

2013 FALL MEETING AT UNIVERSITY OF TEXAS AT BROWNSVILLE

Meeting website: <http://www.txstate.edu/physics/TSAPS>

The Joint Fall 2013 Meeting of the Texas Sections of the American Physical Society, American Association of Physics Teachers and the Society of Physics Students will be hosted by the Department of Physics and Astronomy and the Center for Gravitational Wave Astronomy at University of Texas at Brownsville in Brownsville, TX on October 10-12, 2013. The members of the organizing committee are Karen Martirosyan (Chair), Malik Rakhmanov, Volker Quetschke, Ahmed Touhami, Cristina Torres, and Robert Stone of University of Texas at Brownsville, and Mohammad Hannan and Steven Tidrow of University of Texas at Pan American.

Invited speakers include Nobel Prize Winner in Chemistry Robert Curl, Barry Barish, Ray Baughman, Alex Simonyan, Gabriela Gonzalez and Frederick Jenet.

A special lunch workshop on Saturday, October 12 will focus on Industrial Careers for Physicists and is jointly sponsored by the Forum on Industrial and Applied Physics. *Registration for this special workshop is required.*

Deadlines ---

Abstract Submission: September 13

<http://abstracts.aps.org/>

Student Travel Awards: September 16

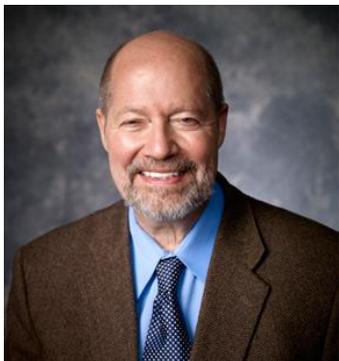
<http://www.txstate.edu/physics/TSAPS/Student-Travel-and-Presentation-Awards.html>

Early Registration: September 27, 2013

https://www.aps.org/memb-sec/meeting/startpage.cfm?event_id=1097

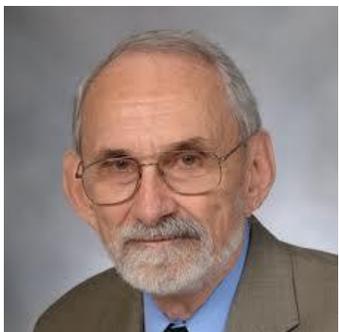
There will be multiple sessions of APS, AAPT, and SPS, contributed papers on various topics, workshops organized by AAPT, and an outstanding collection of plenary talks on research at the frontiers of Physics. Special activities at the meeting will mark the 10th anniversary of the Center for Gravitational Wave Astronomy, which was created by a grant from the University Research Centers program administered by NASA.

Banquet Speaker

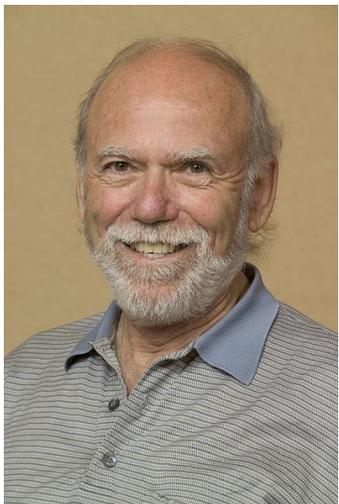


Dr. Ray Baughman is a Robert A. Welch Professor of Chemistry and the Director of NanoTech Institute at the University of Texas at Dallas. Dr. Baughman is a member of The National Academy of Engineering and The Academy of Medicine, Engineering and Science of Texas. Dr. Baughman is also a Fellow of the American Physical Society.

Plenary Speakers



Dr. Robert Curl is an emeritus professor of chemistry at Rice University. Dr. Curl was awarded the Nobel Prize in Chemistry in 1996 for the discovery of Fullerene along with Dr. Richard Smalley and Dr. Harold Kroto.



Dr. Barry Barish is currently the Director of the Global Design Effort for the International Linear Collider and Linde Professor of Physics, Emeritus at the California Institute of Technology.



Dr. Alex Simonian is a Professor of materials research and education center of Auburn University and former program director at National Science Foundation.



Dr. Gabriela González is a Professor of Physics and Astronomy, Louisiana State University and Spokesperson, LIGO Scientific Collaboration.



Dr. Frederick Jenet is an Associate Professor of Physics and Astronomy, Houston Endowment Chair of Science, Math, and Technology, and Chair, North American NanoHertz Observatory for Gravitational Waves and Director, Center for Advanced Radio Astronomy at University of Texas at Brownsville

Student Presentation Awards

Oral and poster presentations given by graduate and undergraduate students will be evaluated by a panel of judges organized by Prof. Michael Sadler (Abilene Christian University). Several cash awards will be given for the best presentations in each of these categories.

Workshop on Industrial Careers for Physicists on October 12 (Saturday lunch)

Many of our Physics majors and Physics PhDs lead rewarding careers outside of academia, finding jobs in industry, national laboratories, or even non-scientific fields. How do physicists find and get hired to these jobs? In collaboration with the APS Forum on Industrial and Applied Physics (FIAP) and APS Headquarters, the 2013 Fall TSAPS section presents a unique workshop to aid undergraduates, graduate students, and post docs in unraveling the process of finding a great job in industry and other non-academic jobs.

This 90-minute session will begin with a pizza lunch and will feature two prominent physicists, Dr. John Rumble and Dr. John Rodriguez, who have worked in technical and non-technical companies and national laboratories. The workshop will cover topics such as:

- How do I learn about jobs for physicists outside of academia?
- How do I prepare myself to be qualified for these jobs?
- How do I write a resume when applying to an industry job?
- How do I meet industrial physicists?
- What is an industry interview like and how can I prepare for it?
- What can I expect to do as an industrial physicist?
- What other non-physics careers that might interest me?
- How do I start?

Dr. John Rumble is the Chair-Elect of FIAP. John has considerable industrial physics and materials science experience. In recent years, he has been active in the area of nanomaterials. Dr. Rumble will talk about how to find, prepare for, and secure non-academic jobs. For many years, John has been a leader in scientific and technical (S&T) data, including physics, materials, and engineering. For 24 years, he worked for the National Institute of Standards and Technology, serving as Director of the NIST Standard Reference Data Program and Chief of the NIST Measurement Services Division. From 2004 to 2011, John was Executive VP of Information International Associates, an information management company in Oak Ridge, TN. Dr. Rumble is now President of R&R Data Services, in Gaithersburg MD.

Dr. John Rodriguez will also present a talk about how to find, prepare for, and get jobs in high-tech industry. He is a Distinguished Member of the Technical Staff in the Analog Technology Development Department of Texas Instruments, Dallas TX.

For more information please contact the chair of the Local Organizing Committee Karen Martirosyan, phone (956) 882-6736, karen.martirosyan@utb.edu

2013 HYER STUDENT RESEARCH AWARDS

At each Fall meeting the TSAPS presents a Robert S. Hyer Research Award for excellence in research to an undergraduate student and their faculty advisor, and to a graduate student and their faculty advisor. Each award consists of a plaque and a check for \$500. Each student awardee is invited to give a 20-minute talk.

Undergraduate Research

Nalin Ratnayeke (left) and Prof. Vernita Gordon (right)



The 2013 Hyer Award for undergraduate research goes to Nalin Ratnayeke (left) and his advisor Prof. Vernita Gordon (right) from the University of Texas at Austin for their Biophysics research.

Nalin is a double major in Physics and Biology. Since 2011, he has been working with Dr. Gordon at the Center of Nonlinear Dynamics at UT-Austin. His research project involves studying cellular response to mechanical changes and how this cellular behavior relates to cancer. During his research project, Nalin worked with human cell cultures, and he learned aseptic techniques, microscopy, and various imaging analysis techniques. Nalin is been awarded eight scholarships and awards, including the Dr. H. Franklyn Alexander Endowed Scholarship, and the Walter E. Millet Endowed Undergraduate Scholarship in Physics.

Prof. Gordon joined the Physics faculty at the University of Texas in 2010. She received a B.Sc. Degree in Physics and Mathematics from Vanderbilt University and a PhD. in Physics from Harvard University. At UT Austin, she has set up a flourishing Biophysics group and is well published.

Graduate Research

Michael Troxel (left) and Prof. Mustapha Ishak (right).



The 2013 Robert S. Hyer Research Award for graduate research goes to Michael Troxel and Prof. Mustapha Ishak from the University of Texas at Dallas for their work on Cosmic Shear.

Michael's Ph.D. thesis research concerns theoretical studies of gravitational lensing by the large-scale structure of our universe. The large-scale structure is like a massive cosmic webmass along the line of sight to distant galaxies distorts space-time around it, as predicted by Einstein's General Theory of Relativity. This results in the deflection of light rays from distant galaxies and leads to tiny distortions in the observed shapes of these galaxies. This cosmic shear signal is manifest in statistically correlated shapes of galaxies that are close on the sky (since their light travels past similar parts of the cosmic web) with the correlation falling off for galaxies that are more widely separated. The great importance of cosmic shear is that it allows access to information on dark matter and dark energy in the universe; the cosmic web itself is primarily dark matter. In addition, the amount and properties of dark energy are imprinted on the growth of the cosmic web from the tiny mass fluctuations present at earlier times. Michael's thesis research addresses a very critical aspect of harnessing cosmic shear as a cosmological tool. The Dark Energy Task Force of Albrecht et al. identified cosmic shear as the most promising way to study dark energy, which is thought to dominate the mass-energy density of the universe. One of the most important systematics arises from the intrinsic alignments of galaxies: galaxies formed near each other in a similar tidal gravitational field tend to have similar shapes. This intrinsic alignment signal and the cross-term with cosmic shear must be dealt with, since it contaminates the measurement of cosmological parameters.

Prof. Ishak-Boushaki is well known in the cosmology community, prolific in his publications, especially jointly with his students. He is a very successful and conscientious mentor who, in some magical way, carves out large chunks of time to spend with his students, in spite of the many other demands on his time.

2013 TSAPS DISTINGUISHED SERVICE AWARD

This award is to recognize individuals who have made outstanding contributions 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. Professor Bruce Miller of Texas Christian University is the recipient of the 2013 TSAPS Distinguished Service Award.

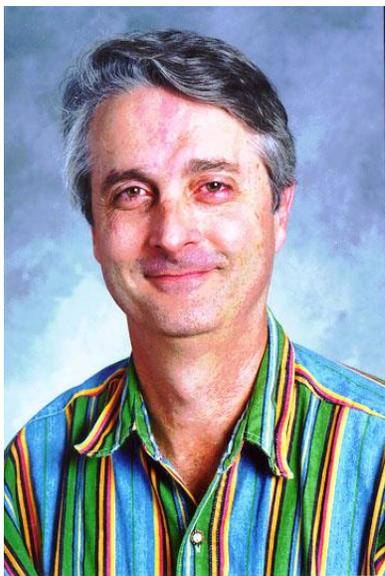


Professor Bruce Miller has made multiple contributions to TSAPS over the years. His service to TSAPS began in 1981 where he was present at the organizational meeting. Since that time, he has remained very active in the TSAPS. He and his students regularly present papers at TSAPS meetings. Prof. Miller has demonstrated strong leadership, serving in the chair line among other TSAPS responsibilities. He served as the TSAPS Chair when the Distinguished Service Awards were first discussed and approved. Additionally, he was TSAPS Chair when the Hyer Student Research Awards were first proposed and discussed. Prof. Miller has been instrumental in getting approval from the National APS for these awards

NEW MEMBERS OF THE TSAPS EXECUTIVE COMMITTEE

The votes of TSAPS 2013 Election have been counted. The new members of the Executive Committee starting their terms in Fall 2013 are

Peter McIntyre (mcintyre@physics.tamu.edu) – Vice-Chair (04/03 – 03/14)



Dr. Peter Mastin McIntyre is Mitchell-Heep Professor of Experimental Physics at Texas A&M University. He studied at the University of Chicago, where he received his Ph.D. in 1973. In 1975, he has performed experiments with colliding beams at CERN in Geneva, Switzerland. Afterwards, he joined Harvard University as Assistant Professor. In 1976, he was the first to propose to make colliding beams of protons and antiprotons using the large synchrotrons at Fermilab and at CERN. This work led to the discovery of the weak bosons at CERN in 1982. He has developed several techniques for cooling intense beams of antiprotons. In 1980 he joined the faculty of Texas A&M University, that same year he was awarded an IR100 award for the invention of a technique for high-efficiency collection of intense electron beams. He is currently developing a design for accelerator-driven subcritical fission in a molten salt core (ADSMS), in which proton beams from a flux-coupled stack of strong-focusing cyclotrons are used to drive subcritical fission in a core of molten salt. This technology

addresses all of the criteria for a green nuclear technology. Peter is an A.P. Sloan Foundation fellow, a Fellow of the American Physical Society (2001), and is listed in Who's Who in America. He serves as President of Accelerator Technology Corp., a small high-technology company. Dr. McIntyre has been active in the Texas Section of APS for more than two decades and served as Chair in 1991-92.

Donna Stokes (dstokes@uh.edu) – Member at Large (04/13 – 03/16)



Dr. Donna Stokes is an associate professor of physics at the University of Houston. Her scientific research focuses on understanding the structural, optical, and electrical properties of semiconductor materials for the development of novel detectors and lasers for infrared applications. She is also involved in physics education research with a focus on improving student performance in introductory physics courses. She is currently serving as the Undergraduate Academic Advisor for the Department of Physics, faculty advisor for the Society of Physics Students and the Sigma Pi Sigma and Mu Delta Pre-Health Association. She received her

BS in Physics from Southern University Baton Rouge (1988) and PhD in Physics from the University of Houston (1998). Prior to joining the faculty at UH, she was a postdoctoral researcher at Naval Research Laboratory (1998-2001). She is the recipient of the NSF Early Career Award (2002) and the University of Houston Advising Award (2011).

Walter Wilcox (walter_wilcox@baylor.edu) – Member at Large (04/13 – 03/16)



Dr. Walter Wilcox is Professor of Physics and has served as Graduate Program Director for the Baylor University Physics Department. He earned a Ph.D. in elementary particle physics from UCLA in 1981 under the guidance of Julian Schwinger. Walter has taught and performed research at Oklahoma State University (1981-1983), TRIUMF Laboratory (1983-1985) and the University of Kentucky (1985-1986). He has been awarded research grants from the National Science Foundation in theoretical physics, and, in collaboration with Ron Morgan, in applied mathematics. His research focuses on the development and use of numerical methods in the field of theoretical physics known as "lattice QCD". Walter is equally interested in teaching physics, and has authored a new undergraduate quantum mechanics textbook, "Quantum Principles and Particles" (CRC

Press). Walter developed many online physics course materials at the Baylor "Open Text Project" website, and has also participated in the Central Texas Regional Science Fair as an election judge for more than 20 years.

The TSAPS executive committee would like to sincerely thank Felicia Manciu, Wayne Kinnison, and Cristian Bahrim for running in the election and Mario Diaz, Sacha Kopp, and Carlos Bertulani for completing their terms on the TSAPS Executive Committee.

MARK YOUR CALENDARS

Our future meetings are:

Spring 2014 meeting (March 20 – March 22, 2014)

The spring 2014 TSAPS-TSAAPT-SPS/Zone-13 meeting will be at Abilene Christian University on Thursday-Saturday, March 20-22, 2014.

Fall 2014 meeting (October 17 – October 19, 2014)

The Fall 2014 TSAPS-TSAAPT-SPS/Zone-13 meeting will be at Texas A&M University (TAMU) in College Station. The meeting will open with registration on Friday evening, October 17th, and will conclude by mid-day on Sunday, October 19th. *Note the opening on a Friday rather than a Thursday evening.* The meeting will be held in the acclaimed new TAMU facilities, the George P. Mitchell Building and the George P. and Cynthia Woods Mitchell Institute for Fundamental Physics and Astronomy. The meeting organizers are Professors George R. Welch (TAMU Physics Department Chair), Rupak Mahapatra, Siu Chin, and Peter McIntyre (TSAPS Chair-Elect for 2014-15).

TSAPS EXECUTIVE COMMITTEE**Chair:** Kelvin Cheng (04/13 - 03/14)

Trinity University

Chair-Elect: Michael Sadler (04/13 - 03/14)

Abilene Christian University

Vice-Chair: Peter McIntyre (04/13 - 03/14)

Texas A&M University

Past-Chair: Harry Swinney (04/13 - 03/14)

University of Texas at Austin

Secretary/Treasurer: Heather Galloway (04/11 - 03/14)

Texas State University - San Marcos

Council Observer: Suresh Sharma (04/11 - 03/14)

University of Texas at Arlington

Member-at-Large: Donna Stokes (04/13 - 03/16)

University of Houston

Member-at-Large: Walter Wilcox (04/13 - 03/16)

Baylor University

Member-at-Large: Marjorie Corcoran (04/11- 03/14)

Rice University

Member-at-Large: Jennifer Steele (04/11 - 03/14)

Trinity University

Newsletter editor:

Kelvin Cheng (kcheng1@trinity.edu)

Disclaimer:

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