



The Joint Fall 2017 Meeting of the Texas Section of the APS (TSAPS), Texas Section of the AAPT, and Zone 13 of the Society of Physics Students will be held October 20-21, 2017 at The University of Texas at Dallas in Richardson, TX. The event will be hosted in the newly opened Davidson-Gundy Alumni Center. The meeting will draw participants from all fields of physics and physics education throughout Texas and contiguous states.



[TSAPS 2017 Fall Meeting website](#)

Deadlines:

[Abstract submission](#) for contributed and poster deadline is September 21

[Online Registration](#) is currently available, and the early registration deadline is September 27. Higher fees apply after this date. Note that one need not be an APS member to register for the meeting.

[Student travel award application](#): Application and registration are due September 27, but abstracts must be submitted by Sept. 21 for consideration.

Banquet Speaker



[Prof. Allan MacDonald](#) (UT Austin) – “Fancy Meeting You Here: Exotic Particles Lurking in Ordinary Crystals”

Allan is the Sid W. Richardson Foundation Regents Chair in Physics at the University of Texas at Austin. His primary research interests center on the influence of electron-electron interactions on the electronic properties of metals and semiconductors. His technical interests cover a broad swath within the condensed matter theory subfield, ranging from pragmatic techniques for electronic structure calculations on the more traditional side to the more trendy field theoretical approaches. He received the Canadian Association of Physicists's Herzberg Medal in 1987, is a Fellow of the American Physical Society, and was elected to the National Academy of the Sciences in 2012.

Plenary Speakers

[Prof. Dean Sherry](#) (UT Dallas/UT Southwestern) – “The Physics and Chemistry of Molecular Imaging”

A. Dean Sherry, Ph.D. serves as Professor of Chemistry at UT-Dallas, Professor of Radiology at UT-Southwestern Medical Center, and Director of the Advanced Imaging Research Center (AIRC) on UT-Southwestern Medical Center campus. His research interests include ^{13}C metabolic tracers and NMR to follow intermediary metabolism in isolated organs, whole animals, and humans; hyperpolarized ^{13}C tracers to image metabolism in real time in animals and humans; and the development of novel magnetic resonance imaging agents for molecular imaging. He was recognized by the World Molecular Imaging Society

with Gold Medals in 2013 and 2015 for his achievements in developing responsive Gd (III)-based MR contrast agents and PARACEST agents for magnetic resonance imaging.

[Prof. Karl Gebhardt](#) (UT Austin) – “First Look from the Hobby-Eberly Telescope Dark Energy Experiment”

Karl Gebhardt is the Herman and Joan Suit Professor of Astrophysics in the Department of Astronomy at the University of Texas at Austin. He works on a variety of galaxy studies, ranging from black holes to dark matter to dark energy. Most of his career has focused on understanding the role that black holes play in the formation of a galaxy. He has won numerous awards, including Northeast Graduate Schools Dissertation Award (1995), a Hubble Fellowship from NASA (1997), Teaching Excellence Awards from the University of Texas (2003) and McDonald Observatory Board of Visitors (2004), and a National Science Foundation Career Award.

[Prof. Lisa Whitehead Koerner](#) (University of Houston) – neutrino physics

Lisa Whitehead Koerner is an Associate Professor at University of Houston. Koerner is an experimental particle physicist, and her research focuses on studying neutrino oscillations. She is interested in experiments ranging from the K2K, MINOS, Daya Bay, and DUNE. She received the 2016 Breakthrough Prize in Fundamental Physics for the discovery of neutrino oscillations, as well as a DOE Early Career Grant.

[Prof. Vernita Gordon](#) (UT Austin) –

Vernita Gordon is an Assistant Professor of Physics at the University of Texas, Austin, where she is part of the Center for Nonlinear

Dynamics. Her research focuses on the biological physics of bacteria, especially multicellular communities of bacteria known as "biofilms." Her research combines microbiological and physical experiments with quantitative analysis and modeling.

Invited Speakers

[Prof. Enrique Castro Camus](#) (Centro de Investigaciones en Optica A.C., León, GTO. México) –

Enrique Camus is a research professor in the photonics department at Centro de Investigaciones en Optica (CIO). His research interests include the applications and development of terahertz spectroscopy techniques with particular emphasis on the study of ultrafast charge transport in semiconductors, spin injection in semiconductors, surface and interface non-linear optics as well as low frequency vibrations of bimolecular systems. He is a National Researcher level II and fellow of the Mexican Academy of Sciences.

[Prof. Alex Zakhidov](#) (Texas State) – condensed matter experiment

Alex Zakhidov is an Assistant Professor of Physics at Texas State University. His research is focused on the comprehensive study of organic semiconductors including: fundamentals, processing, mechanisms and applications in optoelectronics.

[Prof. Ben Owen](#) (Texas Tech) – gravitational physics

Benjamin Owen is currently a Professor of Physics at Texas Tech University. His research is focused on getting astrophysical results out of searches for gravitational waves with LIGO, the Laser Interferometer Gravitational-wave Observatory. He works on all aspects of this problem, both

independently and as part of the thousand-member LIGO Scientific Collaboration (LSC).

[Prof. Stephen Sekula](#) (SMU) – high energy experiment

Stephen Sekula is an Associate Professor of Physics at Southern Methodist University. The SMU ATLAS group, under his leadership has made significant contributions to the operations and upgrade of the experiment, with notable contributions to the development and maintenance of bottom-quark-initiated jet triggers and software contributions to the ATLAS Fast TracKer (FTK) system. The theme of this present effort is consistently the use of heavy quark flavors (bottom and charm) to probe the nature of the Higgs boson.

[Prof. Elena Cáceres](#) (UT Austin) – high-energy theory

Elena Cáceres is an Associate Professor in the Theory Group at the University of Texas at Austin. She is a theoretical physicist with research interests in string theory and gravity. Before arriving at UT, she was a Professor at Facultad de Ciencias, Universidad de Colima, Mexico. She has worked in different aspects of gauge/gravity duality, supergravity solutions and holography. Currently her interest is focused in the relationship between quantum information theory, gravity, and spacetime.

[Prof. Fabiano Rodrigues](#) (UT Dallas) – space physics

Fabiano Rodrigues is an Assistant Professor of Physics at the University of Texas at Dallas and a member of the Williams B. Hanson Center for Space Sciences. His research focuses on the physics of the upper

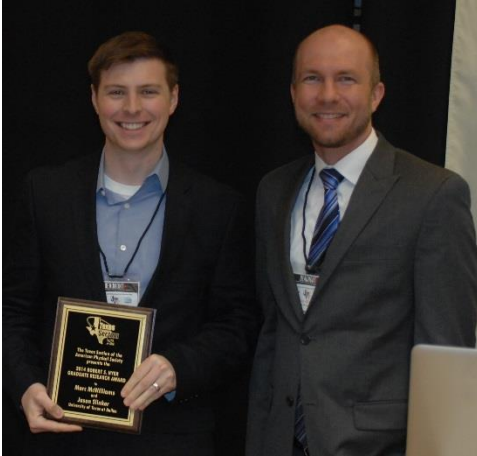
atmosphere, ionospheric electrodynamics and irregularities, development and application of remote sensing techniques for fundamental and applied studies of the upper atmosphere, numerical modeling studies of the thermosphere and ionosphere, and studies of ionospheric irregularity effects on signals used by global navigation satellite systems (GNSS).

[Prof. Louis Strigari](#) (Texas A&M) – astrophysics

Louis Strigari is an Assistant Professor at Texas A&M University where he is part of the Mitchell Institute for Fundamental Physics and Space Sciences. His research involves understanding astrophysical aspects of dark matter, and connecting these observations to particle dark matter theories. He works to understand data from high energy astrophysics experiments and from direct dark matter detection experiments. He utilizes numerical simulations and numerical algorithms to model data from dark matter-dominated galaxies.

HYER STUDENT RESEARCH AWARDS

The Robert S. Hyer Research Award will be presented at each TSAPS Fall Meeting to two pairs of recipients. The first pair will consist of a recipient who must have been a graduate student when the research was performed and this student's research advisor. The second pair will consist of a recipient who must have been an undergraduate student when the research was performed and that student's research advisor.



UTD student Mark McWilliams and UTD Professor Jason Slinker were presented the 2014 Hyer Award for their work in biomedical physics.

The only criterion is excellence, including potential impact in the relevant scientific community. The research must be in physics or a physics-related subject, and it must have been presented at a Texas APS meeting within the past two years by either the student or the advisor, both of whom must have been TSAPS members at the time. We do allow the research to be presented at the same meeting in which the award is presented.

HYER AWARD NOMINATIONS: The Texas Section of the APS is now accepting nominations for the Hyer Award for both undergraduate and graduate students and their mentors. Details about the award and the nomination process are available at <https://www.aps.org/units/tsaps/awards/hyer/>. The award winners will be announced at the Fall 2017 meeting ([TSAPS Fall 2017](#)).



SMU student Jasmine Kim presented her research on robotic 3D lattice printing of structures that she did while attending a summer research program at MIT. (Fall 2016 TSAPS)

TEXAS SECTION DISTINGUISHED SERVICE AWARD (TSAPS-DSA)

This award is to recognize individuals who have made outstanding contributions over several years to the Texas section of the APS. These contributions include leadership through service on the executive committee and/or TSAPS sponsored activities such as the Fall and Spring Regional conferences, or other activities that significantly promote excellence in Physics in the Texas region.

Award and nomination details are at <https://www.aps.org/units/tsaps/awards/tsaps-dsa>. The award winners will be announced at the Fall 2017 meeting ([TSAPS Fall 2017](#)).



Dr. Suresh Sharma, University of Texas at Arlington, received the TSAPS Outstanding Service Award in 2014.

STUDENT PRESENTATION AWARDS

The Texas Section of the American Physical Society recognizes outstanding student presentations with cash prizes. Graduate students and undergraduate students are judged in separate categories. Both oral and poster presentations are eligible to win. All student presentations are judged.

If you would like to help **judge the student presentations**, please sign up [here](#).

CONGRATULATIONS TO OUR NEWEST TSAPS AND TEXAS UNIVERSITY FELLOWS

Bittner, Eric R., University of Houston
Citation: For developing theoretical and computational descriptions of quantum dynamics in molecular systems, especially for their use in understanding the migration of energy and charge in molecular electronic excited states.

Brown, Robert G.W., American Institute of Physics
Citation: For leadership and pioneering contributions in research, development, and technology transfer of many commercially important optoelectronic concepts, devices, and applications.

Caruthers, James M., Purdue University
Citation: For substantial and innovative advancements in the physics and nonlinear mechanics of glassy polymers.

Chen, Yong P., Purdue University
Citation: For significant contributions to the material physics of chemical vapor deposition; and to the development of intrinsic 3-D topological insulators with transport dominated by Dirac surface states.

Cho, Kyeongjae, University of Texas at Dallas

Citation: For seminal contributions to the development and application of first principles methods in the study of nanoscale materials, and the application of rational material design approaches to develop metal alloy and transition metal oxide catalysts for clean energy technology.

Elabd, Yossef, Texas A&M University
Citation: For fundamental contributions to transport phenomena in ion-containing polymers.

Fiete, Gregory A., University of Texas at Austin

Citation: For contributions to the theory of correlated electron systems, including pioneering work on the spin-incoherent Luttinger liquid and interaction-driven topological phases.

Lang, Karol, University of Texas, Austin
Citation: For contributions to knowledge of neutrino oscillations and interactions through his technical work on the Main Injector Neutrino Oscillation Search programs at Fermilab and the SuperNEMO experiment in Europe, and by his leadership service and co-spokesperson roles for these international collaborations.

Lucchese, Robert, Texas A&M University
Citation: For his contributions to the theory, numerical treatment, and understanding of molecular photoionization processes, with seminal developments in body-frame scattering, molecular imaging, and strongfield rescattering.

Oberlack, Martin, Technische Universität Darmstadt

Citation: For pioneering the application of symmetry methods to study turbulence, combustion, stability theory, aerodynamic

noise and turbulence modeling, and for deriving new conservation laws in fluid mechanics.

Pasquali, Matteo Rice University

Citation: For fundamental contributions to the understanding of carbon nanotube and graphene soft phases, and for the development of routes for making novel carbon nanotube soft conductors for interfacing with biological systems.

Rappel, Wouter-Jan, University of California, San Diego

Citation: For the innovative development and application of nonequilibrium physics methods to living and nonliving systems.

Tutuc, Emanuel, University of Texas at Austin

Citation: For contributions to the physics of 2-D electron systems.

Yates, Steven W., University of Kentucky

Citation: For important advances in the study of collective nuclear excitations, and for the development of nuclear spectroscopic methods of use with fast neutron scattering reactions.

Yu, Edward [2016] Iowa State University

Citation: For his distinguished contributions to the field of efflux transporters, which mediate resistance to a variety of antimicrobials in bacteria, and his research into the crystallography of integral membrane proteins.



TSAPS Chair Jodi Cooley with SMU student presenters Jasmine Kim and and Jasmin Liu at the Fall 2016 TSAPS Meeting.

TSAPS CHAIR'S MESSAGE

Dear TSAPS Members:

Plans are well underway for this year's Joint Fall Meeting of the Texas Sections of the APS, AAPT and Zone 13 of the Society of Physics Students. Our colleagues on the local organizing committee at the University of Texas at Dallas are excited to be able to host the plenary and several of the parallel sessions in their new building, the Davidson-Gundy Alumni Center. As is traditional with our meetings, in addition to the contributions you will make, we have lined up a number of invited speakers who are accomplished in their fields and will deliver both plenary and parallel session talks. In addition, we will host a number of career-building workshops for our younger members and the AAPT is busy arranging workshops for attendees interested in the latest in physics education.

I would especially like to call your attention to a tradition that is of particular interest to me, the APS Texas Section Robert S. Hyer Awards. Each year at the fall meeting, the Texas Section presents two of these awards,

one to an undergraduate and their advisor and the second to a graduate student and their advisor. These awards are named after Robert S. Hyer, who at SMU in Dallas is best known as the founding president, but for those of us who are physicists we may know him best as the first American to successfully send a wireless transmission using a Hertzian apparatus that had been modified with a transceiver and receiver. He did this while at Southwestern University in Georgetown, TX in 1894. As exemplified by Hyer's own achievement, so quickly employing and improving on Hertz's early experimental results shortly after he published them, the criteria for the award is excellence in research; that the research be in physics or a physics related field; and that the research be presented by either the student or the advisor at a Texas Section meeting within two years of the date of the award, including the meeting that the award is presented.

These awards are very important to our students and colleagues. I am sure that we can all think back to key moments where being recognized with even a nomination for such an award made a difference — perhaps giving us the encouragement we needed to continue to pursue our studies in physics. A few years ago my former undergraduate student, Mayisha Nakib, and I were nominated and won the Hyer Award. At the time I was an untenured assistant professor who was struggling to connect with undergraduates — especially in large classroom teaching situations. Being recognized as a successful mentor of an outstanding student by peer faculty members was really important for me at that time. I also know that being recognized by this award was important for Mayisha in helping not only to boost her self-confidence, but to distinguish her on her applications to graduate schools.

This award is given by the Texas Section of the American Physical Society in a section-wide competition. To keep with the tradition of awarding it to our best graduate and undergraduate students and mentors, we need your help. Please nominate your best graduate and undergraduate student researchers and their mentors! Details on the award and nomination process can be found at

<https://www.aps.org/units/tsaps/awards/hyer/>. The application deadline for this year is September 21, 2017.

Sincerely,
Jodi A. Cooley

TSAPS EXECUTIVE COMMITTEE

Chair: Jodi Cooley (07/16 - 03/18)
SMU

Chair-Elect: Carlos Bertulani (04/17 -
03/18) Texas A&M Univ – Commerce

Vice Chair: Sally Hicks (04/17 - 03/18)
Univ of Dallas

Secretary/Treasurer: Walter Wilcox (04/17
- 03/20) Baylor Univ

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(04/16 - 03/19) Univ of Texas, San Antonio

Member-at-Large: Alexander Weiss
(04/16 - 03/19) Univ of Texas, Arlington

Member-at-Large: Michael Kesden (04/17
- 03/20) Univ of Texas, Dallas

Member-at-Large: Christina Markert
(04/17 - 03/20) Univ of Texas, Austin

Assigned Council Representative

Carlos Wexler
Prairie Section

Newsletter Editors:

Jason Slinker (Univ Texas at Dallas),
Michael Kesden (Univ Texas at Dallas), and
Sally Hicks (Univ. of Dallas)