01	Invited	<input type="checkbox"/>	<a href="#">Demonstrating the Photoelectric Effect in a simple and</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit

02	Invited	<input type="checkbox"/>	<a href="#">comprehensive way by using an antique photo cell and LabVIEW virtual instrumentation</a> <a href="#">Chaotic Oscillation of a Magnetic Dipole</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
03	Invited	<input type="checkbox"/>	<a href="#">Thin Film Tunneling in an SIN Junction</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit

## Online Hybrid

**Committee on Physics in Two-Year Colleges** | **Type:** Inv/Con | **Organizer:** Betsy Chesnutt

### Description:

**Call for Papers:** To meet the needs of a diverse student population, many colleges and universities are adopting an online hybrid course format where some of the course content is delivered online and some face to face. This session will explore the successes and challenges physics instructors have had in creating online hybrid courses.

**Abstracts Submitted (# 3) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Contributed	<input type="checkbox"/>	<a href="#">Teaching Introductory Physics Labs in a completely Online Environment</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
01	Invited	<input type="checkbox"/>	<a href="#">Technology Enhanced Learning: UT Knoxville's engage Engineering Fundamentals Program</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
02	Invited	<input type="checkbox"/>	<a href="#">Using HTML5 simulations to teach conceptual physical science</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit

## PER Findings Related To Latin American Students

**Committee on International Physics Education** | **Co-Sponsor:** Committee on Research in Physics Education | **Type:** Inv/Con | **Organizer:** Carolina Alvarado

### Description:

**Call for Papers:** This session is intended to share Physics Education Research implementation results, having a special focus on showing the effect on Latin American students.

**Abstracts Submitted (# 2) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
01	Invited	<input type="checkbox"/>	<a href="#">The multi-faceted nature of building successful learning communities for the success of Hispanic students</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
02	Invited	<input type="checkbox"/>	<a href="#">Physics Education Research: The case of Latin America</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit

## Particle Physics Investigations by Students

**Committee on Physics in High Schools** | **Co-Sponsor:** Committee on Physics in Two-Year Colleges | **Type:** Inv/Con | **Organizer:** Kenneth Cecire

### Description:

**Call for Papers:** Particle physics may seem unreachable to students and teachers due to the highly sophisticated equipment and high expertise associated with it. However, from data made public by the large collaborations such as ATLAS and CMS at the Large Hadron Collider to tabletop cosmic ray detectors, opportunities are there. Speakers will share these and discuss how to make it all work.

**Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Contributed	<input type="checkbox"/>	<a href="#">The Particle Physics Playground: tutorials and activities using experimental data</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
	Contributed	<input type="checkbox"/>	<a href="#">Energetic Students – Developing Interest and Skill in Experimentation</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
	Contributed	<input type="checkbox"/>	<a href="#">A HS science teacher workshop constructing turnkey cloud chambers</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
01	Invited	<input type="checkbox"/>	<a href="#">Using Cosmic Rays to Introduce Special Relativity in a College Physics Course</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
02	Invited	<input type="checkbox"/>	<a href="#">High School Students Investigating the World of Particle Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

## Physicists with Disabilities

**Committee on Women in Physics** | **Co-Sponsor:** Committee on Diversity in Physics | **Type:** Inv/Con | **Organizer:** Jennifer Blue

### Description:

**Call for Papers:** Are you a disabled physicist? Willing to share your story? Have you made your course more accessible for individuals with disabilities? If so, please consider submitting an abstract for the session on Disabled Physicists. Physicists with all types of disabilities are welcome.

**Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Contributed	<input type="checkbox"/>	<a href="#">Am I wanted: Disabled undergraduate student experiences in physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
	Contributed	<input type="checkbox"/>	<a href="#">Exploring best practices in accessible design of interactive science simulations</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
	Contributed	<input type="checkbox"/>	<a href="#">Surviving the Physics Classroom with ADHD</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
01	Contributed	<input type="checkbox"/>	<a href="#">I am a disabled physicist! But</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

02	Invited	<input type="checkbox"/>	<a href="#">you don't look handicapped!</a> <a href="#">My Joyous Struggle: Defying the Odds...and Still Climbing</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div> <div></div>	Submit
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### Physicists with Disabilities - A

Committee on Women in Physics | Co-Sponsor: Committee on Diversity in Physics | Type: Con | Organizer: Jennifer Blue

Description:

Call for Papers:

Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update	
Contributed	<input type="checkbox"/>	<a href="#">Balancing caregiving with work.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit	
Contributed	<input type="checkbox"/>	<a href="#">Suddenly Handicapped. How my Life changed after a Serious Accident</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit	
Contributed	<input type="checkbox"/>	<a href="#">Demonstration with One Leg To Stand On: Anecdotes on Different.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit	
03	Invited	<input type="checkbox"/>	<a href="#">"But you don't look sick..."</a> <a href="#">Tenure track with a disability</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
04	Invited	<input type="checkbox"/>	<a href="#">You're smart but ...</a> <a href="#">Experiences as a disabled graduate student</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit

### Post-deadline Papers I

| Type: Con | Organizer:

Description:

Call for Papers:

Abstracts Submitted (# 1) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Exploring Problem-Based Cooperative Learning (PBCL) in Undergraduate Physics Labs</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit

### Post-deadline Papers I

| Type: Con | Organizer:

Description:

Call for Papers:

Abstracts Submitted (# 0)

**Post-deadline Posters**| **Type:** Con | **Organizer:****Description:****Call for Papers:****Abstracts Submitted (# 1) | Abstracts You Have Reviewed: 0**

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Poster	<input type="checkbox"/>	<a href="#">Radioactive Nuts and Fertilizers-- Quantitation of Specific Dose Levels</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

**Preparing Pre-service Physics Teachers for the Middle School Classroom****Committee on Physics in Pre-High School Education | Co-Sponsor:** Committee on Teacher Preparation | **Type:** Inv/Con | **Organizer:** Geraldine Cochran**Description:**

**Call for Papers:** Many of our pre-service teachers are earning certification for the secondary school physics and middle school science simultaneously. Despite the apparent shortage of qualified physics teachers, some of our teachers are finding more opportunities in the middle school classroom. In this session, we will discuss preparing pre-service physics teachers for the middle school classroom. In particular, we will discuss classroom management strategies for an active engagement classroom and middle school science content.

**Abstracts Submitted (# 2) | Abstracts You Have Reviewed: 0**

Order Type	Suggest Order	Title	Session Change?	Comments	Update
01	Invited <input type="checkbox"/>	<a href="#">What Can Help Middle School Science Teachers be Successful?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
02	Invited <input type="checkbox"/>	<a href="#">Learning through doing: educating pre-service elementary and middle school teachers</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

**Progress in Pedagogy for Introductory Physics for Life Science****Committee on Research in Physics Education | Co-Sponsor:** Committee on Physics in Undergraduate Education | **Type:** Con | **Organizer:** Nancy Beverly**Description:**

**Call for Papers:** Curricular development to meet the physics needs of the life science population at the introductory level has been widely progressing. The typical first and important stage is integration of biology or health with the physics. Beyond this, the pedagogical approaches need to be different from physics/engineering majors. Please contribute your pedagogical strategies that incorporate but go beyond the interdisciplinary context.

**Abstracts Submitted (# 8) | Abstracts You Have Reviewed: 1**

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Teach Poiseuille First: Call for a Fluid Dynamics Paradigm Shift</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Incorporating Student Ideas and Interests</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Incorporating Research-Based, Biologically-Authentic Physics Problems in IPLS</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">A new IPLS course: From design to dissemination*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

Contributed <input type="checkbox"/>	<a href="#">Student Self-Assessment of Learning Outcomes in the IPLS Course</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Contributed <input type="checkbox"/>	<a href="#">NEXUS/Physics: Open-ended Design and Peer Review in IPLS</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Contributed <input type="checkbox"/>	<a href="#">Impact of mindset and awareness on Life Sciences students</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Contributed <input type="checkbox"/>	<a href="#">The source of student engagement in IPLS</a>	<b>Change Session</b> <input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Update

## SPS Undergraduate Research and Outreach Poster Session

AAPT SPS | Type: Posters | Organizer: Sean Bentley

### Description:

**Call for Papers:** Poster submissions for SPS Undergraduate Students.

**Abstracts Submitted (# 22) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
Poster	<input type="checkbox"/>		<a href="#">Bubbles and related physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Cheap and Eye-Catching Demo of Young's Double Slit</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Charged Particle Irradiation of Stainless Steel 316L</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Chemically Synthesized Nanostructures Based Solar Cell</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Electromagnetic Field Duality in Light Polarization Using Geometric Algebra</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Between the nature of the things, Representations and Mathematical Object: A study case, scalar and vector fields</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Classroom Tools - Vpython</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Newton's Second Law</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Nonlinear vibration experiment: Clamped elastic plate with granular material loading</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">A soil-plate-oscillator apparatus for research projects and student demonstrations</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit

Poster <input type="checkbox"/>	<a href="#">Learning of Biot-Savart law using the Project-Based Learning methodology and development of experimental prototypes in Mexico</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Analysis of the Effectiveness of Heat Exchangers on Backpacking Pots</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Use of Facebook like instrument to teach Photovoltaic Theory under the theoretical framework of Instrumental Genesis</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Use of Facebook to teach Photovoltaic</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Vibration experiments: Clamped elastic plate with edible granular material loading</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Particle Physics and Minecraft</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Modeling acoustic landmine detection using a soil-plate oscillator</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">High resolution measurement of lattice spacing of a Sodium Chloride monocrystal using X-Ray Diffraction</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Between nature of the things, Representations and mathematical object: The case of the scalar and vector fields</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Between nature of the things, Representations and mathematical object: The case of the scalar and vector fields</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Interference or Diffraction, Start from LED Decoration Film</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">A Demonstration of Polarization using a Mach-zehnder Interferometer</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<input type="text"/>	Submit

## Supporting Hispanic Women Students in Physics

**Committee on Women in Physics | Co-Sponsor:** Committee on International Physics Education | **Type:** Inv/Con | **Organizer:** Daryl McPadden

**Description:** The Hispanic population is the largest minority group in the United States, making up 17% of the total population, and is projected to increase to 31% by 2060. However, Hispanic students are disproportionately underrepresented in physics, especially in the intersection of Hispanic women. This panel will focus on the experiences of, research with, and strategies for supporting Hispanic women students in physics.

**Call for Papers:**

**Abstracts Submitted (# 3) | Abstracts You Have Reviewed: 0**

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
01	Invited	<input type="checkbox"/>	<a href="#">One Among Many: Experiences of a Hispanic Woman in Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
02	Invited	<input type="checkbox"/>	<a href="#">Examining the identity development of female physics majors</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
03	Invited	<input type="checkbox"/>	<a href="#">Using Social Psychology to Support Underrepresented Students in Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

## Teacher in Residence (TIR) role in Mentoring

Committee on Teacher Preparation | Type: Inv/Con | Organizer: Jon Anderson

### Description:

**Call for Papers:** Mentoring new physics teachers is critical to their success and retention. Teachers in Residence and Master Teachers are in a unique position to provide this mentoring. If you have worked as a TIR and served as a mentor or have been mentored by a TIR, please share your expertise and insight by contributing to this session.

Abstracts Submitted (# 8) | Abstracts You Have Reviewed: 0

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Contributed	<input type="checkbox"/>	<a href="#">Power of the Emotional Component in Teaching and Learning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Transience with Continuity: the TIR Paradox</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Creating a New PhysTEC Program at WVU</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Shared Responsibility: Multiple Teachers in Residence</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Defining the Role of the TIR</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">Rowan University: New PhysTEC Teacher in Residence Perspectives</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
	Contributed	<input type="checkbox"/>	<a href="#">An Informal Mentoring Program Using Outreach and Volunteering</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
01	Invited	<input type="checkbox"/>	<a href="#">Expert Teacher Advice and What "We" expect from Student Teachers</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

## Teaching Physics in High Needs High Schools

Committee on Professional Concerns | Co-Sponsor: Committee on Physics in High Schools | Type: Inv/Con | Organizer: Colleen Megowan-Romanowicz

### Description:



**Call for Papers:** Teaching physics in a high needs school entails a number of unique challenges that are not encountered in the typical suburban middle class high school. This session will examine conditions associated with serving high needs students and shed light on both the challenges and the opportunities teachers encounter in this setting.

**Abstracts Submitted (# 6) | Abstracts You Have Reviewed: 0**

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Effects of Instructional Strategies on Students' Academic Performance in Physics.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Motivating students with limited skills to learn Physics concepts through challenges.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Crossing Cultural Borders</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
01	Invited	<input type="checkbox"/>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<a href="#">Twenty-plus years of physics teacher professional development in rural Kansas</a>	Submit
02	Invited	<input type="checkbox"/>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<a href="#">Sometimes the Science Comes Second: Modeling in High Needs Schools</a>	Submit
03	Invited	<input type="checkbox"/>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<a href="#">Reflections on Modeling Instruction in Urban Schools</a>	Submit

### Using Popular Media to Teach Astronomy

**Committee on Space Science and Astronomy** | **Co-Sponsor:** Committee on Science Education for the Public | **Type:** Inv/Con | **Organizer:** Richard Gelderman

#### Description:

**Call for Papers:** Do you make use of popular media to encourage student learning; and have you studied the actual success for such approaches? Books, poetry, comics, magazines, and news-stories provide opportunities to study science. Video from "Interstellar," "The Martian," or the newest superhero movie demonstrate science principles. Analysis of "Angry Birds" or other games allow us to bring physics into our students' lives. Please share your analysis of the advantages of science through pop culture references.

**Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0**

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Survivability of potatoes and soil bacteria in a Mars chamber</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">OK GO! (and other popular culture contexts to learn astronomy!)</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
01	Invited	<input type="checkbox"/>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<a href="#">How I Learned to Stop Worrying and Love Science in Movies</a>	Submit
02	Invited	<input type="checkbox"/>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<a href="#">Interdisciplinary Teaching: Science Fiction.</a>	Submit

[Poetry, Drama,  
Music and More](#)

03 Invited

☐

[Just Real  
Enough - The  
Art of Physics at  
Pixar](#)

☒ No ☐ Yes

--Select here if you would like to change the session --

Submit

## Generic Abstracts

### PER: Investigating Classroom Strategies

Abstracts Submitted (# 0)

### PER: Problem Solving

Abstracts Submitted (# 0)

### PER: Student Reasoning

Abstracts Submitted (# 0)

### PER: Topical Understanding and Attitudes

Abstracts Submitted (# 0)

## Astronomy Paper

Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>		<a href="#">"How To Be Invisible?" As an Introduction to the Electromagnetic Spectrum</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>		<a href="#">Impact of Prior Astronomy Learning Experiences on TOAST Scores</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>		<a href="#">Learning to See in Astronomy: Distinguishing Nebula in Telescopic Images</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>		<a href="#">Overview of US Astronomy Education Research Dissertations in the iSTAR Database</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>		<a href="#">The Cosmic Perspective Timeline</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

## Gender

Abstracts Submitted (# 7) | Abstracts You Have Reviewed: 4

You have submitted comments on this item

You have submitted comments on this item

You have submitted comments on this item

You have submitted comments on this item

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Gender differences in students' epistemologies regarding the nature of experimental physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Impacts of lecture-based teaching and faculty disconnection on STEM majoring</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Topical Understanding and Attitudes--G	Identity cluster	Update
Contributed	<input type="checkbox"/>	<a href="#">Learning Assistant Practices in an Active Learning Landscape</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	Update
Contributed	<input type="checkbox"/>	<a href="#">Sense of belonging in STEM: Intersections of race and gender</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Sentiment Analysis of Teaching Evaluations to Explore Gender Bias</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Student discourse about equity in an introductory college physics course</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Topical Understanding and Attitudes--G	Identity cluster	Update
Contributed	<input type="checkbox"/>	<a href="#">The Role of Personality and Gender in Performance in Physics</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Research-based assessment instrument cluster	Update

## High School

Abstracts Submitted (# 14) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">A Customizable Private Online Resource for Flipping your AP physics classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Argument-Driven Inquiry in Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Closing the STEM Learning Gap for Underserved Populations</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Definition of Physics in Introductory</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

Physics Classes

Contributed <input type="checkbox"/>	<a href="#">Designing and Testing Crash Barriers, an Engaging NGSS Activity</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Doing Physics: Holding Urban Public Schools Accountable</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Integrated Approach to Learning Physics that increases student engagement in the Physics Classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Student Performance and Attitudes in Self-Selected vs. Teacher-Assigned Groups</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Summarizing discussion interventions and student content learning gains</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Sustainability Topic Coverage and Sustainability Agency In High School Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Teaching AP Physics 1 to the World, A Second Time</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">The Effect of Discussion and Student-Generated Data on Written Scientific Explanations</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Using Modeling Techniques in AP Center in Wuxi, China</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Using technology to increase student learning and teacher confidence</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

**Introductory Courses**

Abstracts Submitted (# 15) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed <input type="checkbox"/>		<a href="#">A Situated Learning Approach to</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

	<a href="#">Introductory Laboratory Reform</a>			
Contributed <input type="checkbox"/>	<a href="#">Advanced Placement Program</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">An Introductory Laboratory Reform Effort at the University of Illinois</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Changing the paradigm of the Jumping Ring Demonstration</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Data-Driven Efforts to Improve General Physics at NIU</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Game Design and Demonstration to Highlight Evidence-Based Reasoning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Game Design and Demonstration to Highlight Evidence-Based Reasoning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Implementing Studio Physics: The effect on physics identity development</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Interpretations of Physics Differentials and Derivatives in Introductory Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Investigating Effects of Reformed Laboratories on Student Motivation and Attitude</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Power boxes: A novel graphical representation of energy in circuits</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Satellite splat! Exploring sticky collisions with a surface-launched projectile</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Student Symbolic Problem Solving Skills in Introductory Calculus-Based Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>	<a href="#">Students' understanding</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

[of "Centripetal Acceleration" as evidenced by answers to a guided inquiry based lab.](#)

Contributed ☐

[Why active-learning physics teachers should think about facework](#)

☒ No ☐ Yes

--Select here if you would like to change the session --

Submit

## Introductory Labs/Apparatus

Abstracts Submitted (# 12) | Abstracts You Have Reviewed: 1

You have submitted comments on this item

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed <input type="checkbox"/>		<a href="#">A laser apparatus for measuring angular resolution of the eye</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Adapting AAPT Lab Recommendations to Meet Local Conditions: DATA Lab</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes Introductory Labs/Apparatus--G		Update
Contributed <input type="checkbox"/>		<a href="#">An easily assembled spectrograph for the intermediate lab</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">An Easy Determination of an Approximate Value for Absolute Zero</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Apparatuses for measurement of forces of an electrostatic and magnetic interactions.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Exploratory Freedom for Student Learning in Laboratory Settings</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Hacking the Pasco Power Brick for Direct Analog Measurements</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Implementation of a laboratory activity designed to promote scientific practice</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Ionizing Radiation Experiments as a Mobile Lab</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Simple Hack of a CRT for Photoelectric Effect Demonstration</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Teaching experimental and data analysis</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

[skills in online labs](#)

Contributed ☐

[The Physics of Color Temperature in Photography](#)

☒ No ☐ Yes

--Select here if you would like to change the session --

Submit

## Other Paper

Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed <input type="checkbox"/>		<a href="#">Arts + Physics = STEAMed Physix</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">How can asynchronous communication support virtual faculty learning communities?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Infinite circuits are easy. How about long ones?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Outreach Program for High School Physics Students and Teachers</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed <input type="checkbox"/>		<a href="#">Resonance in Long LC-Ladder Circuits</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

## PER: Diverse Investigations (Use this sorting category if you feel your work doesn't fall into the previous four PER categories.)

Abstracts Submitted (# 37) | Abstracts You Have Reviewed: 37

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Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">"Who Can Be an Engineer?" Investigating Attitudes and Self-Identification</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Topical Understanding and Attitudes--G	Identity Cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Algebra-Based Students &amp; Vectors: Assessing Physical Understanding in Arrow vs ijk</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Problem Solving--G	Representations cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Applying Business Literature to Product Development in STEM Education</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Assessing the interactivity and prescriptiveness of professional development workshops</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Career preparation models: Understanding the interplay between education and industry</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Classroom Instruction Promotes Posterior Medial Cortex Brain Activity During Problem-Solving</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Update"/>



Contributed	<input type="checkbox"/>	<a href="#">Curricular Knowledge as an Entry Point for Responsive Instruction</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Embedded experts: A productive approach to transforming undergraduate STEM education</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Equivalence of Web and Paper-based Physics diagnostic testing</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Research-based assessment instrument cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/> 4	<a href="#">Examining Time-use in Introductory Calculus-based Physics Students</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Update"/>
Contributed	<input type="checkbox"/> 5	<a href="#">Exploring Disagreements through Positioning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Exploring Student Sensemaking through Layers of Epistemic Games</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Examining content understanding and reasoning--G	Upper division topics	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Facilitating Physics Education Reform: An Ethnographic Study of Organizational Change</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Helping engineers to become effective physics teachers – Part A</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Helping engineers to become effective physics teachers – Part B</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/> 21	<a href="#">Identifying Different Student Groups using Cluster Analysis</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Update"/>
Contributed	<input type="checkbox"/> 2	<a href="#">Improved recruitment to build a better Faculty Online Learning Community</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Linking workshop design to faculty's engagement in professional development</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Making Use of</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G		<input type="button" value="Update"/>

Contributed	Resources:		Teaching method evaluation cluster	
Contributed 5	<a href="#">Nudging and the Opportunity for Revisions</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<a href="#">New resources on PhysPort: Supporting physics teaching with research-based resources</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Research-based assessment instrument cluster	<input type="button" value="Update"/>
Contributed 3	<a href="#">Novice Index Representation of Conceptual Transformation during Physics Instruction</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<a href="#">Online Learning Communities to Support Scholarship of Teaching and Learning</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Topical Understanding and Attitudes--G	Identity cluster	<input type="button" value="Update"/>
Contributed	<a href="#">Pathways to a physics degree: A statistical story</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Teaching method evaluation cluster	<input type="button" value="Update"/>
Contributed	<a href="#">Probing Indicators of Studio-mode Physics Student Success through Instructor Interviews</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Topical Understanding and Attitudes--G	Identity cluster	<input type="button" value="Update"/>
Contributed 8	<a href="#">Situating Self-efficacy in Introductory Physics Students</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed 6	<a href="#">SPOTting Effective Teaching: An Engaging and Reflective Faculty Workshop Series</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Update"/>
Contributed	<a href="#">STEM workplace communication and implications for the physics curriculum</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Teaching method evaluation cluster	<input type="button" value="Update"/>
Contributed	<a href="#">Student feedback as a tool in physics course development</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<a href="#">Supplemental Instruction leader development: A longitudinal study</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Topical Understanding and Attitudes--G		<input type="button" value="Update"/>
Contributed	<a href="#">The Access Network: Working Towards More Equitable and Inclusive STEM</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Topical Understanding and Attitudes--G		<input type="button" value="Update"/>
Contributed	<a href="#">The Effects of Grader</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Topical Understanding and Attitudes--G		<input type="button" value="Update"/>

	<a href="#">Assessment Feedback on Student Self-Regulation</a>			
Contributed <input type="checkbox"/>	<a href="#">The Evolution of Department-level Teaching Social Networks at One Institution</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed <input type="checkbox"/>	<a href="#">The importance of student voice in partnerships: Examples from the CSU Learning Assistant Program</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed <input type="checkbox"/>	<a href="#">Using conceptual blending to analyze student inquiry in computer-based environments</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Update"/>
Contributed <input type="checkbox"/>	<a href="#">What happens after paired teaching? Continued use of research-based instructional strategies</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed <input type="checkbox"/>	<a href="#">When buy-in is not enough: GTAs' RIOT profile in mini-studios</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed <input type="checkbox"/>	<a href="#">Who let the cold out?</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Faculty/LA preparation cluster	<input type="button" value="Update"/>

## PER: Evaluating instructional strategies

Abstracts Submitted (# 23) | Abstracts You Have Reviewed: 22

You have submitted comments on this item

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Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input checked="" type="checkbox"/>	<a href="#">An Activity-Based Model for Training Physics Teaching and Learning Assistants</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Comparing factor analysis and network methods to cluster test questions</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Research-based assessment instrument cluster	<input type="button" value="Update"/>
Contributed	<input checked="" type="checkbox"/>	<a href="#">Comparison of Lecture/Laboratory Format with SCALE-UP Classes</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	<input type="button" value="Update"/>
Contributed	<input checked="" type="checkbox"/>	<a href="#">Effects of Animated Video Solutions on Learning and Metacognition</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	<input type="button" value="Update"/>
Contributed	<input checked="" type="checkbox"/>	<a href="#">Evaluating JITT and Peer Instruction using Clickers in a Quantum Mechanics Course</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Examining the necessity of problem diagrams using MOOC AB experiments</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Problem Solving--G	Representations cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Inquiry vs. Traditional: Student perceptions and learning gains</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Large-scale Assessment Yields Evidence of Minimal Use of Reasoning Skills</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Research-based assessment instrument cluster	<input type="button" value="Update"/>
Contributed	<input type="checkbox"/>	<a href="#">Learning introductory E&amp;M: a 22k+ students meta-analysis</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Research-based assessment instrument cluster	<input type="button" value="Update"/>
Contributed	<input checked="" type="checkbox"/>	<a href="#">Measuring the impact of mastery inspired activities in introductory physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	<input type="button" value="Update"/>
Contributed	<input checked="" type="checkbox"/>	<a href="#">National assessment of the impact of Learning Assistants on physics students' learning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Faculty/LA preparation cluster	<input type="button" value="Update"/>
Contributed	<input checked="" type="checkbox"/>	<a href="#">Natural language vs. multiple choice format in computer-based practice</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	<input type="button" value="Update"/>

Contributed	14	<a href="#">Pathways through Introductory Physics: Effects of Switching Between Course Formats</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	Update
Contributed	6	<a href="#">Physics Teachers' Questioning Patterns and the Reasoning Behind Them</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Faculty/LA preparation cluster	Update
Contributed	7	<a href="#">Principles for research-based physics activities</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Faculty/LA preparation cluster	Update
Contributed		<a href="#">Promoting high school students' physics identity through performed recognition</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Topical Understanding and Attitudes--G	Identity cluster	Update
Contributed	15	<a href="#">Reform Introductory Quantum Mechanics: Three Years In</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	Update
Contributed	22	<a href="#">Social Network Analysis of Support Groups in Introductory Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Update
Contributed	16	<a href="#">Specifications grading in a large-enrollment ISLE physics class</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	Update
Contributed	17	<a href="#">Students' investigation of thermal radiation with infrared cameras</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	Update
Contributed	18	<a href="#">The effects of group structure in an introductory studio classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	Update
Contributed	19	<a href="#">Toward instructional design principles: Inducing Faraday's Law with Contrasting Cases</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	Update
Contributed	20	<a href="#">Using and Improving Mastery-Style Online Homework in a Large Introductory Course</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Teaching method evaluation cluster	Update

## PER: Examining content understanding and reasoning

Abstracts Submitted (# 32) | Abstracts You Have Reviewed: 27

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Order	Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	5		<a href="#">Classical Physics Learning from Analysis of Modern Physics Data II</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G	Research-based assessment instrument cluster	Update
Contributed	12		<a href="#">Comparing Two Activities' Effectiveness Improving Reasoning with Multiple-Variable Graphed Information</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Problem Solving--G	Representations cluster	Update
Contributed	6		<a href="#">Concept Inventories and the Next Generation of Assessment</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes PER: Evaluating instructional strategies--G	Research-based assessment instrument cluster	Update
Contributed	13		<a href="#">Construction and interpretation of linear best-fit graphs in introductory labs</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes PER: Problem Solving--G	Representations cluster	Update
Contributed	14		<a href="#">Developing metacognitive knowledge about productive reflection on salient distracting features*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes PER: Problem Solving--G	Representations cluster	Update
Contributed	1		<a href="#">Early mathematization obstacles: Uncovering roots of student difficulties in majors' courses</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Math cluster	Update

Contributed	<input type="checkbox"/>	2	<a href="#">Examining student reasoning with multi-variable expressions*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Math cluster	Update
Contributed	<input type="checkbox"/>	3	<a href="#">Examining students' abilities to follow and evaluate qualitative reasoning chains</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Math cluster	Update
Contributed	<input type="checkbox"/>	4	<a href="#">Examining students' multi-step reasoning in energy contexts*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Math cluster	Update
Contributed	<input type="checkbox"/>		<a href="#">How Students Combine Knowledge Elements While Learning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>		<a href="#">Improving student understanding of degenerate perturbation theory in quantum mechanics</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PERT: Evaluating instructional strategies--G		Update
Contributed	<input type="checkbox"/>		<a href="#">Improving Student Understanding of Vector Fields in E&amp;M</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>		<a href="#">Improving understanding of Gauss's law by replacing examples with reasoning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Update
Contributed	<input type="checkbox"/>	7	<a href="#">Influence of Language of Administration upon Physics Concepts Measuring Instruments</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Research-based assessment instrument cluster	Update
Contributed	<input type="checkbox"/>	8	<a href="#">Investigating student ability to reason in different directions*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Research-based assessment instrument cluster	Update
Contributed	<input type="checkbox"/>	9	<a href="#">Investigating Student Understanding Of Radioactivity With The Radiation Conceptual Evaluation</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Research-based assessment instrument cluster	Update
Contributed	<input type="checkbox"/>		<a href="#">Investigating Student Understanding of Vector Calculus in E&amp;M</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>		<a href="#">Investigating students' understanding of ac biasing networks*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>		<a href="#">Investigating the Impact of Different Prompts On</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

Student Reasoning *	
Contributed 10	<p><a href="#">Overview of 50+ research-based assessments in physics and beyond</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>--Select here if you would like to change the session --</p> <p>Research-based assessment instrument cluster</p> <p>Update</p>
Contributed 6	<p><a href="#">Probing Student Ability to Construct Reasoning Chains: A New Methodology</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>--Select here if you would like to change the session --</p> <p>Math cluster</p> <p>Update</p>
Contributed 15	<p><a href="#">Sense-making with Incriptions in Quantum Mechanics</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>PERC Problem Solving--G</p> <p>Representations cluster</p> <p>Update</p>
Contributed 7	<p><a href="#">Student ability to use complex numbers in quantum mechanics</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>--Select here if you would like to change the session --</p> <p>Math cluster</p> <p>Update</p>
Contributed 8	<p><a href="#">Student Construction and Use of Three-Dimensional Coordinate System Differential Elements</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>--Select here if you would like to change the session --</p> <p>Math cluster</p> <p>Update</p>
Contributed 9	<p><a href="#">Student difficulties with expectation values in quantum mechanics</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>--Select here if you would like to change the session --</p> <p>Math cluster</p> <p>Update</p>
Contributed 10	<p><a href="#">Student Difficulties with Quantum Operators Corresponding to Observables</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>--Select here if you would like to change the session --</p> <p>Math cluster</p> <p>Update</p>
Contributed 11	<p><a href="#">Student ideas about coordinate systems in the upper division</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>--Select here if you would like to change the session --</p> <p>Math cluster</p> <p>Update</p>
Contributed 12	<p><a href="#">Student reasoning with vectors through the physics curriculum</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>--Select here if you would like to change the session --</p> <p>Math cluster</p> <p>Update</p>
Contributed	<p><a href="#">Targeted Student Feedback Using Transition Matrices</a></p> <p><input type="radio"/> No <input checked="" type="radio"/> Yes</p> <p>PERC Evaluating instructional strategies--G</p> <p>Research-based assessment instrument cluster</p> <p>Update</p>
Contributed	<p><a href="#">Teacher Knowledge of Student Difficulties: "Collectively, We're a Genius!"</a></p> <p><input type="radio"/> No <input checked="" type="radio"/> Yes</p> <p>Teacher Training/Enhancement--G</p> <p></p> <p>Update</p>
Contributed 11	<p><a href="#">Thinking quantum mechanically: introducing students to reasoning in modern physics</a></p> <p><input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>--Select here if you would like to change the session --</p> <p>Upper division topics</p> <p>Update</p>
Contributed 18	<p><a href="#">Words vs. graphs: Tracking shifts</a></p> <p><input type="radio"/> No <input checked="" type="radio"/> Yes</p> <p>PERC Problem Solving--G</p> <p></p> <p>Update</p>



[in students' understanding of forces](#)

Representations cluster

## PER: Exploring problem solving approaches and skills

Abstracts Submitted (# 16) | Abstracts You Have Reviewed: 16

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Order	Type	Suggest Order	Title	Session Change?	Comments	Update
	Contributed	5	<a href="#">Can analogical reasoning help students learn to solve synthesis problems?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Representations cluster	Update
	Contributed		<a href="#">Elective Recitation Sections in Freshman E&amp;M Courses</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G		Update
	Contributed	1	<a href="#">Eye gaze patterns while viewing visual cues and video solutions</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Tech cluster	Update
	Contributed	2	<a href="#">How do Multimodal Hints Affect Conceptual Physics Task Solving?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Tech cluster	Update
	Contributed	6	<a href="#">Identifying Student Difficulties In Causal Reasoning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Representations cluster	Update
	Contributed	7	<a href="#">Introductory Physics Students' Perception of Worked-Out Problem Solutions</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Representations cluster	Update
	Contributed		<a href="#">Probing students' mathematical difficulties in introductory physics</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Examining content understanding and reasoning--G		Update
	Contributed	7	<a href="#">Prompted</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Update

		<a href="#">evaluation in calculus based introductory physics</a>		Representations cluster	
Contributed	8	<a href="#">Purpose of Representation Use in Modeling Instruction Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Representations cluster	Update
Contributed	11	<a href="#">Reading between the lines: lab reports help develop scientific abilities</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Update
Contributed	16	<a href="#">Students learning to coordinate mathematical and physical models in biology</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Problem Solving--G	Representations cluster	Update
Contributed	9	<a href="#">The impact of students' epistemological framing and beliefs on a task requiring representational consistency</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Representations cluster	Update
Contributed	3	<a href="#">Using phenomenography to better understand student development with computational physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Tech cluster	Update
Contributed	10	<a href="#">Using Spaced Recall to Encourage Expert Practice</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Representations cluster	Update
Contributed	4	<a href="#">Using the C3PO interface to develop and modify computing coaches.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Tech cluster	Update
Contributed	17	<a href="#">Using the Cognitive Reflection Test to investigate student reasoning inconsistencies*</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Problem Solving--G	Representations cluster	Update

## PER: Modeling student engagement

Abstracts Submitted (# 12) | Abstracts You Have Reviewed: 12

You have submitted comments on this item

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Order	Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed		5	<a href="#">"Stupidity in Science" - NOS Lesson or Balm for Inquiry Angst?*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Update
Contributed		4	<a href="#">Assessing difficult to assess learning goals - formative feedback in P3</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Group cluster	Update
Contributed		1	<a href="#">Characterizing how students group themselves for group exams</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Group cluster	Update
Contributed		2	<a href="#">Group formation on physics exams</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Group cluster	Update
Contributed		6	<a href="#">Longitudinal study of students' participatory habit in active learning classrooms</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Group cluster	Update
Contributed		3	<a href="#">Performance and Active Engagement through the Lens of Classroom Networks</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	Group cluster	Update
Contributed		8	<a href="#">Research on Identity Trajectories in Undergraduate Research Experiences</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Update
Contributed		7	<a href="#">Splits in students' attitudes toward classical and quantum physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Update
Contributed			<a href="#">Student positioning in an inquiry-based physics content and methods course</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Modeling student engagement--G		Update
Contributed			<a href="#">Students' problem solving in an upper division Electromagnetic Field course</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Problem Solving--G		Update
Contributed		9	<a href="#">Traditional physics vs IPLS: Comparing student experiences</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Update
Contributed			<a href="#">Using Clickstream Analysis to Understand Student Peer Evaluation</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating instructional strategies--G		Update

**Physics Majors: High School to Doctorate****Abstracts Submitted (# 0)****Pre High School****Abstracts Submitted (# 0)****Science and Society****Abstracts Submitted (# 2) | Abstracts You Have Reviewed: 0**

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Experiments with a New Wind Delivery System</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Solar Lantern Camp in Guatemala</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

**Teacher Training/Enhancement****Abstracts Submitted (# 8) | Abstracts You Have Reviewed: 0**

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">A New Online Master's Program in Physics for High School Teachers</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Design and evaluation of campus-wide professional development program in STEM</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Discovering and eliminating flaws in physics test questions</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Framework for Evaluating Teacher Discourse during Professional Development</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Hands-on Physics Demos - a new approach.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Integrating a Learning Community of Learning Assistants and Teaching Assistants</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">Teaching Physics in a Blended Online Course for Science Teachers</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Contributed	<input type="checkbox"/>	<a href="#">The OK</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

[PhysTEC Collaborative](#)

--Select here if you would like to change the session --

## Technologies

Abstracts Submitted (# 6) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">An Optimized Garden Hose Horn.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Electronic Lab Notebooks using Blackboard, Microsoft Word, and Livescribe Pens.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Preference Voting and Clickers</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Use of Arduino Mega 2560 R3 Board in the Automation of a Green House</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Video Analysis for Physics Experiments</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Wave Shaping by Guitar Amplifier Tubes</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

## Two Year Colleges

Abstracts Submitted (# 3) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Assessing a Course Text Book</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">New York Times Automotive Article Applications which help teach physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Successful STEM Student Pathways: A two- and four-year partnership</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

## Upper Division Undergraduate

Abstracts Submitted (# 11) | Abstracts You Have Reviewed: 6

You have submitted comments on this item

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Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">Classical Dynamics of a Particle in a One-dimensional Exponential Potential</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Divergence of a vector field: Teaching strategies and learning difficulties</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Student Reasoning--G		Update
Contributed	<input type="checkbox"/>	<a href="#">Entanglement isn't just spin</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Faraday Isolators and the Second Law of Thermodynamics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Framing Difficulties in Quantum Mechanics</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Student Reasoning--G		Update
Contributed	<input type="checkbox"/>	<a href="#">Highlighting Two Prevalent Student Difficulties in Graduate Level Quantum Mechanics</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Student Reasoning--G		Update
Contributed	<input type="checkbox"/>	<a href="#">Is There Room for Computation in Undergraduate Physics Courses?</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes Technologies--G		Update
Contributed	<input type="checkbox"/>	<a href="#">Learning About Liouville's Theorem with ODE Solver Algorithms</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Modeling heat transfer in undergraduate Thermal Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Multiple-Choice Assessment for Upper-division Electrodynamics</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Evaluating Instructional Strategies--G		Update
Contributed	<input type="checkbox"/>	<a href="#">The Effectiveness of "Pencasts" in undergraduate curriculum</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes PER: Student Reasoning--G		Update

### Upper Division/Graduate Courses

Abstracts Submitted (# 7) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>	<a href="#">A Novel Analog of the Double-Cone problem, Only Better</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Application of</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes		Submit

	<a href="#">Statistical Mechanics and Neural Networks for Large Databases</a>	--Select here if you would like to change the session --		
Contributed <input type="checkbox"/>	<a href="#">Comparing Chinese and American students' understanding of quantum mechanics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	--Select here if you would like to change the session --	<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Developing and Assessing Quantum Tutorials: Time Dependence and Measurements</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	--Select here if you would like to change the session --	<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Development of a Physics of Sustainability Course for Upper Level Students</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	--Select here if you would like to change the session --	<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Guidelines for a new laboratory course for underrepresented students in a graduate bridge program in South Africa</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	--Select here if you would like to change the session --	<input type="button" value="Submit"/>
Contributed <input type="checkbox"/>	<a href="#">Teaching Research in Traditional Classrooms: Why Make Graduate Students Wait?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	--Select here if you would like to change the session --	<input type="button" value="Submit"/>

## Upper Division/Graduate Labs

Abstracts Submitted (# 0)

## Astronomy Poster

Abstracts Submitted (# 7) | Abstracts You Have Reviewed: 0

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
Poster <input type="checkbox"/>			<a href="#">(Don't) Hit my Planet! - Periapsis from Instantaneous Position and Velocity</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>			<a href="#">Exploring Temperature in Astronomy Demonstration Videos</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>			<a href="#">Incorporating Exoplanet Radial Velocity Detections to Teach Simple Harmonic Motion</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>			<a href="#">Incorporating the Asteroid Light Curve Database into Introductory Mechanics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>			<a href="#">Influence of Authentic Astronomical Data on Student Confidence and</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		<input type="button" value="Submit"/>

Poster <input type="checkbox"/>	<a href="#">Understanding Preliminary Evaluation of a New Cosmology Curriculum</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Teaching Inquiry in Nigeria: The West African International Summer School for Young Astronomers</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit

## Labs/Apparatus

Abstracts Submitted (# 19) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Poster <input type="checkbox"/>		<a href="#">Advanced undergraduate biophysics lab on fluid-fluid phase separation</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>		<a href="#">An easily assembled spectrograph for the intermediate lab</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>		<a href="#">Arduino Explorations in the Physics Classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Contributed <input type="checkbox"/>		<a href="#">Arduino in electronics course leads to Arduino and FPGA student research projects</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>		<a href="#">Best Practices for Intermediate Physics Laboratory Experiences Using E-CLASS</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>		<a href="#">Dynamic Simulation Of The Induced Polarization Effects By Mirrors</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>		<a href="#">Electron Charge-to-Mass Ratio: Laser Focused on Perfection</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>		<a href="#">Improving Students' Understanding of Lock-In Amplifiers</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>		<a href="#">Instrumented Trebuchet</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>		<a href="#">Introductory Physics Laboratory Writing Conferences</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit
Poster <input type="checkbox"/>		<a href="#">Ionizing</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --	<div></div>	Submit



6	Contributed <input type="checkbox"/>	<a href="#">Radiation Experiments as a Mobile Lab</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
	Poster <input type="checkbox"/>	<a href="#">LEDs go to school</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
	Poster <input type="checkbox"/>	<a href="#">Measuring and Visualizing Fields and Current Flow</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
	Poster <input type="checkbox"/>	<a href="#">Mini-Lab Implementation to Enhance the Undergraduate Experience in Experimental Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
	Poster <input type="checkbox"/>	<a href="#">Normal modes for loaded string: Accounting for the string's mass</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
	Poster <input type="checkbox"/>	<a href="#">Single Photon investigations using a low-cost coincidence counter</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
	Poster <input type="checkbox"/>	<a href="#">Speed of Light: Practice Makes Almost Perfect</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
	Poster <input type="checkbox"/>	<a href="#">Student research projects with Arduino and the Xilinx Zedboard FPGA</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
	Poster <input type="checkbox"/>	<a href="#">Teaching Fluid Dynamics using a Transparent Circulatory System Model</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>

## Lecture/Classroom

Abstracts Submitted (# 17) | Abstracts You Have Reviewed: 0

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
Poster	<input type="checkbox"/>		<a href="#">A New IPLS Course at UNC – Fluids, E&amp;M, Optics, Nuclear*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
Poster	<input type="checkbox"/>		<a href="#">A New IPLS Course at UNC – Mechanics, Energy, Thermodynamics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
Poster	<input type="checkbox"/>		<a href="#">Active Learning and Learning Assistant Support Predictors of Student Success</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>
Poster	<input type="checkbox"/>		<a href="#">Comparison between Two Active Methodologies: Hands-on Experiments and</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		<input type="button" value="Submit"/>

Poster	<input type="checkbox"/>	<a href="#">Interactive Simulations</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Geometric Constructions as Mnemonics in Classical Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">Periodic Roads and Quantized Wheels</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Contributed	<input type="checkbox"/>	<a href="#">Power Boxes: A New Tool for Understanding Circuits</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">Serving our students, measuring learning instead of teaching</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">STEM Connections: A Cohort Model for First Year Students</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">Stochastic simulations and finite-difference models for the life sciences</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">Study Habits, Observed Habits, and Performance in a Physics MOOC</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">TAPIR (Teaching Activities for Physics Inclusion Resources): Enhancing Diversity in Introductory Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">The Impact of Language on Learning Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">Two Stage Exams: Designing Effective Questions</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">Using Blocks and Money to Understand Temperature</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">Using Javascript in PDF Forms to Create Randomized Assessments</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit
Poster	<input type="checkbox"/>	<a href="#">What Can It Look Like?: Physics Teaching for Social Justice</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

### Other Poster

Abstracts Submitted (# 13) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Poster	<input type="checkbox"/>	<a href="#">A continuing list of climate myths VI</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session --		Submit

Poster <input type="checkbox"/>	<a href="#">Building STEM Student Pathways: A two- and four-year partnership</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Development of an English-Vietnamese bilingual online course on Geometrical Optics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Inclusive STEM: A Discussion Group about Equity in STEM Fields</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Infinite circuits are easy. How about long ones?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Integration of Computation into Undergraduate Physics Courses: Opportunities for Physics Faculty</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Investigating student reasoning of everyday interdisciplinary phenomena - Initial phases</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Issues of a Community College in NY State: 64-Credit Cap, Transfer Paths, and Request to Wave Modern Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Magnets and Dominoes: A Simple Mechanics Analogy for Chemical Bonding</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Resonance in Long LC-Ladder Circuits</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">Sense of belonging in STEM: Intersections of race and gender</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">The "embedded expert" model of educational transformation: The SEI and TRESTLE</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit
Poster <input type="checkbox"/>	<a href="#">The Oklahoma PhysTEC Collaborative</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit

## Physics Education Research

Abstracts Submitted (# 105) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Poster <input type="checkbox"/>		<a href="#">A Cross-sectional Study of Students' Use of Mathematics in the Upper-Division</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<div></div>	Submit

Poster <input type="checkbox"/>	<a href="#">A Nonverbal Intelligence Test as a Predictor of FCI Gain</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">A Radiation Conceptual Evaluation</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">A Taxonomy of Conceptions about Buoyancy</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Adapting AAPT Lab Recommendations to Meet Local Conditions: DATA Lab</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">An Analysis of the Misconception about Shape Dependence of Buoyancy</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">An Interesting Twist on an Old Faraday's Law Experiment</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Analogous Patterns of Student Reasoning Difficulties in Introductory Physics and Upper-Level Quantum Mechanics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Assessing difficult to assess learning goals - formative feedback in P3</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Assessing Gender differences in Students' understanding of Magnetism</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Attitudes, Approaches to Physics Problem Solving: Turkish and American Students</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Challenges engaging students via interactive e-learning tutorials for introductory physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Characterizing how students group themselves for group exams</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Cognitive wrappers: Learning how to learn physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Comparing teaching effectiveness across years using background-attenuated learning gains.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Comparing Two Activities' Effectiveness Improving Reasoning with Multiple-Variable Graphed Information</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit
Poster <input type="checkbox"/>	<a href="#">Concept Inventories and the Next Generation of</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="--Select here if you would like to change the session --"/>		Submit

Poster <input type="checkbox"/>	<a href="#">Assessment</a> <a href="#">Conceptual blending: an analytical framework for immersive computer-supported learning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Content Knowledge for the Teaching of Energy: Assessing Classroom Artifacts</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Context Dependent Mindset: Building New Frameworks and Measurement Methodologies</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Continued use of research-based instructional strategies after paired teaching</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Decreased failure rates across all ethnicities in UC Davis CLASP</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Developing an Interactive Tutorial on a Quantum Eraser</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Developing and Evaluating a Quantum Interactive Learning Tutorial (QuILT) on the Double-slit Experiment</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Developing and Evaluating Quantum Mechanics Formalism and Postulates Survey</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Development of a Survey to Assess Transformative Experience in an Introductory Calculus-Based Mechanics Course</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Differential Impacts of Aligning Epistemological Expectations in Introductory Physics Labs</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Educational Data Mining for Discovering Learning Patterns in High-school Physics Students</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Effect of Active Learning on Student Attitudes towards Learning Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Evaluating Just-in-Time Teaching and Peer Instruction using Clickers in a Quantum Mechanics Course</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Evaluating the Workshop for New Physics and Astronomy Faculty</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Examining</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text"/>	Submit

	<a href="#">Engineering Course Work Looking for Breadcrumbs</a>	<input type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Examining the Effects of Testwiseness Using the FCI and CSEM</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Examining the pedagogical fidelity of an adopted curriculum</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Explicit incentives to correct mistakes in quantum mechanics can substantially improve performance on the same problems repeated a second time</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Exploring One Aspect of Pedagogical Content Knowledge of Physics Instructors and Teaching Assistants Using the Force Concept Inventory</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Exploring One Aspect of Pedagogical Content Knowledge of Teaching Assistants Using the Test of Understanding Graphs in Kinematics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Exploring student understanding of the negative sign in introductory physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Exploring the Role of Design Problems in the Physics Classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Extending psychometric analysis of gender differences on the FCI</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Faculty expectations of dimensional analysis</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Gender, Network Analysis, and Conceptual Gains in Introductory Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Group dynamics on group exams</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Helping Students Master Uncertainties in Measurements</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">How Students Combine Knowledge Elements While Learning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Impacts of lecture-based teaching and faculty disconnection on STEM majoring.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	<input type="button" value="Submit"/>

Poster <input type="checkbox"/>	<a href="#">Implementing Low-tech SCALE-UP in the Introductory Physics Classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Improving Student Understanding of Time-Dependence of Expectation Values in Quantum Mechanics via Larmor Precession of Spin</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">In-class surveys: Time well spent or simply inefficient?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Infrared cameras provide disciplinary affordance to thermal phenomena</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Insights into undergraduate thesis writers: Motivation, beliefs, and self-efficacy</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Instrumentation for Video-Based Research in Physics Education</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Introductory Astronomy: Epistemological Beliefs and Scientific Reasoning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Introductory Physics Students' Perception of Worked-Out Problem Solutions</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Investigating Grading Beliefs and Practices of Graduate Student Teaching Assistants using a Rubric</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Investigating student interactions during collaborative computational modeling problems</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Investigating Student Use of Angular Momentum Operators in Quantum Mechanics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Investigating Students Understanding Early Atom models via Model-Based Inquiry</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Investigating the Impact of Task Design on Student Reasoning*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Jumping through the hoops and loops: neverending battle for success and retention.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Key Factors in Introductory Physics Performance: A Four-year Study</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--		Submit
Poster <input type="checkbox"/>	<a href="#">Learning of Heat and</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes		Submit

	<a href="#">Inertial energy Concepts in Tonala, Mexico</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	
Poster <input type="checkbox"/>	<a href="#">Learning Orientations towards Physics Problem Solving: Additional Potential Variables</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Listening to student conversations during group exams</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">New resources on PhysPort: Supporting physics teaching with research-based resources</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Non-traditional student status, conceptual gains and centrality in introductory physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Open-ended Design and Peer Review in NEXUS/Physics IPLS</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Pathways to a physics degree: A statistical story</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Physics Performance and the Influence of Personality</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Physics Teachers' Questioning Patterns and the Reasoning Behind Them</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Preparing Undergraduates for Solving Problems in PhD-level Research</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Prevalence of College Student Conceptions about Buoyancy</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Promoting student engagement in scientific practice in an introductory laboratory</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Quantitative Exploration of the Gauss Gun and its Chemistry Connection</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Self-Efficacy in Introductory STEM Majors</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Sense-making with Inscriptions in Quantum Mechanics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Sensemaking with Layers of Epistemic Games</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Shut up and calculate: Becoming a quantum physicist</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Social Positioning and Consensus</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit



	<a href="#">Building in</a>			
Poster <input type="checkbox"/>	<a href="#">Splits in students' attitudes toward classical and quantum physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Student attitudes, network positions, and conceptual gains in introductory physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Student difficulties with quantum states while translating state vectors in Dirac notation to wave functions in position and momentum representations</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Student discourse about equity in an introductory college physics course</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Student ideas about coordinate systems in the upper division</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Student Use of Symbolic Forms when Constructing Differential Vector Elements</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Surveying Introductory Physics Students' Attitudes and Approaches to Problem Solving</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Surveying student understanding of thermodynamic processes and first and second laws: Development and Validation of a survey</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">Teaching Diffusion using a Beach Ball</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">The Effect of Themed Learning Community on Physics Students' Performance</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">The Effects of Grader Assessment Feedback on Student Motivation</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">The Effects of SCALE-UP Intervention in Algebra-Based Introductory Physics Classes</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">The Power of Self Reflection in Student Groups</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster <input type="checkbox"/>	<a href="#">The source of student engagement in IPLS</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="text" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>

Poster <input type="checkbox"/>	<a href="#">Time Evolution of Student Understanding of Quantum Mechanical Concepts</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Toward a Conceptual Model for Problem-Solving in Multimedia Learning</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Tracking shifts in students' understanding: Force, acceleration, and graphs</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Traditional physics vs IPLS: Comparing student experiences</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Training teaching assistants to be effective facilitators in the physics lab</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Using Google tools to follow student learning of scientific abilities</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Using Isomorphic Problems to probe Student Understanding of Speed</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Using phenomenography to better understand student development with computational physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Using the Cognitive Reflection Test to investigate student reasoning inconsistencies*</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Using Within-Cluster Regression Analysis to Understand Student Differences</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Utilizing student expertise in informing programmatic changes in STEM</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Wave Functions &amp; Measurements in Quantum Mechanics: Student ideas in Chemistry and Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit

### Pre-college/Informal and Outreach

Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
Poster	<input type="checkbox"/>		<a href="#">3D Printing Astronomy Lessons in Minecraft</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">PhysicsHacker.com - where physics and programming collide!</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Plasma Outreach to Teachers and</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes --Select here if you would like to change the session--	<input type="text"/>	Submit

[Students: The DPP Model](#)

Poster ☐

[Repurposing a Cathode Ray Tube to Demonstrate the Photoelectric Effect](#)

☒ No ☐ Yes

Select here if you would like to change the session

Submit

Poster ☐

[STEM Ambassadors: An undergraduate-powered outreach program](#)

☒ No ☐ Yes

Select here if you would like to change the session

Submit

## Teacher Training/Enhancement

Abstracts Submitted (# 5) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Poster <input type="checkbox"/>		<a href="#">8.Mech.CCx: A Customized Open Online Course for Flipping the AP physics C classroom</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit
Poster <input type="checkbox"/>		<a href="#">Action Research and Design-Based Research for Physics Teacher Preparation in Germany: A Case Study</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit
Poster <input type="checkbox"/>		<a href="#">An apprentice teacher and student's perspective on computer problem-solving coaches.</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit
Poster <input type="checkbox"/>		<a href="#">ATE Workshop for Physics Faculty Project</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit
Poster <input type="checkbox"/>		<a href="#">Helping Prospective and Practicing Elementary Teachers Prepare for the NGSS</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit

## Technologies

Abstracts Submitted (# 10) | Abstracts You Have Reviewed: 0

Order Type	Suggest Order	Title	Session Change?	Comments	Update
Poster <input type="checkbox"/>		<a href="#">A New App for Physics Simulations</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit
Poster <input type="checkbox"/>		<a href="#">Assessing Student Work Beyond the Final Answer, Electronically</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit
Poster <input type="checkbox"/>		<a href="#">Five smartphone physics lessons for teaching NGSS' DCI Forces and Motion</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit
Poster <input type="checkbox"/>		<a href="#">ggrade: Using Google Forms and Python to administer/grade quizzes</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit
Poster <input type="checkbox"/>		<a href="#">Introducing Coarse-graining Part 1: From Molecular Dynamics to Random</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes Select here if you would like to change the session		Submit

[waiks](#)

Poster <input type="checkbox"/>	<a href="#">iPads in Intro Labs</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Making iPad Videos to Learn Physics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Moving Phones Tick Slower</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">Practical Application of a Web-based Personal Response System</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit
Poster <input type="checkbox"/>	<a href="#">The Evolution of VPython</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	<input type="text"/>	Submit

## Upper Division and Graduate

Abstracts Submitted (# 16) | Abstracts You Have Reviewed: 1

You have submitted comments on this item

Order	Type	Suggest Order	Title	Session Change?	Comments	Update
Contributed	<input type="checkbox"/>		<a href="#">Applying Poynting's Energy Flux to Hydrodynamic Systems</a>	<input type="radio"/> No <input checked="" type="radio"/> Yes	<input type="text" value="Upper Division Undergraduate"/>	Update
Poster	<input type="checkbox"/>		<a href="#">Can Classical Mechanics Tutorials Help Approach Other Upper-Level Courses?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Comparing Chinese and American students' understanding of quantum mechanics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Core Graduate Courses: A Missed Learning Opportunity?</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Development of an Interactive Tutorial on Quantum Key Distribution</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	Submit
Contributed	<input type="checkbox"/>		<a href="#">Educational trips for undergraduate Physics majors</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Flipping an Upper Division Electricity and Magnetism Course</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Improving student understanding of addition of angular momentum in QM</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes	<input type="text" value="Select here if you would like to change the session"/>	Submit
Poster	<input type="checkbox"/>		<a href="#">Improving</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes		Submit

		<a href="#">students' understanding of quantum measurement</a>	<input type="button" value="Select here if you would like to change the session"/>		
Poster	<input type="checkbox"/>	<a href="#">Investigating transfer of knowledge in an upper-level quantum mechanics course</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="button" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster	<input type="checkbox"/>	<a href="#">Mathematization in upper-division problem solving</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="button" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster	<input type="checkbox"/>	<a href="#">Neural Networks and Matlab Algorithms for Pattern Recognition in Databases</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="button" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster	<input type="checkbox"/>	<a href="#">Picturing quantum mechanics</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="button" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster	<input type="checkbox"/>	<a href="#">Self-perception of Undergraduate and Graduate Students as Educators</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="button" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster	<input type="checkbox"/>	<a href="#">Tutorials on thinking about quantum entities</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="button" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>
Poster	<input type="checkbox"/>	<a href="#">Visualizing the Electromagnetic Field with Differential Forms</a>	<input checked="" type="radio"/> No <input type="radio"/> Yes <input type="button" value="Select here if you would like to change the session"/>		<input type="button" value="Submit"/>

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Date Last Updated: February 4, 2011