THURSDAY PM

W1 “Here are a few TIPERs for you in this Pandemic”, presented by Beverly Trina Cannon, Eastfield College, Dallas, TX

In this time of alternative teaching, we all need a little help to pull through. Those at the top of the educational ladder are worried about the lack of progress in reading and math. Since we do both in physics, we need to have some extra “tools” in our supply to have our students read, reason and speak to physics concepts. We will look at the TIPERS book and each participant will get a copy. Now is the time to give this a real view. Now is the time to put some in our lessons. We all know that verbalizing reveals our knowledge. Let’s try. You can also use these when we go back to the classroom. Nothing like planning and hoping.

Registration in the workshop must be completed by March 26, 2021 if you want the hands-on materials mailed to you to use during the workshop. Note: we do not have funds to mail materials internationally.

Limited to 30 participants – 2.0 hours Cost: None

Thursday, April 8, 5:00 PM – 7:00 PM

FRIDAY PM

W2 “STEP UP Physics Together Workshop”, presented by Meghan Dibacco, Cinco Ranch High School, Katy, TX

Participants will be introduced to evidence-based teaching resources encouraging women to pursue degrees and careers in physics. Participants will be introduced to the Everyday Actions and engage in two lessons to be used during classroom instruction. STEP UP - is a national community of physics teachers, researchers, and professional societies. STEP UP designs high school physics lessons to empower teachers, create cultural change, and inspire young women to pursue physics in college.

Limited to 24 participants – 2.0 hours Cost: None

Friday, April 9 – 5:00 PM – 7:00 PM

SATURDAY AM


This workshop will use the concept of an interferometer to demonstrate this algorithm, showing the gain in efficiency from quantum computing due to superposition. This workshop is suitable for both high school and introductory college physics. No prior knowledge of quantum computing or quantum principles are required. Workshop will be synchronous via zoom.

Limited to 24 participants – 2.0 hours Cost: None

Saturday, April 10 – 10:00 AM – 12:00 PM
**SATURDAY PM**

**W4** “What’s New and Interesting for Physics Teachers at PASCO”, presented by Dan Burns, Physics curriculum and training developer at PASCO scientific. [dburns@pasco.com](mailto:dburns@pasco.com) and Scott Fields, South Central US Science/STEM Education Consultant at PASCO scientific – [sfields@pasco.com](mailto:sfields@pasco.com)

Even physics teachers familiar with PASCO will be surprised by some of the recently released products and labs. We will look at new approaches to traditional labs using the Smart Cart and a modeling approach. We will overview several labs and activities using the Smart Cart Motor and the Meter Stick Torque Kit. If there is time and interest, we will look at some new labs for the Wireless Rotary Sensor and Rotational Inertia Accessory.

Attendees will need access to a computer with sound to view the online workshop and access the handouts.

**Limited to 60 participants – 1.5 hours**

Cost: None

Saturday, April 10 – 12:30 PM – 2:00 PM

**W5** “The Two Golden Rules of Quantum Mechanics”, presented by John Donohue, Institute for Quantum Computing, University of Waterloo, Waterloo, Ontario, Canada

The quantum concepts of superposition and measurement uncertainty can be intimidating to discuss without any hands-on way to teach them. However, they’re absolutely essential for students to understand when considering future technologies based on quantum physics. In this workshop, we’ll learn how to connect light polarization to superposition and measurement, and how these concepts link to the powerful technology of quantum cryptography.

Registration in the workshop must be completed by **March 26, 2021** if you want the hands-on materials mailed to you to use during the workshop. Note: we do not have funds to mail materials internationally.

**Limited to 60 participants – 1.5 hours**

Cost: None

Saturday, April 10, 2:15 PM – 3:45 PM

**SUNDAY AM**

**W6** “ALPhA Advanced Lab Workshop (the Texas Section ‘Mini BFY’), presented by Toni Sauncy, Texas Lutheran University and ALPhA Regional Director & Others

Many lab instructors are familiar with the 3-day national level Beyond the First Year (BFY) Conferences organized by ALPhA (Advanced Lab Physics Association) which bring together laboratory instructors and commercial equipment vendors to share effective lab curricula, teaching methods, and experiments. These conferences are typically on a 4-year rotation cycle. To better serve the needs of physics faculty around the country, ALPhA has organized several regions ([see map here](#)), so that regional directors can engage more frequently at the regional level. This first ever Texas, Oklahoma, Arkansas regional workshop, in conjunction with the Spring 2021 TSAAPT/APS/Zone 13 SPS meeting is for anyone who is interested in improving advanced lab teaching skills and offerings. All faculty/staff in charge of or interested in improvement of the “Advanced Lab” (referring to all those labs “BEYOND THE FIRST YEAR”) including “intermediate lab”, “modern physics lab”, etc. as well as the traditional “junior-senior” or “advanced” lab courses should join us.

**Highlights**

- Learn about the latest trends in Advanced Lab Instruction
- Participate in the First Ever ALPhA Texas LABS Speed SLAM
- Get your hands on some cool labs that others in the region are doing
- Take home some great ideas for improving your advanced labs

**Limited to 24 participants – 2.0 hours**

Cost: None

Sunday, April 11 – 10:00 AM – 12:00 PM
W7  “Affordable Circuits Kit 2.0”, presented by Regina Barrera, Lee College, Baytown, TX

The circuits kit 1.0 was designed from inexpensive items to do DC circuits including series/parallel simple circuits, basic non-simple circuits and basic RC circuits. The circuits kit 2.0 includes some additional inexpensive items to do some electrostatics activities and magnetism activities. In this workshop, participants will use the circuits kit 2.0 to do a variety of dc circuits and if time allows some electrostatics and magnetism.

Registration in the workshop must be completed by March 26, 2021 if you want the circuits kit 2.0 and activity handouts mailed to you to use during the workshop. Note: we do not have funds to mail materials internationally.

**Limited to 24 participants – 2.0 hours**  
Cost: $30.00 (for supplies and mailing)

SUNDAY PM

W8  “Perimeter Institute: Evidence for Climate Change Workshop”, presented by Dave Fish, Perimeter Institute & Tonia Williams (moderator), Perimeter Institute

Anthropogenic climate change is one of the most important issues facing our students. Join us as we explore the basic science behind climate change and share a series of easy demos you can do with your students, in-person, online or have students try themselves. The Evidence for Climate Change resource is the product of collaboration between classroom teachers, Perimeter Institute researchers, and climate scientists.

**Limited to 60 participants – 1.25 hours**  
Cost: None

W9  “Current Software from Vernier and How to Use It: Graphical Analysis Pro and Vernier Video Analysis”, presented by John Gastineau, Staff Scientist and Fran Poodry, Director of Physics, both from Vernier Software & Technology

Graphical Analysis Pro includes features such as live data sharing over the internet and a library of experiment data (many with synchronized videos). It also includes advanced analysis tools such as user-defined curve fits.

Analyze videos in our Vernier Video Analysis app. Apply vectors to motion trails, use polar coordinates, and add center of mass data to collision videos and graphs.

Both apps work on any platform. A limited-time free-access code for each app will be provided to attendees.

**Limited to 60 participants – 2.00 hours**  
Cost: None