

# Physics

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*Master of Arts  
Doctor of Philosophy*

## For More Information

**Campus address:** Physics, Math, & Astronomy Building (PMA) 7.326, phone (512) 471-1664, fax (512) 471-9637; campus mail code: C1600

**Mailing address:** The University of Texas at Austin, Graduate Program, Department of Physics, 2515 Speedway Stop C1600, Austin TX 78712

**E-mail:** [graduate@physics.utexas.edu](mailto:graduate@physics.utexas.edu)

**URL:** <http://www.ph.utexas.edu/>

## Facilities for Graduate Work

Modern facilities for graduate study and research include a large-scale cryogenic laboratory; extensive facilities for tunneling and force microscopy and nanostructure characterization, SQUID magnetometry, and electron spectroscopy; well-equipped laboratories in optical spectroscopy, quantum optics, femtosecond spectroscopy and diagnostics, and surface scattering; and facilities including two table-top 100-terawatt lasers for strong-field physics, studies of wakefield electron acceleration, and a pulsed 50T magnetic field for studies of laser heating of magnetized plasmas, and two petawatt lasers (one Ti-sapphire providing 30J in 30fs and another glass laser at 200J in 150fs). The department is a member of LASER NET, a DOE supported consortium of laser laboratories for high energy density plasma physics. The Center for Gravitational Physics conducts research in conjunction with several Gravitational Wave Observatories (ground-based US LIGO, Italian/French Virgo, Japanese Kagra, and the space-based ESA/NASA mission LISA). Plasma physics experiments are conducted at the major national tokamaks in Boston and San Diego. Experiments in high-energy heavy ion nuclear and particle physics are conducted at large accelerator facilities such as the large hadron collider and ALICE at CERN, the STAR detector on the RHIC collider at Brookhaven National Lab, neutrino production at FERMI National Laboratory (Illinois), and Germany's Deutsches Electron Synchrotron.

Theoretical work in plasma physics, condensed matter physics, acoustics, nonlinear dynamics, relativity, astrophysics, statistical mechanics, and particle theory is conducted within the Department of Physics.

Students have access to excellent computer and library facilities, including computers at TACC: Ranger, a multiprocessor computer at 504 Tflops and Stampede which provides 3.5 Pflops in a computer cluster and 7+ Pflops of coprocessor support.

The department maintains and staffs a machine shop, student workshop, low-temperature and high-vacuum shop, and an electronics design and repair shop.

## Areas of Study

The Department of Physics has active research groups in ten main areas of current physics research: atomic, molecular, and optical physics; classical physics; nuclear physics; statistical and thermal physics; fusion plasma physics and high energy density plasma physics; condensed matter physics; biophysics; nonlinear dynamics; gravitation and cosmology; and elementary particle physics. In most of these fields both experimental and theoretical work is in progress.

## Graduate Studies Committee

The following faculty members served on the Graduate Studies Committee (GSC) in the spring 2024 semester.

Scott J Aaronson  
Jose R Alvarado  
Timothy R Andeen Jr  
Edoardo Baldini  
Kimberly Kay Boddy  
Boris Breizman  
Elena Caceres  
James R Chelikowsky  
Hsin-Yu Chen  
William R Coker  
Alex de Lozanne  
Alexander A Demkov  
Jacques Distler  
Todd Ditmire  
Michael Wayne Downer  
Willy Fischler  
Richard Fitzpatrick  
Ernst-Ludwig Florin  
Katherine Freese  
Nicholas Galitzki  
Kenneth W Gentle  
William Gilpin  
Feliciano Giustino  
Vernita Gordon  
Richard D Hazeltine  
Bjorn Hegelich  
Daniel J Heinzen  
Nick Hunter-Jones  
Matteo Ippoliti  
Vadim Kaplunovsky  
Andreas Karch  
John W Keto

Can Kilic  
Scott Kravitz  
Paul D Kunz  
Pablo Laguna  
Keji Lai  
Sheldon Landsberger  
Karol Lang  
Xiaoqin Li  
Allan H Macdonald  
Michael P Marder  
Christina Markert  
John T Markert  
Richard A Matzner  
Philip J Morrison  
Peter Onyisi  
Raymond Lee Orbach  
Sonia Paban  
Mark G Raizen  
Linda E Reichl  
Paul R Shapiro  
Chih-Kang Shih  
Deirdre Shoemaker  
Greg O Sitz  
Anna Tenerani  
Devarajan Thirumalai  
Deepa Thomas  
Maxim Tsoi  
Emanuel Tutuc  
Zhen Yao  
Kent Zheng  
Aaron Zimmerman