

Department/School: Physics and Astronomy

utrgv.edu/physics

Vision: The vision of the Department of Physics and Astronomy is:

- To become a leader in Gravitational Wave Astronomy, Space research and commercialization, Computational, Theoretical, Experimental Physics, and Physics Education, by conducting cutting-edge research, serving the region and beyond.
- To train and graduate a diverse body of undergraduate and graduate students in innovative and dynamic programs, thus developing the next generation of qualified scientists, educators, and highly skilled technical workforce, engaged in academic and industry positions.
- To initiate and implement innovative bridge programs in research and education to further enhance student success.
- To serve UTRGV's mission as a Hispanic-Serving Institution, thus creating opportunities for underrepresented students.
- To actively engage the diverse and bicultural local community from our distributed geographical locations into departmental public programs and outreach efforts.

Mission: The department of Physics and Astronomy at UTRGV aspires to Tier I excellence in research, teaching, and innovation to emerge as global leader in experimental, theoretical and computational physics, and to serve the regional, state and national community through dissemination of education and active professional engagement.

PROFILE

Majors: BS in Physics

Graduate Programs: MS in Physics, MSIS in Science and Technology.

Students

- Number of Students: 96
Undergraduate: 55 ; Graduate MS: 23; Graduate MSIS: 11; Cooperative PhD: 7.
- Characteristics: graduate and undergraduate.
- Preliminary authority of Physics PhD program.

Faculty

- Number of Faculty: 40
- Ranks: Professors 11 Associate Prof. 9 Assistant Prof. 3 Lecturers 14

Campus Program Offering

100 % of program/courses are available at both campuses (*face-to-face, online, hybrid, or ITV*)
100 % of program/courses in the first 2 years of study per major map are available at both campuses (*face-to-face, online, hybrid, ITV*)
100 % of program/courses in the upper division are available at both campuses (*face-to-face, online, hybrid, ITV*)
100 % of graduate program/courses are available at both campuses (*face-to-face, online, hybrid, ITV*)
Note: You may include details of availability by campus and any other related information that would be helpful.

Stats & Highlights:

- \$14+ million in external funding since 2016.
- 11 PhD graduates (through the Cooperative PhD pipeline), 7 more to graduate soon.
- Department members win Breakthrough Prize in Fundamental Physics in 2016.
- Three ROTA award winners among department faculty members.
- Two PhysTEC award winners among department faculty members.
- Small student-to-instructor ratio in upper division classes (typically 12:1 on an average), individual mentoring
- Six cutting edge research laboratories funded by ~\$15 million federal funding.
- Astronomy Telescopes/observatories in local (Rancho Viejo) and international destinations (Argentina).
- Two research centers in Gravitational Wave Astronomy and Advanced Radio Astronomy.
- Strong community engagement through Society of Physics Students, Open Days, Public Forums.
- Graduating Master's students in top level PhD programs across the globe.
- Strong global research collaboration.
- Strong weekly colloquium series with top experts in Physics and Astronomy.
- Two Master's programs in Physics and in Science & Technology.
- Innovative Bridge Program to ensure student success.
- STARGATE, a unique space research and commercialization program, with state and local funding ~\$20 million.
- PHYA faculty member as National Science Foundation Astronomy Program Director
- UTRGV Physics PhD program in final stages of development.
- Two Astronomy classes offered fully in Spanish.

Success Stories/"Bragging":

Student Success

- Society of Physics Students win National Chapter recognition.
- Born in Brownsville and raised in Ciudad Victoria, Mexico, Mr. Sergio Cantu's aptitude for mathematics and physics led him to join the legacy institution University of Texas, Brownsville undergraduate physics program, where his talent was developed through a series of undergraduate research opportunities under the mentorship of (now) UTRGV faculty members. Sergio Cantu won the prestigious NSF Graduate Fellowship. He is pursuing PhD in Atomic Physics at MIT.
- Mr. Kareem Wahid, a BS Physics student at the legacy institution University of Texas-Pan American, and later a graduate of UTRGV, is in the prestigious MD/PhD program at the MD Anderson Cancer Center. He is a bright example that Physics graduates have highly successful careers in a wider range of disciplines.
- Carson Scholar Ms. Liliana Ruiz Diaz received both BS and MS degrees in Physics at the legacy institution University of Texas Brownsville. She was accepted into the prestigious College of Optical Sciences at the University of Arizona from where she graduated with a PhD. She is an active advocate of STEM education for women! Her research was on development of optical systems to harvest sunlight.
- Mr. Jose Martinez, BS Physics graduate from legacy institution University of Texas, Brownsville, obtained PhD in Astronomy at the Max Planck Institute in Bonn, Germany. He is now employed as a scientist there. As a graduate student at UT Brownsville, Jose co-discovered the 9th binary pulsar known in the universe.
- Mr. Erik Vallarino, a former MS Physics graduate from the legacy institution UT Brownsville, won the Yale Educator Award! Mr. Vallarino is now a Physics teacher in San Benito High School.
- Fatemeh Mostafavikhatam, a UTRGV graduate student from Iran studying physics, received the UTRGV International Women's Day award for Outstanding International Female Student-Graduate Student.

Faculty Success

- Faculty and students at UTRGV Physics and Astronomy department are co-recipients (with the LIGO Scientific Collaboration) of the prestigious Breakthrough Prize in Fundamental Physics in 2016 for their contribution to the discovery of Gravitational Waves.
- Steady annual average external research funding of ~\$4.5 million.
- On an average, 60+ high impact publications by department faculty members per year.
- Three ROTA award winners among department faculty members.
- Two PhysTEC award winners among department faculty members.

Traditions:

1. The Physics and Astronomy Holiday Party is well known. It is celebrated each year in early December, usually the day after the last day of the Fall classes. The venue alternates each year between Brownsville and Edinburg. The party is attended by faculty members, staff members, and students from both Brownsville and Edinburg campuses. It has been a great event to foster collegiality, friendliness, and integration.
2. The department chair announces 'heads above the crowd' achievements by faculty, staff and students to the whole department. This includes publications in Nature, Phys. Rev. Letters and equivalent, patents, publication of research books, important milestones by students, major external grants, and awards.
3. The department has an Open Day in Spring, where local high school students and teachers are invited on both campuses and a vibrant program is chalked out to make them aware of the opportunities the department and the University offers.

Mantra/Slogan: "Reaching out to all corners of the Universe: Excellence in Education and Research"