

$$\Psi = A \sin \frac{\sqrt{2mE}}{\hbar} x + B \cos \frac{\sqrt{2mE}}{\hbar} x$$

$$H\Psi = E\Psi$$

$$\sum_n i_n = 0$$



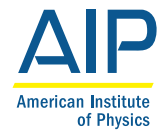
2016 Quadrennial Physics Congress

# EXHIBITORS

## Unifying Fields

Science Driving Innovation

November 3 - 5, 2016  
Hosted by Sigma Pi Sigma, the physics honor society



## Exhibit Locations

Exhibit booths 1 - 25 will be located in the Regency Ballroom during the Exhibit Hall on Thursday, November 3, from 11:00 am – 7:00 pm.  
Exhibit booths 100 - 105 will be located in the Grand Peninsula Foyer throughout the meeting.

## Acoustical Society of America

### Booth Number: 1

Contact: L. Keeta Jones, [kjones@acousticalsociety.org](mailto:kjones@acousticalsociety.org), 516-576-2364

Website: [acousticalsociety.org](http://acousticalsociety.org)

The Acoustical Society of America (ASA) is the premier international scientific society in acoustics. Its purpose is to generate, disseminate, and promote the knowledge and practical applications of acoustics. A variety of fields related to sound are represented such as physics, oceanography, noise control and many more. The Society is a voluntary organization and attracts the interest, commitment, and service of a large number of professionals, academics, and students from around the world. Their contributions in the guidance, administration, and development of the ASA are largely responsible for its world-wide preeminence in the field of acoustics.

## Air Force Institute of Technology, Department of Engineering Physics

### Booth Number: 2

Contact: Omar Nava, [omar.nava@afit.edu](mailto:omar.nava@afit.edu), 937-295-3636 x 4518

Website: [www.afit.edu/enp](http://www.afit.edu/enp)

The Air Force Institute of Technology is focused on basic science and applied technologies for the Department of Defense. The graduate programs emphasize practical research and its transition into operations within the United States Air Force, Department of Defense, and other government agencies.

## American Association of Physicists in Medicine

### Booth Number: 3

Contact: Rachael Smirolodo, [rachel@aapm.org](mailto:rachel@aapm.org), 571-298-1230

Website: [www.aapm.org](http://www.aapm.org)

The American Association of Physicists in Medicine is a professional membership organization of more than 8,000 members. The mission of AAPM is to advance the science, education & professional practice of Medical Physics; a broad-based scientific & professional discipline, encompassing physical principles with applications in biology & medicine.

## American Crystallographic Association

### Booth Number: 4

Contact: Marcia Colquhoun, [aca@hwi.buffalo.edu](mailto:aca@hwi.buffalo.edu), 716-856-8692

Website: [www.amerystalassn.org](http://www.amerystalassn.org)

The American Crystallographic Association, Inc. is a non-profit, scientific organization of over 1,000 members in more than 35 countries. ACA was founded in 1949 through a merger of the American Society for X-Ray and Electron Diffraction (ASXRED) and the Crystallographic Society of America (CSA). The objective of the ACA is to promote interactions among scientists who study the structure of matter at atomic (or near atomic) resolution. These interactions will advance experimental and computational aspects of crystallography and diffraction. Understanding the nature of the forces that both control and result from the molecular and atomic arrangements in matter will help shed light on chemical interac-

tions in nature and can therefore lead to cures for disease. Membership in the ACA is open to any person who is actively interested in the purposes of the Association. Student members are very welcome and their contributions to the life and vigor of the Association has always been important. Meetings are held annually in July. There are 12 Scientific Interest Groups concerned with Biological Macromolecules, Fiber Diffraction, General Interest, Industrial, Materials Science, Neutron Scattering, Powder Diffraction, Service Crystallography, Small Angle Scattering, Small Molecules, Synchrotron Radiation and Young Scientists. Members may join as many of these as they wish. Each Scientific Interest Group is responsible for organizing sessions at National Meetings.

## American Meteorological Society

### Booth Number: 26

Contact: Beth Farley, [bfarley@ametsoc.org](mailto:bfarley@ametsoc.org), 617-226-3910

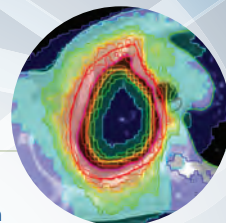
Website: [ametsoc.org/ams](http://ametsoc.org/ams)

The American Meteorological Society (AMS) is the nation's premier scientific and professional organization promoting and disseminating information about the atmospheric, oceanic, hydrologic sciences. AMS is committed to strengthening the incredible work being done across the public, private, and academic sectors. Our community knows that collaboration and information sharing are critical to ensuring that society benefits from the best, most current scientific knowledge and understanding available.



AMERICAN ASSOCIATION  
of PHYSICISTS IN MEDICINE

Advancing the Science, Education &  
Professional Practice of Medical Physics



**WHAT IS MEDICAL PHYSICS?** Medical Physics is an applied branch of physics concerned with the application of the concepts and methods of physics to the diagnosis and treatment of human disease. It is allied with medical electronics, bioengineering, and health physics.

**WHAT IS A MEDICAL PHYSICIST?** Medical physicists contribute to the effectiveness of radiological imaging procedures by assuring radiation safety and helping to develop improved imaging techniques. They contribute to development of therapeutic techniques, collaborate with radiation oncologists to design treatment plans, and monitor equipment and procedures to ensure that cancer patients receive the prescribed dose of radiation to the correct location.

**QUALIFICATIONS:** A Qualified Medical Physicist has earned a master's or doctoral degree in physics, medical physics, biophysics, radiological physics, medical health physics, or equivalent disciplines from an accredited college or university; and has been granted certification in the specific subfield(s) of medical physics with its associated medical health physics aspects by an appropriate national certifying body and abides by the certifying body's requirements for continuing education.

Learn more at: [www.aapm.org/publicgeneral/](http://www.aapm.org/publicgeneral/)

## California State University, Fresno

### Booth Number: 5

Contact: Roger Key, rogerk@csufresno.edu

Website: www.fresnostate.edu

California State University, Fresno invites you to do your graduate study (MS Physics) with world class research, small class size, and individual attention. Our faculty do research in the areas of high energy physics (CERN-ATLAS program), medical physics (multidimensional magnetic resonance spectroscopy and biological applications of x-ray fluorescence), astrophysics (cataclysmic variable binary stars), condensed matter physics (synthesis of semiconducting nanowires and advanced materials), and theoretical physics (quantum field theory, gravitation, cosmology, and particle physics). For more information, visit: <http://fresnostate.edu/csm/physics/index.html>.

## Delaware State University

### Booth Number: 6

Contact: Thomas Planchon, tplanchon@desu.edu

Website: www.desu.edu

## Duke University Medical Physics Graduate Program

### Booth Number: 7

Contact: Anju Kapadia, anuj.kapadia@duke.edu, 919-684-1442

Website: medicalphysics.duke.edu

We are a CAMPEP accredited program in Medical Physics and one of the few that equally emphasizes all major areas of medical physics: diagnostic imaging, nuclear medicine, medical health physics, and radiation therapy. In addition to our diverse and flexible program curriculum, our students receive advanced clinical, research, and professional training to customize their education to future career goals.

## Florida Polytechnic University

### Booth Number: 8

Contact: Sherrita Denson, sdenson@flpoly.org, 863-874-4776

Website: flridapolytechnic.org

Florida Polytechnic University is the newest university in the State University System of Florida. It is also Florida's only public university wholly dedicated to science, technology, engineering, and mathematics (STEM). Florida Poly provides students with hands-on learning, applied research opportunities, industry connections and the ability to work on real-world problems under the guidance of distinguished faculty with experience in both industry and academia.

## Georgia State University

### Booth Number: 9

Contact: Alexander Kozhanov, akozhanov@gsu.edu

Website: www.gsu.edu

Our research groups span the range from exploring the constituents of matter at the subatomic and nuclear levels to the formation and evolution of active galaxies. Departmental faculty, along with postdoctoral fellows, visiting scholars, graduate and undergraduate students, have collaborations and joint programs with scientists in over 15 countries. We take great

pride in teaching our undergraduate and graduate students, and have developed an instructional Physics website (Hyperphysics) which receives about 50 million hits per year! The Department also runs the CHARA Array, the largest optical/IR interferometer in the world. We offer graduate programs of study leading to the MS degree in physics and the PhD in physics or in astronomy. The Department's goal of excellence in graduate education is promoted by: an emphasis on meaningful research beginning the student's first semester, individualized attention, a curriculum providing a solid foundation in physics and astronomy as well as diversity for individual interests, active participation by students at major accelerators and telescopes at national laboratories and observatories, access to powerful computing and image processing facilities, well-equipped experimental research laboratories, particular attention to skill training to enhance the students' employment prospects, and close working relationships with scientists actively engaged in research.

## LIGO (Laser Interferometer Gravitational-wave Observatory)

### Booth Number: 10

Contact: Lynn Cominsky, lynnc@universe.sonoma.edu

Website: www.ligo.caltech.edu

With the first direct detection of gravitational waves on September 14, 2015, the Laser Interferometer Gravitational-wave Observatory (LIGO) has opened the field of gravitational-wave astrophysics. Gravitational waves are ripples in spacetime, and were predicted by Einstein's General Theory of Relativity a century ago. LIGO consists of two widely separated interferometers within the United States—one in Hanford, Washington, and the other in Livingston, Louisiana. LIGO is funded by the National Science Foundation, and is operated by Caltech and MIT. A team of over 1000 scientists world-wide participate in LIGO's Scientific Collaboration.

## Michigan State University

### Booth Number: 11

Contact: Zack Constan, constan@nscl.msu.edu, 517-908-7363

Website: www.pa.msu.edu

Michigan State University's Department of Physics and Astronomy offers graduate programs leading to Masters and Ph.D. degrees in both physics and astrophysics. Our greater than 65 faculty and 175 graduate students are pursuing research programs which include experimental and theoretical work in the general fields of accelerator physics, acoustics, atomic, molecular and optical physics, biological physics, computational physics, condensed matter physics, elementary particles, low-temperature physics, nanoscience, nuclear physics, physics education, and quantum computing. Students pursuing a doctoral degree in the Department may elect joint programs with many partnering departments including Biochemistry, Chemical Engineering, Chemistry, Computational Mathematics Science and Engineering, Electrical and Computer Engineering, Materials Science, and Mathematics.

## Old Dominion University, Department of Physics

### Booth Number: 12

Contact: Charles Sukenik, lokun@odu.edu, 757-683-6086

Website: www.odu.edu/physics

Old Dominion University (ODU) is a state-supported university located in Norfolk, Virginia, at the mouth of the Chesapeake Bay, and is classified as a Carnegie Research Institution with "high research activity." The

ODU Physics Department ([www.odu.edu/physics](http://www.odu.edu/physics)) has 22 regular faculty members, 50 graduate students and over 90 physics majors and minors. Research areas include experimental and theoretical nuclear physics, experimental and theoretical atomic and few-body physics, accelerator science, condensed matter physics, geophysics and material science. The Department maintains close ties with nearby Jefferson Lab and the NASA Langley Research Center.

## Oregon State Physics Department

### Booth Number: 13

Contact: Kelby T. Peterson, [petekelb@oregonstate.edu](mailto:petekelb@oregonstate.edu)  
Website: [physics.oregonstate.edu](http://physics.oregonstate.edu)

Oregon State Physics emphasizes condensed matter and biophysics with a strong emphasis on optics. In addition we have a nationally recognized Physics Education research group and small groups in astrophysics and elementary particles. Our courses for majors are very interactive and all majors are involved in research so undergraduates as well as graduate students are very involved in the life of the Department.

## San José State University, Department of Physics and Astronomy

### Booth Number: 14

Contact: Michael Kaufman, [Michael.Kaufman@sjsu.edu](mailto:Michael.Kaufman@sjsu.edu)  
Website: [physics.sjsu.edu](http://physics.sjsu.edu)

The SJSU Department of Physics & Astronomy offers Bachelor's (BS, BA and BA - Preparation for Teaching) and Master's degrees (with optional concentrations in Computational Physics and Modern Optics). The Department prepares students for careers in the high-tech sector of the vibrant Silicon Valley and beyond, while also providing a solid foundation to pursue graduate work in Physics, Astronomy, Engineering, or other areas of physical sciences. Our faculty specialize in computational physics, optics, astrophysics, physics education research, condensed matter physics, and quantum foundations. Graduate and undergraduate students work with faculty on cutting edge-research, making discoveries from the smallest superconductors to the densest galaxies and everything in between. Visit us at [www.physics.sjsu.edu](http://www.physics.sjsu.edu) to learn more.

## STAR – STEM Teacher and Researcher Program

### Booth Number: 15

Contact: Shawn Kirby, [spkirby@uci.edu](mailto:spkirby@uci.edu), 714-421-8938  
Website: [www.starteacherresearcher.org](http://www.starteacherresearcher.org)

STAR is a 9 week summer program for aspiring STEM teachers from CSU Campuses or the Robert Noyce Scholarship Program. We match applicants with researchers for paid summer Fellowships, weekly education workshops, and conferences. Visit the STAR website to learn more.

## The University of Mississippi

### Booth Number: 16

Contact: Cecille Labuda, [cpembert@olemiss.edu](mailto:cpembert@olemiss.edu)  
Website: [www.olemiss.edu](http://www.olemiss.edu)

The Department of Physics and Astronomy offers Master's and PhD degrees in physics, and all students admitted to our graduate program receive full financial support. We offer exciting research opportunities in atmospheric physics, condensed matter physics, gravity, high energy physics, and physical acoustics. The University of Mississippi carries the R1

Carnegie designation reserved for Doctoral Universities with the highest level of research activity.

## University of California, Merced

### Booth Number: 17

Contact: Scheibner, Michael, [mscheibner@ucmerced.edu](mailto:mscheibner@ucmerced.edu), 209-228-4400  
Website: [physics.ucmerced.edu](http://physics.ucmerced.edu)

## University of California, Santa Cruz

### Booth Number: 18

Contact: Katie Hellier, [khellier@ucsc.edu](mailto:khellier@ucsc.edu)  
Website: [www.ucsc.edu](http://www.ucsc.edu)

## University of Central Florida

### Booth Number: 19

Contact: William Kaden, [wiliam.kaden@ucf.edu](mailto:wiliam.kaden@ucf.edu)  
Website: [www.ucf.edu](http://www.ucf.edu)

## University of Nevada, Las Vegas, High Pressure Science & Engineering Center

### Booth Number: 20

Contact: Pamela Burnley, [burnley@physics.unlv.edu](mailto:burnley@physics.unlv.edu), 702-895-5460  
Website: [hipsec.unlv.edu](http://hipsec.unlv.edu)

The High Pressure Science and Engineering Center (HiPSEC) is a multi-disciplinary research group consisting of faculty, staff and students in the



## UNLV High Pressure Science & Engineering Center Graduate Opportunities

The **UNLV High Pressure Science and Engineering Center (HiPSEC)** is seeking highly motivated students who want to pursue graduate degrees in high pressure solid state physics and chemistry or high pressure geophysics. HiPSEC graduate students have access to cutting edge research equipment and unique opportunities to conduct synchrotron related science, as well as the opportunity to work

as interns at National Laboratories. The center's interdisciplinary nature exposes students to perspectives and experimental techniques from physics, chemistry, materials science and geoscience. HiPSEC offers competitive graduate stipends. For more information about HiPSEC, go to [hipsec.unlv.edu](http://hipsec.unlv.edu) or contact Ms. Cara Loomis at [cara.loomis@unlv.edu](mailto:cara.loomis@unlv.edu) or **(702) 895-1593**.

**UNLV**

Applications for Fall 2017 admission must be received by Feb. 1, 2017.

Physics and Astronomy, Geoscience, Chemistry and Engineering Departments at UNLV. HiPSEC offers interdisciplinary graduate studies in topics of interest to the Department of Energy's Stockpile Stewardship program and focuses on placing its graduates in positions at the nation's National Laboratories. HiPSEC students investigate the effects of pressure on matter using a suite of experimental techniques including diamond anvil cell, shock wave and large volume apparatus studies, synchrotron x-ray diffraction and laser spectroscopy, as well as theoretical and computational approaches. HiPSEC is a member of High Pressure Collaborative Access Team (HPCAT) at the Advanced Photon Source, Argonne National Laboratory and enjoys extensive access to HPCAT's synchrotron beamlines.

## University of Notre Dame, Department of Physics

### Booth Number: 21

Contact: Kenjiro Gomes, kgomes@nd.edu

Website: physics.nd.edu

University of Notre Dame, Department of Physics seeks to provide an outstanding and distinctive education to our undergraduate and graduate students, while also maintaining a broad, vibrant research program as we attempt to answer some of the most fundamental questions in nature. The Department does research in a number of exciting areas including Atomic, Astrophysics, Biophysics, Condensed Matter, Network, Nuclear and High Energy Physics.

## University of Virginia, Physics Department

### Booth Number: 22

Contact: Steven Stetzler, sgs7cr@virginia.edu, 610-507-5051

Website: phys.virginia.edu

University of Virginia students will be available to answer questions about the UVA Physics department. We will be handing out brochures describing our graduate program. We will also be giving out UVA Physics related swag upon the successful completion of a Physics challenge.

## Virginia Tech, Department of Physics

### Booth Number: 23

Contact: Betty Wilkins, bewilki2@vt.edu

Website: www.phys.vt.edu

The Department of Physics at Virginia Tech, located in beautiful southwest Virginia, offers both Master's and Ph.D. degrees in Physics. The department is comprised of 31 full-time faculty members, 86 graduate students, and about 400 undergraduate physics majors. Research areas include: astrophysics, biophysics, condensed matter experimental and theoretical, particle experimental and theoretical, and string theory. We are currently accepting applications for Fall 2017 through January 5th, so please stop by our booth to learn more about the graduate education opportunities that await you at Virginia Tech!.

## Washington University, St. Louis, Department of Physics

### Booth Number: 24

Contact: Alexander Seidel, seidel@wustl.edu, 314-935-8933

Website: physics.wustl.edu

Washington University in St. Louis is a private research university in suburban St. Louis, MO, with a long standing tradition in physics research excellence. Our faculty are world leaders in their fields of research, with

active groups working in astrophysics and space sciences, condensed matter and materials physics, particle and nuclear physics, and applications of physics to biology and medicine. Our graduate program offers incoming students generous support for their first two years, and a friendly community in which to pursue their research aspirations. As a physics department, we are committed to the promotion of diversity within the culture of scientific inquiry. We especially encourage the application of women and under-represented minorities to our graduate and undergraduate programs.

## Western Michigan University

### Booth Number: 25

Contact: Paul Pancella, paul.pancella@wmich.edu

Website: wmich.edu

## Newport Corporation

### Booth Number: 101

Contact: Hung Hoang, hung.hoang@newport.com, 949-863-3144

Website: www.newport.com

At Newport we believe that the best way to enhance life and fuel discovery is to support experts, by being experts. As a global company, we draw upon expertise from around the world to provide knowledge and solutions from our family of brands that includes; Corion® Filters, New Focus™, Oriel® Instruments, Richardson Gratings™ and Spectra-Physics® Lasers. One company and brands you trust for world-class photonics.

## Optical Society of America

### Booth Number: 102

Contact: Curtis Burrill, cburrill@osa.org, 202-416-1915

Website: www.osa.org

OSA celebrates its 100th anniversary in 2016, marking a century of innovation. As part of our celebration, we have created a Centennial Exhibit that highlights 100 iconic images representing OSA and the world of optics and photonics. Come check us out while you are at PhysCon 2016!

## American Physical Society

### Booth Number: 103

Contact: Courtney Bougher, bougher@aps.org, 301-209-3271

Website: www.aps.org

The American Physical Society is the professional society for physicists. With over 50,000 members APS works to advance and disseminate the knowledge of physics worldwide. Through meetings, journals and other publications APS delivers the latest physics information and works to create a stronger physics community. In addition to its services for members, APS provides career information for those interested in pursuing all types of physics as a career path. Using websites, webinars, and profiles APS shows students the endless possibilities a physics degree can bring. APS has a commitment to exciting and inspiring the general public. Through its outreach website, www.physicscentral.com, the PhysicsQuest middle school program, a series of physics-centric comic books and many other programs APS brings the joy of physics to all.

## SPS & ΣΠΣ Store

**Booth Number: 104**

Contacts: Sacha Durham-Purnell, spurnell@aip.org, 301-209-3007  
Lydia Quijada, lquijada@aip.org  
Website: www.spsnational.org

Show your physics pride! Stop by the Society of Physics Students (SPS) and Sigma Pi Sigma (ΣΠΣ) store for PhysCon, SPS and Sigma Pi Sigma branded gear.

## American Institute of Physics

**Booth Number: 104**

Contacts: Liz Dart Caron, lcaron@aip.org, 301-209-3034  
Philip Hammer, hammer@aip.org, 301-209-3142  
Website: www.aip.org

The activities and staffing of the Society of Physics Students (SPS) and Sigma Pi Sigma are both supported by the American Institute of Physics (AIP). Stop by to explore the programs, awards, benefits, and services provided with your SPS and Sigma Pi Sigma memberships. AIP also sponsors other programs that are valuable to undergraduates, including the Careers Toolbox, SPS Jobs site, GradSchoolShopper.com and *Physics Today* magazine—come by the booth to spin the prize wheel and learn more.



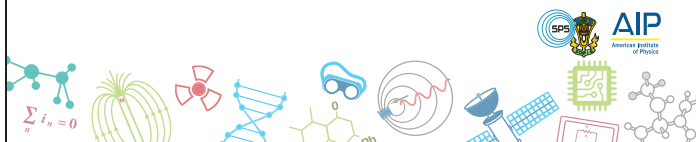
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<http://jobs.spsnational.org>

partner in the AIP Career Network

## Stop by the PhysCon Store and Grab Some Merch!

Sigma Pi Sigma Honor Stole	\$42
Sigma Pi Sigma Honor Cord	\$15
Sigma Pi Sigma Tassel	\$12
Sigma Pi Sigma Lapel Pin	\$8
SPS/Sigma Pi Sigma Polo shirts	\$25
SPS/Sigma Pi Sigma Executive Padfolio	\$25
PhysCon T-shirts	\$15
PhysCon Toothpick Holders (shot glass)	\$5
SPS Water Bottles	\$10
SPS Bottle Opener	\$4
"Physics is Good for You" Slinky	\$3
"Physics is Good for You" Iron-on Patch	\$4




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2016 Quadrennial Physics Congress

**Silicon**  
*Dance Party*

**Si**  
2809

**Friday**  
8:30pm - 10:30pm  
Pool Pavilion

*Sponsored by the American Physical Society*

**APS**  
physics

Soft Drinks Provided  
Cash Bar

SPS AIP