

Code	First Name	Last Name	Selected Category	Application Name
1406	Abbas	Abbasi	Open Source Tools for Teaching Physics	Association of concave spherical mirrors
1718	Paulo	Acioli	Effective Practices in Educational Technology	Flipped Virtual Lectures on a Urban Campus
1752	Mark	Adams	21 Century in the Classroom	QuarkNet High School Cosmic Ray Projects
1984	Wendy	Adams	30 Demos in 60 Minutes	30 Demos in 60 Minutes
1695	Wendy	Adams	Get the Facts Out: Changing the conversation around physics teacher recruitment	Recruiting physics teachers in a virtual world
1683	Anjuli	Ahooja	21 Century in the Classroom	Teaching Physics in a Dynamic and Changing World
1439	Ketevan	Akhobadze	Supporting K-12 Physics Educators	Lederman Science Center at Fermilab
1786	Jonathan	Alfson	Paradigms in Physics Potpourri	Surface Models and Multiple External Representations in Paradigms
1958	Philip	Andrango	Physics Education Research	Educational Approach to Active Circuits for Vacuum Tube Langmuir Probes
1387	Katie	Ansell	Best Practices in Educational Technology	Parallel parking an aircraft carrier in space
1969	Tetyana	Antimirova	"New Session" Things we will keep from remote experiences in teaching Physics labs/courses	Lessons from Virtual Laboratories
1400	Shyamkant	Anwane	Lecture/Classroom	Special Relativity using Perplex Numbers
1817	Ben	Archibeque	High School	Identifying "Tempered Radicals" in the STEP UP Ambassador Program
1614	JERRY	ARTZ	Effective Practices in Educational Technology	"5-Star" Student Self-Assessment for Online Homework Solutions in General Physics
1453	Najib	Azhar	Other Paper	Are Religion and Science Dichotomous? Evidence from Faith and Observation
1620	Cuiqin	Bai	Other Poster	Physics experiment teaching case sharing in COVID-19 pandemic
1344	Stephanie	Bailey	Introductory Courses	Teaching Introductory Physics for Life-Science Majors with Student-Made Art
1862	Aurelian	Balan	Climate Change Solutions: There is HOPE!	The Physics of Healthy Air
1519	Becky	Baranowski	Building a STEM-Wide Culture of Change	Integration of Calculus and Physics at Community College Level
1681	Caleb	Barber	SPS Undergraduate Poster Session	Probing Understanding of Buoyant Force and Volume of Fluid Displaced
1677	Caleb	Barber	PER: Student Content Understanding, Problem-Solving and Reasoning	Prevalence of Selected Alternate Conceptions about Buoyancy in College Populations

1901	Refath	Bari	"New Session" Things we will keep from remote experiences in teaching Physics labs/courses	Utilizing Visualizations to aid Remote Learning of Electromagnetism
1649	Bruce	Bayly	Physics On The Road	Mobile Physics Outreach during a Global Pandemic
1740	Paul	Beeken	High School	Using Jupyter Notebooks in the High School Classroom
1858	Nancy	Beverly	Teaching the Introductory Physics for the Life Sciences (IPLS) course	Students own biomechanics scenarios with digital practice and screencast feedback
1864	Nancy	Beverly	PER: Assessment, Grading and Feedback	Assessment after screencast feedback and revision on students' own scenarios
1809	Earl	Blodgett	Labs/Apparatus	A virtual Helmholtz Resonator lab
1685	Scott	Bonham	Teaching Science in a Culture of Mistrust	Studying the Past to Understand the Present
1721	Jared	Breakall	Get the Facts Out: Changing the Conversation Around Physics Teacher Recruitment	Teacher recruitment: Focus group insights from six universities
1813	Marianne	Breinig	Effective Practices in Educational Technology	3d Physics Apps
1580	Andre	Bresges	STEAM Education: What is the international State of Discussion?	Making Creativity Teachable: What the "A" in STEAM really stands for.
1534	Daniel	Burns	Effective Practices in Educational Technology	The New Smart Cart Motor from PASCO scientific
1822	Sanlyn	Buxner	Astronomy Education Research	Tools to Improve Writing, Thinking, and Reasoning in Astronomy Courses
1842	Douglas	Caldwell	Astrobiology & Exoplanets	Exoplanets -- Moving from Discovery to Understanding
1810	Sara	Callori	Physics Programs at HSIs/MSIs	Programmatic Transformation for Student Success at a Southern California HSI
1876	Jared	Canright	Doing Laboratory Activities in an Online Learning Environment	Collaboratively Developing Experimental Physics Skills in Hybrid Virtual Reality Labs
2017	Jared	Canright	Technology Playground	Teaching Experimentation With New Physics in Remote Virtual Reality Labs
1347	Duncan	Carlsmith	Astronomy Education Research	Explorations of ephemerides by first year physics and astronomy students
1348	Duncan	Carlsmith	Student Understanding of Measurement and Uncertainty	Advanced fitting and uncertainty analysis in introductory physics
1462	Simona	Carrubba	Physics Education Research	Bridging Physics and Health Sciences through Applied Research.

1486	Simona	Carrubba	Physics Education Research	Bridging Physics and Health Sciences through Applied Research.
1837	Julie	Carver	Supporting K-12 Physics Educators	Feasibility of Ecological Interventions to Reduce Teacher Stress
1667	Kenneth	Cecire	21 Century in the Classroom	QuarkNet LHC Data Workshops
1529	Yan	Cen	Introductory Labs/Apparatus	The Fresnel biprism experiment based on CMOS imaging analysis
1782	Shannon	Clardy	Effective Practices in Educational Technology	Reengineering General Physics Lab for At-Home Instruction
1537	Mikayla	Cleaver	Effective Practices in Educational Technology	Community Building with SPS - Virtually.
1854	Ann Marie	Cody	Astrobiology & Exoplanets	Exoplanet Discovery: From the Cosmos to the Classroom
1712	Brad	Conrad	Champions and Change: Curriculum , Community and Campuses	Driving Undergraduate Departmental Change: Diversity, Equity, and Inclusion
1674	Garnett	Cross	Effective Practices in Educational Technology	An accelerated physics course remotely with SGLs and physical labs.
1664	Robert	Dalka	PER: Student and Instructor Support & Professional Development, Program and Institutional Change	Prevalence and Nature of Threats Facing U.S. Physics Departments
1512	Ann	Daniel	POGIL and teaching methods from other disciplines	Frayer Model: A Digital Format for Synchronous Learning
1579	Marta	Dark	Teaching Science in a Culture of Mistrust	An interdisciplinary seminar on knowledge, science, and policy
1573	Kenric	Davies	Using popular media, like cartoons	Cartoon Physics in the Classroom
1407	Eliseu	de Jesus	Effective Practices in Educational Technology	ENSINO DE ONDAS ELETROMAGNÉTICAS COM MATERIAL DE FÁCIL ACESSO
1658	Erin	De Pree	Lecture/Classroom	Training Physics Students to Diffuse Racial Microaggressions
1753	Dwain	Desbien	My Favorite Vernier Product	Vernier and My Classroom
1586	Paul	DeStefano	Doing Laboratory Activities in an Online Learning Environment	Impact on Self-Efficacy, Lessons Learned from Emergency Remote Introductory Labs
1599	Matthew	Dew	PER: Curriculum and Instruction	Student Responses to Emergency Remote Learning in Introductory Physics
1648	Nancy	Donaldson	Using and Contributing to the Living Physics Portal	Development of an Active-Learning, Multimedia, Biomedically-Relevant Introductory Physics Curriculum

1528	Nancy	Donaldson	Using and Contributing to the Living Physics Portal	Development of an Active-Learning, Multimedia, Biomedically-Relevant Introductory Physics Curriculum
1632	Constance	Doty	PER: Student and Instructor Support & Professional Development, Program and Institutional Change	Comparing GTAs' use of teaching strategies in recitations and labs
1981	Danny	Doucette	Professional Skills for Students	Professional Skills for Students
1982	Danny	Doucette	Student Topical Discussion & Social	Student Topical Discussion and Social
1990	Dimitri	Dounas-Frazer	Making Physics Labs More Accessible: Perspectives of Current Physics Students	Making Physics Labs More Accessible: Perspectives of Current Physics Students
1991	Dimitri	Dounas-Frazer	Making Physics Labs More Accessible: Perspectives of Former Physical Science Students	Making Physics Labs More Accessible: Perspectives Former Physics Science Students
1645	Jason	Dowd	Supporting K-12 Physics Educators	OnRamps Physics: Experiencing UT-Austin at Texas High Schools
1577	Tamas	Dr. habil. Orosz	Interactive Lecture Demonstrations: A Research-Validated Strategy to Improve Learning in University and High School Introductory Physics	Supporting adaptive learning by means of knowledge spectra analysis
1960	Andrew	Duffy	"New Session" Things we will keep from remote experiences in teaching Physics labs/courses	Keepers: From remote studio physics back to in-person
1504	Sandra	Eix	Supporting K-12 Physics Educators	Informal and formal together: a science centre supporting schools
1829	Yasmene	Elhady	PER: Diversity, Equity & Inclusion	Facilitating development of online learning communities in introductory physics
1770	Paul	Emigh	Lecture/Classroom	Group Projects: An Alternate Assessment for Remote Teaching (and Beyond)
1465	Amanda	Eng	Champions and Change: Curriculum, Community and Campuses	Results from Undergraduates Attending a Virtual Summer Meeting
1650	Ben	Farr	Physics and Experimental Research on Black Holes	Adding a Cosmic Soundtrack
1996	Donald	Franklin	"New Session" Strategies for Coping and Self-care related to Remote/Hybrid Physics Teaching (all levels)	Science 100- Educating students in Science using Energy.
1602	Sara	Frederick	PER: Student and Instructor Support & Professional Development, Program and Institutional Change	Cultures of Assessment and Change in US Physics Departments

1698	Walter	Freeman	STEAM Education: What is the international State of Discussion?	Physics of Photography and Music in Physics Education
1790	Debbie	French	Teacher Training/Enhancement	Delivering Integrated STEM Professional Development in an Online Environment
1855	Hugh	Gallagher	Integrating Open Data into the Physics Curriculum	General Physics Lab Activities Analyzing Space Weather Observations
1565	Enrique	Galvez	Labs/Apparatus	An Advanced Lab on the Quantum Pendulum
1509	Enrique	Galvez	Doing Laboratory Activities in an Online Learning Environment	Remote Photon Quantum Mechanics Labs
1570	Tyler	Garcia	PER: Student and Instructor Support & Professional Development, Program and Institutional Change	Scientists views on ethics in their research
1535	A.	Gavrin	Best Practices in Educational Technology	Supporting Students with Technology During the COVID-19 Pandemic
1353	Christian	Gehman	Effective Practices in Educational Technology	Harness the Power of the Classroom for Data Collection
1989	Richard	Gelderman	Introduction to Zooniverse Citizen Science in Your Classroom	Introduction to Zooniverse Citizen Science in Your Classroom
1774	Florian	Genz	PER: Assessment, Grading and Feedback	Fails for Concept Inventory (digital) Data Encoding
1697	Jack	Gilbert	Effective Practices in Educational Technology	The use of recorded data labs to conduct online experiments
1591	Mayuri	Gilhooly	Using and Contributing to the Living Physics Portal	Initial Implementation of Biomedically-Relevant Introductory Physics Curriculum
1394	Mayuri	Gilhooly	Coming to America - Teaching from different perspectives	My journey as a Physics educator in US
1965	Logan	Gin	New Session" Strategies for Coping and Self-care related to Remote/Hybrid Physics Teaching (all levels)	Challenges with online course delivery for science undergraduates with disabilities
1624	Nick	Giordano	Technologies	Developing Augmented Reality Modules to Teach Torque
1666	Elizabeth	Gire	Paradigms in Physics Potpourri	Structural Features of External Representation in Physics
1427	Melissa	Girmscheid	Champions and Change: Curriculum , Community and Campuses	Adventures in District and State-Level Advocacy

1389	Wilson	Gonzalez-Espada	Other Poster	Selecting and Switching STEM Majors at USAF: Associated Retention Factors
1550	Melanie	Good	Introductory Courses	Prevalence and prevention of cheating in online introductory physics quizzes
1833	Scot	Gould	PICUP: Cool Computational Stuff!	Design, Construction and Use of Instructional Videos on using Maple™
1515	Melissa	Grimshield	Champions and Change: Curriculum , Community and Campuses	Teachers Influencing State Politics
1502	Joshua	Grossman	Get the Facts Out: Changing the Conversation Around Physics Teacher Recruitment	An asynchronous, interactive, Get-the-Facts-Out activity and more
1830	Nicole	Gugliucci	Highlights of AstroNotes	Cloudy Night? Astronomy Labs Using Physics Demonstrations and a Videogame
1874	Sathya	Guruswamy	Upper Division Undergraduate	Remote Undergraduate Research Experiences during Covid-19
1818	Brianne	Gutmann	PER: Curriculum and Instruction	Lessons learned from classroom conversations about ethics, science, and society
1661	Justin	Hadad	Introductory Courses	Utilizing Head Fake Learning to present Introductory Physics Concepts
1716	Kelby	Hahn	Paradigms in Physics Potpourri	Embodying Complex Numbers and Quantum States
1524	Ari	Hämäläinen	Physics Education from Around the World	The new physics curriculum in Finnish upper secondary school
1761	Alia	Hamdan	Physics Education Research	Lost In Translation: Reflecting on the Communication of Instructional Philosophy
1507	John	Hansen	PER: Student Content Understanding, Problem-Solving and Reasoning	Multidimensional Item Response Theory and the BEMA
1506	John	Hansen	Introduction to Zooniverse Citizen Science in Your Classroom	Using Machine Learning to Identify At-Risk Students in Physics Classes
1640	Kathleen	Harper	Other Paper	Designing Online Assessments: Inspirations from the 2020 AP Physics Exam
1572	Emily	Hay	Physics Education Research	Empowering Women in Physics: Forming Identity Through Outreach and Engagement
1880	Andrew	Heckler	Recent Developments and Perspectives in Research on Student Reasoning	Dual process model of reasoning: Navigating a terrain
1630	Andrew	Heckler	Introduction to Zooniverse Citizen Science in Your Classroom	Consistency and Fairness in Introductory Physics Course Grades

1401	Rachel	Henderson	Supporting K-12 Physics Educators	Developing a NGSS Practice Assessment: Planning and Carrying Out Investigations
1754	Katrina	Henry	The Art of Demonstrations: Waxing or Waning?	Bringing Physics Lecture Demonstrations Closer to Home
1824	Cade	Hensley	PER: Diverse Investigations	Short-Term Mindfulness Intervention Improves the Efficiency of Solving Physics Problem
1590	Michael	Herkommer	PER: Student Content Understanding, Problem-Solving and Reasoning	Educational Augmented Reality: Interactive Magnetic Field Visualization
1700	Thaddeus	Herman	Astronomy Education Research	Measuring the Speed of the Earth around the Sun
1751	Krista	Hook	Effective Practices in Educational Technology	Modeling-Based, Technology-Enhanced Curriculum for Early Childhood Physics Education
1796	Paul	Hosmer	Teacher Training/Enhancement	Physics for a Classical Education Minor
1797	Paul	Hosmer	Paradigms in Physics Potpourri	Classical Education Touchstones for the Physics Classroom
1900	Daniel	Howard	"New Session" Things we will keep from remote experiences in teaching Physics labs/courses	Lessons from Home Experiment Kits for Traditional Introductory Physics Labs
1556	Markku	Jääskeläinen	Effective Practices in Educational Technology	A case study of learning geometrical optics using multiple representations.
1613	Amali Priyanka	Jambuge	PER: Assessment, Grading and Feedback	Designing research-based assessment feedback for instructors
1629	Priya	Jamkhedkar	Teaching the Introductory Physics for the Life Sciences (IPLS) course	Introductory Physics for Pre-health Students on an Adaptive, Interactive Platform
1601	Jia	Jing	Physics Education Research	A Virtual Physics Lab to Educate the Public About Radiation
1617	Jia	Jing	Undergraduate Physics Education in China	Teaching Reform of Physics Experiment for International Undergraduate Students
1527	Jennifer	Jones	Ideas for Promoting Student Retention	Undergraduate Suborbital Research: Increasing Student Engagement Through Community College Partnerships
1379	Sukhjot	Kaur	21 Century in the Classroom	Virtual medical physics undergraduate laboratory experience with linear accelerator data
1405	Brian	Kays	Champions and Change: Curriculum , Community and Campuses	Freedom, Innovation, and Makerspaces; creating new campus realities.

1514	Brian	Kays	Champions and Change: Curriculum , Community and Campuses	Freedom, Innovation, and Makerspaces; creating new campus realities.
1804	Caitlin	Kepple	Astronomy Education Research	Students' Sense of Belonging in Introductory Astronomy Labs
1455	Joey	Key	Physics and Experimental Research on Black Holes	Astrophysics Across the Gravitational Wave Spectrum
1612	Dakota	King	PER: Student Content Understanding, Problem-Solving and Reasoning	Introductory physics students' mathematical preparedness and conceptual understanding of force
1907	Timothy	Klavon	Astronomy Education Research	The Origins build-a-MEL: A Scaffold to Explore the Universe's Origins
1647	Kathleen	Koenig	Technologies	Impact of Torque and Rotation Tutorial on Student Problem-Solving Abilities
1644	Kathleen	Koenig	PER: Curriculum and Instruction	Teaching Scientific Reasoning through Synchronous Online Physics Labs
1618	AMALIA MARIA	KONTOKOSTA	Physics On The Road	Teaching to the child attending infant school, following walk trail.
1522	GEORGE	KONTOKOSTAS	21 Century in the Classroom	Teaching Physics with Hands-on Diagrams
1518	Zachary	Kovach	Building a STEM-Wide Culture of Change	How Non-Science Majors Can Change Science Culture of Post-Secondary Institutions
1857	Joseph	Kozminski	Get the Facts Out!	Getting the Facts Out about Physics Teaching at Lewis University
1523	Ann-Katrin	Krebs	Physics Education from Around the World	Effects of advanced teacher trainings regarding diversity aspects
1743	Sujata	Krishna	Introductory Courses	Enhancing Student Engagement via a Monitored Student-Student Discussion Board
1851	Jorge	Kuhne	Quantum Physics in Introductory Courses	The qubit and quantum computing- A simulation in the classroom
1384	Aakash	Kumar	Effective Practices in Educational Technology	Sensing and Representing Magnetic Fields in Augmented Reality
1852	Eric	Kuo	Recent Developments and Perspectives in Research on Student Reasoning	Using Causal Diagrams to Model Student Difficulties and Productive Thinking
2000	Klaus	Lackner	Climate Change Solutions: There is HOPE!	Cleaning Up Carbon
1788	W. Blake	Laing	Effective Practices in Educational Technology	Immediacy by design: light boarding, streaming, and recording engaging assets

1665	Adam	LaMee	Effective Practices in Educational Technology	Teaching Science Content with Jupyter at Scale, Elementary Through University
1457	W. Brian	Lane	PICUP: Cool Computational Stuff!	Analysis of the PICUP Collection: Strengths and Areas for Development
1335	Dr. Krassi	Lazarova	Teaching the Introductory Physics for the Life Sciences (IPLS) course	Active learning in college physics: it takes two to tango
1789	Todd	Leif	My Favorite Vernier Product	"Retired, Rehired, Reloaded with Vernier"
1834	MacKenzie	Lenz	Paradigms in Physics Potpourri	A Sensemaking Foundation for Paradigms in Physics at OSU
1557	Junqing	Li	Undergraduate Physics Education in China	Musical physics experiment teaching @ home in China
1621	JIAN SHE	LI	Student Understanding of Measurement and Uncertainty	Meta-cognitive factors of physics experiment learning difficulties and teaching strategies
1689	Hui	Lin	Undergraduate Physics Education in China	Teaching Research and Practice of Modern Physics Special Topics
1392	James	Lincoln	B-sides and Bloopers from Famous Physicists	Benjamin Franklin's Most Dangerous Experiments
1576	Rebecca	Lindell	Physics Education Research	What Physics Education Researchers Needs to Know About Psychometrics
1345	Frank	Lock	Climate Change Solutions: There is HOPE!	A Thermodynamic approach to Climate Science
1719	Savannah	Logan	Get the Facts Out: Changing the Conversation Around Physics Teacher Recruitment	User Testing of Teacher Recruitment Videos, Images, and Other Materials
1653	Diana	López Tavares	Coming to America - Teaching from different perspectives	Bringing Inquiry-Based Learning in Antioquia Colombia through Teacher Training
1541	Michael	LoPresto	Astronomy Poster	Densities of Extra Solar Planets
1542	Michael	LoPresto	Astrobiology & Exoplanets	A Fermi Paradox Survey
1538	Michael	LoPresto	Highlights of Astronotes	Kepler's Cosmic Harmony, Orbital Eccentricities & Musical Intervals
1781	Colin	Loxley	PER: Curriculum and Instruction	Evaluating Perceptions of Teaching Changes in Physics for Life Sciences
1639	Kristine	Lui	Teacher Training/Enhancement	Board Game to Facilitate Discussions on Systemic Bias
2038	Theresa	Lynn	Quantum Information / Quantum Computing in the Classroom	Quantum Information for STEM Majors and Advanced High School Students
1615	Shihong	MA	Labs/Apparatus	Experimental study on the Viscosity of Fluids
1672	Jill	Macko	B-sides and Bloopers from Famous Physicists	Maxwell and the Color Wheel

1490	Maia	Magrakvelidze	PER: Student Content Understanding, Problem-Solving and Reasoning	A Study on Misconceptions of Mathematics and Science Teachers
1840	Maggie	Mahmood	PER: Student and Instructor Support & Professional Development, Program and Institutional Change	Opening Engineering Pathways: A University and High School Physics Partnership
1478	Steven	Maier	Effective Practices in Educational Technology	On creating your own course videos to emulate group work
1505	David	Maiullo	Physics On The Road	The Virtual Physics Demo Show: A Primer
1692	Corinne	Manogue	Paradigms in Physics Potpourri	New Curricular Materials Website/Quantum Learning Progression
1631	Alexandru	Maries	PER: Student Content Understanding, Problem-Solving and Reasoning	Impact of an Angular Momentum problem-solving tutorial on student performance*
1985	Alexandru	Maries	Career Paths for PER students (undergrad to grad and after)	Career Paths for PER students (undergrad to grad and after)
1595	Irina	Marinova	Supporting K-12 Physics Educators	Supporting Pre-Service Primary School Teachers with Hands on Science
1673	Andrew	Mason	Upper Division Undergraduate	Evaluating Explicit Incentives to Correct Mistakes in Upper-Division Electromagnetism
1675	Clausell	Mathis	PER: Diversity, Equity & Inclusion	Secondary Physics Teachers' Ideas about Integrating Equity into Energy Instruction
1801	Karen	Matsler	My Favorite Vernier Product	No equipment, no problem
1584	Jason	May	POGIL and teaching methods from other disciplines	Bringing Argument-Driven Inquiry into IPLS labs
1895	Timothy	McCaskey	"New Session" Things we will keep from remote experiences in teaching Physics labs/courses	Making choices for virtual labs in "The Science of Acoustics"
1366	Bradley	McCoy	B-sides and Bloopers from Famous Physicists	The Troublesome Tides
1564	Michael	McCusker	Effective Practices in Educational Technology	Energy Flow in Spring Coupled Pendula: Measurements and Analysis
1589	Danielle	McDermott	What to Say When Your Students Ask You about Condensed Matter	Condensed Matter Physics in Introductory Physics: Hiding in Plain Sight
1610	David	Meltzer	PER: Student Content Understanding, Problem-Solving and Reasoning	Consistency of students' mathematical difficulties may allow reliable performance predictability
1881	Andrew	Meyertholen	Champions and Change: Curriculum , Community and Campuses	Who flipped our class?
1600	Lorin	Millet	Astronomy Poster	Angular Momentum of Astronauts, Hurricanes, and Sunspots

1836	Drew	Milsom	PER: Student Content Understanding, Problem-Solving and Reasoning	Introductory students' qualitative analysis of the brachistochrone.
1686	Ethan	Minot	What to Say When Your Students Ask You about Condensed Matter	Condensed matter experiments that use strongly interacting electrons
1587	David	Mitchell	Effective Practices in Educational Technology	Assessment Options for Remote Learning: Alternatives to Traditional Exams
1783	Martin	Monteiro	PER: Diverse Investigations	Students' attitudes and beliefs about physics in Uruguay
1609	Tamar	More	Built-In Assessments	Scientific Explanations: Narrative structure, Prompts and Rubrics
1592	Tamar	More	Student Understanding of Measurement and Uncertainty	Connecting experimental uncertainty to calculus and to engineering design
1764	Shannon	Morey	Champions and Change: Curriculum , Community and Campuses	Towards a Framework for Equity-Minded Engineering Integration in Physics
1784	Brad	Moser	Teaching the Introductory Physics for the Life Sciences (IPLS) course	Back to School: Physicists Learning the Life Sciences for IPLS
1491	Brad	Moser	Effective Practices in Educational Technology	Physics Alive: Sharing Education Insights and Research through a Podcast
1964	Taha	Mzoughi	Technology Playground	The value of using simulations to clarify simple concepts
1354	Amritpal	Nafria	High School	Can Newton's second law be modified?
1702	AMRITPAL	NAFRIA	High School	CAN NEWTON'S SECOND LAW OF MOTION BE MODIFIED?
1739	Peter	Nelson	Teaching the Introductory Physics for the Life Sciences (IPLS) course	IPLS – the physics that life-science students want and need
1560	Peter	Nelson	Teaching the Introductory Physics for the Life Sciences (IPLS) course	Modeling the coronavirus pandemic in the United States
1388	James	Newland	Astronomy Poster	Web-based Astronomy Coding Labs
1608	William	Newton	Built-In Assessments	Standards based grading for college physics courses
1807	Margaret	Norris	Neutrinos in the Classroom	Ghost Particles: Neutrinos for 5th Graders?
2011	Steve	Oldham	Climate Change Solutions: There is HOPE!	Direct Air Capture and achieving net zero emissions
1627	Daniel	Oleynik	PER: Diversity, Equity & Inclusion	Variations in practicing physicists' beliefs about inclusive teaching strategies

1808	Alice	Olmstead	Physics Programs at HSIs/MSIs	Practical Recommendations for Cultivating Sustained STEM Instructional Change at HSIs
1792	Alexis	Olsho	Built-In Assessments	(Cancel) Physics Inventory of Quantitative Literacy: Assessing mathematical reasoning
1791	Daniel	Olson	SPS Undergraduate Oral Talks	Teaching Inertial Reference Frames Using Simulations
1474	Deirdre	O'Neill	Physics Education from Around the World	Reflective practice and pre-service physics teachers' critical thinking in Ireland
1944	Chris	Orban	Technology Playground	Smartphone-based Virtual Reality for physics with BuckeyeVR
1961	Chris	Orban	"New Session" Things we will keep from remote experiences in teaching Physics labs/courses	The STEMcoding Approach to Distance Learning
1531	Travis	Orloff	Teacher Training/Enhancement	NextGen PET Oriented Canvas Rubric for Online Elementary Education Majors
1399	Travis	Orloff	Astrobiology & Exoplanets	Los Angeles Pierce College/NASA MUREP Solar System Lab
1920	William	Palmer	Supporting K-12 Physics Educators	WILLIAM CROOKES (1832-1919): SCIENTIFIC COMMUNICATION, PHYSICS, CHEMISTRY AND PSYCHIC PHENOMENA.
1496	Jennifer	Palomino	Effective Practices in Educational Technology	Keys to Keeping Students Engaged
1569	Beth	Parks	Ideas for Promoting Student Retention	Providing a Path to Success in Introductory Physics
1543	Charlie	Payne	21 Century in the Classroom	Gravitational Wave Science for the Secondary Classroom: Discoveries and Activities
1954	Richard	Pearson III	Get the Facts Out!	It's all about perspective: Where an aeronautical-university fits into GFO
1755	Matthew	Perkins Coppola	Astronomy Education Research	Mentoring Undergraduates Teams in Variable Star Research
1756	Matthew	Perkins Coppola	Teacher Training/Enhancement	Physics Teacher Collaboration in Pandemic Times
1482	Michael	Ponnambalam	Physics Education from Around the World	A Powerful Factor in Teaching and Learning
1654	Christopher	Porter	Champions and Change: Curriculum , Community and Campuses	Attitudinal and motivational factors in graduate students: cross-sections and evolution
1655	Christopher	Porter	Champions and Change: Curriculum , Community and Campuses	QuSTEAM: A new curriculum development project in quantum information science

1554	Christopher	Porter	PER: Diversity, Equity & Inclusion	Practices that Maintain Excellence and Diversity in the COVID-19 Era
1795	William	Poteet	Introductory Labs/Apparatus	Effectively Implementing Peer Review into Introductory Physics Laboratory Courses
1652	Nicole	Preiser	Supporting K-12 Physics Educators	Experience with the QuarkNet Big Analysis of Muons in CMS
1811	Edward	Price	Paradigms in Physics Potpourri	Design tactics for adapting the ring cycle in secondary implementations
1856	Igor	Proleiko	Other Paper	Teaching Physics on Three Continents
1841	Joshua	Qualls	Quantum Physics in Introductory Courses	Development of Semiclassical Tic-Tac-Toe for Introductory Quantum Mechanics Students
1866	Xandria	Quichocho	PER: Diversity, Equity & Inclusion	Integrated Physics Identity Performances of BIWOC and LGBTQ+ Women
1321	Rahmat	Rahmat	21 Century in the Classroom	Improving Positive Attitude in Learning Physics
1511	Katherine	Rainey	PER: Assessment, Grading and Feedback	Initial Implementation of an Upper-Division Thermal Physics Assessment
1744	Edward	Redish	Teaching the Introductory Physics for the Life Sciences (IPLS) course	Why I teach Psychology on IPLS day 1
1908	Shawn	Reeves	"New Session" Things we will keep from remote experiences in teaching Physics labs/courses	Look under your chair, because you're all getting oscilloscopes!
1559	Rebecca	Rosenblatt	PER: Diverse Investigations	Investigating research themes for the Physics Education Research community
1955	David	Rosengrant	Technology Playground	Adding Augmented Reality and Video Games to your Course
1940	Nancy	Ruzycki	"New Session" Things we will keep from remote experiences in teaching Physics labs/courses	Working Together Alone: Collaborative Inquiry using Cell Phone Apps
1794	Mel	Sabella	Support for Unprotected Faculty and Teachers	Leveraging the community of students and faculty to support teachers
1816	Pooneh	Sabouri	PER: Diversity, Equity & Inclusion	Physics Club: A counterspace for developing female students physics identity
1831	Roberto	Salgado	Effective Practices in Educational Technology	Using Desmos for Interactive Visualizations of Physics
1832	Roberto	Salgado	Technologies	Using Desmos for Interactive Visualizations of Physics: Wave-Interference
1623	Jax	Sanders	Effective Practices in Educational Technology	A in the Chat: Remote Engagement Inspiration from Streaming Culture

1720	John	Sanders	POGIL and teaching methods from other disciplines	What happens when Hamilton's principle meets massless model engineering systems?
1687	Ann	Schmiedekamp	Astrobiology & Exoplanets	Extraterrestrial Life: Science Fact or Fiction?
1454	Cindy	Schwarz	Built-In Assessments	Student self-grading of homework in Classical Mechanics
1986	Carolyn	Sealfon	Applied improvisation for physics	Applied Improvisation for Physics
1598	Paul	Sedita	Neutrinos in the Classroom	Muon Half-life and the Inference of Neutrino Decay Products
1732	Lane	Seeley	Using and Contributing to the Living Physics Portal	Getting hot, messy and personal with energy from the start
1606	Devyn	Shafer	Physics Education Research	URM Grouping Hides Struggles of Black and Asian American Students
1494	Devyn	Shafer	PER: Diversity, Equity & Inclusion	URM Grouping Hides Struggles of Black and Asian American Students
1520	Russ	Shaffer	Building a STEM-Wide Culture of Change	Active Learning in Chemistry at the Community College Level
1875	Pavel	Shibayev	Champions and Change: Curriculum , Community and Campuses	Summary of Physics Unlimited's Virtual 2020 Summer Program
1771	Patricia	Shiebler	SPS Undergraduate Oral Talks	Developing a Digital Collaborative Problem Solving Space
1951	Angela	Shin	Labs/Apparatus	Measurement of impulses during egg drop experiment
1445	chandralekha	singh	Physics Education Research	Quantum Interactive Learning Tutorial on Larmor Precession of Spin
1447	chandralekha	singh	Physics Education Research	A Quantum Interactive Learning Tutorial on Quantum Key Distribution
1446	chandralekha	singh	Physics Education Research	Just-in-Time Teaching and Peer Instruction using clickers in quantum mechanics
1448	chandralekha	singh	Physics Education Research	Quantum Interactive Learning Tutorial on Mach-Zehnder Interferometer with Single Photons
1551	Chris	Sirola	Highlights of Astronotes	88
1885	Timothy	Slater	Astronomy Poster	Evolution of the Journal of Astronomy & Earth Sciences Education
1884	Timothy	Slater	Highlights of Astronotes	AstroNotes: Where Astronomy is a Verb
1778	Trevor	Smith	Applying Network Analysis to Physics Education	Examining Response Patterns to Multiple-Response Items Using Module Analysis

1690	Donald	Smith	Other Paper	Bringing Machine Learning to Introductory Astronomy Labs
1656	Tamara	Snyder	Effective Practices in Educational Technology	Tools to Support On-line Small Group Activities
1349	Andrzej	Sokolowski	Champions and Change: Curriculum , Community and Campuses	Developing Students' Covariational Reasoning using Contexts of Formulas
1825	Christian	Solorio	Paradigms in Physics Potpourri	Development and Design of a Computational Physics Lab Course
1865	Gabriel	Spalding	21 Century in the Classroom	Shaping light in time and space
1555	Verena	Spatz	STEAM Education: What is the international State of Discussion?	Creativity and empirical evidence: Students' conceptions about scientific inquiry
1533	Bryan	Stanley	PER: Diverse Investigations	Developing a model of key components of informal physics programming
1814	MacKenzie	Stetzer	Recent Developments and Perspectives in Research on Student Reasoning	Examining and supporting student reasoning using novel methodologies*
1508	John	Stewart	PER: Diverse Investigations	Exploring the CLASS with Item Response Theory
1946	Chuck	Stone	Integrating Open Data into the Physics Curriculum	Plotting Open Source Data in the Advanced Physics Lab Course
1844	Eric	Strong	Lecture/Classroom	Real-world Problems for AP® Physics 1 and AP® Physics 2.
1823	Madison	Swirtz	Champions and Change: Curriculum , Community and Campuses	Retaining underrepresented students through outreach programs: a systematic literature review
1634	Madison	Swirtz	Physics Education Research	Retaining underrepresented students through outreach programs: a systematic literature review
1733	Jill	TARTER	Astrobiology & Exoplanets	A Cosmic Perspective: Searching For Aliens, Finding Ourselves
1839	Joineé	Taylor	PER: Diversity, Equity & Inclusion	How Goal Endorsement Predicts Physics Identity
1701	Sarah	Tebbens	Support for Unprotected Faculty and Teachers	Wright State University Faculty Strike: 20 days in 2019
1605	Robert	Teese	Effective Practices in Educational Technology	Interactive Online Lectures with Clicker Questions
1684	Beth	Thacker	PER: Assessment, Grading and Feedback	Development of a Rubric to Analyze Student Teaching Assistants' PCK-Q
1729	Hafedh	Trabelsi	POGIL and teaching methods from other disciplines	Teaching special theory of relativity using the history of science.
1663	Adrienne	Traxler	Applying Network Analysis to Physics Education	Social positions in group exam networks

1341	Hiroshi	Uechi	Effective Practices in Educational Technology	Mechanism of a Water Drinking Bird, Thermodynamics and Irreversible Thermodynamics
1691	Emily	van Zee	Teacher Training/Enhancement	Open Source Textbook: Exploring Physical Phenomena
1659	Christopher	Varney	Doing Laboratory Activities in an Online Learning Environment	Student Perceptions and Learning in Online Labs
1820	E. Prasad	Venugopal	Using and Contributing to the Living Physics Portal	Building Community and Better Pedagogy through the Living Physics Portal
1517	Rebecca	Vieyra	Champions and Change: Curriculum , Community and Campuses	Teachers Impacting International Educational Policies
1779	Rebecca	Vieyra	Champions and Change: Curriculum , Community and Campuses	International Physics Teacher Leadership: US, Latin America, and the Caribbean
1812	Rebecca	Vieyra	Astronomy Poster	Physics in an Astronomy Context: Resources from the NASA SSEC
1803	Melissa	Vigil	Teaching the Introductory Physics for the Life Sciences (IPLS) course	Mining Biological Research when Developing Curricular Materials for Introductory Physics
1578	Michael	Vignal	PER: Student and Instructor Support & Professional Development, Program and Institutional Change	Student Experiences with Emergency Remote Teaching in Fall 2020
1583	Michael	Vignal	Paradigms in Physics Potpourri	The Partial Derivative Machine
1641	Michael	Wadness	Quantum Physics in Introductory Courses	What Heisenberg Knew: A QuarkNet Data-Based Student Activity
1668	DJ	Wagner	PER: Student Content Understanding, Problem-Solving and Reasoning	Discussion of Selected Alternate Conceptions about Buoyancy in College Populations
1725	John	Walkup	Astronomy Education Research	Timing Pulsars: Exercise in Statistical Analysis and the Scientific Process
2010	Kenneth	Walsh	Introduction to Zooniverse Citizen Science in Your Classroom	The Genesis and Growth of a Quant PER Group
1325	Jay	Wang	Quantum Physics in Introductory Courses	Enhancing learning and engagement in quantum mechanics with computation
1978	Qing	Wang	Undergraduate Physics Education in China	Problem Driven Interactive Learning
1568	Jin	Wang	Undergraduate Physics Education in China	Exploration on the heuristic multi-leveled home-base physics experiment design
1735	Jianlan	Wang	Coming to America - Teaching from different perspectives	Examine high-school physics education driven by high stakes testing

1393	Kelli	Warble	Champions and Change: Curriculum , Community and Campuses	Advocating for public university policies that authentically support students
1516	Kelli	Warble	Champions and Change: Curriculum , Community and Campuses	Advocating for policies that authentically support university students
1544	David	Waters	Labs/Apparatus	Discovering buoyancy as an open-ended lab
1547	David	Waters	Lecture/Classroom	Using Bloom's Taxonomy to Develop New Assessments
1548	David	Waters	Lecture/Classroom	Determining the Affect That Study Methods Have on Exam Scores
1545	David	Waters	Introductory Courses	How helpful are different study methods for physics exams?
1499	Kristin	Wedding Crowell	POGIL and teaching methods from other disciplines	POGIL-inspired Roles for Small Groups and Other Group Management Techniques
1637	Jeremy	Wegner	21st Century Physics in the Classroom	CMS-related activities in LHC Data Workshop
1622	James	Wells	Applying Network Analysis to Physics Education	Multilevel Network Analysis: A New Dimension for Analyzing Concept Inventories
1501	Christopher	Wheatley	Applying Network Analysis to Physics Education	Network analysis of the CSEM with Modified Module Analysis
1500	Christopher	Wheatley	Applying Network Analysis to Physics Education	Network Analysis of the FCI and the FMCE
1849	Suzanne	White Brahmia	Recent Developments and Perspectives in Research on Student Reasoning	Finding potential pathways between expert and student physics quantitative reasoning
1553	Hector	Will	Effective Practices in Educational Technology	Visuohaptic Simulations enhancing learning in an applied physics course
1785	Shannon	Willoughby	Astronomy Education Research	Testing formal reasoning skills: an updated approach
1679	Kyle	Wipfli	Physics Education Research	Development of Classroom-Interaction Coding Schemes for PCK Assessment
1680	Shane	Wood	Neutrinos in the Classroom	QuarkNet Neutrino Data Workshop
1853	Krista	Wood	Doing Laboratory Activities in an Online Learning Environment	Online Labs: Learning Scientific Reasoning Skills at a TYC
1815	Matthew	Wright	Physics On The Road	Physics Class and Lab on the Softball Field
1451	Weining	Wu	Physics Education from Around the World	Physics Teacher Preparation at Hubei University:
1821	John	Yevoli	SPS Undergraduate Oral Talks	The Effects of Decaying Dark Matter on The Hubble Constant
1397	Ellen	Yeziarski	Support for Unprotected Faculty and Teachers	Supporting Instructors: Building Community and Excellence through Scholarly Teaching

1440	Ellen	Yeziarski	Support for Unprotected Faculty and Teachers	Supporting Instructors: Building Community and Excellence through Scholarly Teaching
1562	Ma	Ying	21 Century in the Classroom	Re-development in Physics Experiment Teaching Using Simulation Based on PhET
1625	Nicholas	Young	Physics Education Research	Addressing rare outcomes in PER quantitative studies
1539	Nicholas	Young	Introduction to Zooniverse Citizen Science in Your Classroom	Addressing rare outcomes in PER quantitative studies
1611	Jianwei	Zhang	Undergraduate Physics Education in China	Practices of PBL approach Honor Courses in Tongji University Shanghai
1699	Linda	Zhang	PER: Interdisciplinary Studies	The Intersection of Physics Identity and Asian Identity
1693	Yuan	Zheng	The Art of Demonstrations: Waxing or Waning?	How to Make Plenty Use of Mirage Demonstration
1552	Shiyun	Zhou	Physics Education from Around the World	An improved model for measuring the speed of sound
1802	Raymond	Zich	Astronomy Education Research	Introduction of computational activities to a general education astronomy course
1843	Charlotte	Zimmerman	PER: Curriculum and Instruction	Student emergent sense-making about quantitative modeling in introductory physics labs