

Physics

*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

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 2025 semester.

Scott J Aaronson
Jose R Alvarado
Timothy R Andeen Jr
Edoardo Baldini
Kimberly Kay Boddy
Boris Breizman
Joshua W Burby
Elena Caceres
James R Chelikowsky
Hsin-Yu Chen
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
Bjorn Hegelich
Daniel J Heinzen
Nick Hunter-Jones
Matteo Ippoliti
Vadim Kaplunovsky
Andreas Karch
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
Mark G Raizen
Linda E Reichl
Amaresh Sahu
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