

Center for Gravitational Wave Astronomy

PRESS RELEASE
(For immediate release)

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NSF funds a partnership between Texas Southmost College and UTRGV in Multi-messenger Astronomy

A new research and education partnership in astronomy will be developed between the University of Texas Rio Grande Valley (UTRGV) and Texas Southmost College (TSC) to conduct research in multi-messenger and time domain astronomy funded by the National Science Foundation. Dr. Mario Diaz, the director of the Center for Gravitational Wave Astronomy and a Professor in the Department of Physics and Astronomy at UTRGV is the Principal Investigator for the award which totals \$230,000 over three years. Ms. Martha Casquette and Mr. Robert Stone, UTRGV's legacy institution UTB alumni and Physics instructors at TSC are coPIs. This partnership will provide a pathway for Hispanic community college students in South Texas to actively participate in astronomy research. A distinctive feature of the program is the strengthening of a natural STEM ecosystem built within the community. The partnership will provide and sustain several coordinated activities: (1) regular weekly meetings with the UTRGV mentors (graduate students and the principal investigator) and the TSC participating students and faculty; (2) one summer workshop to train students in photometry, astrometry, observational techniques and python coding in astronomy, including machine learning techniques; (3) regular observations at the Cristina Torres Memorial Astronomical Observatory (CTMO), located at Resaca de la Palma State Park and operated by UTRGV, (4) monthly seminars in relevant astronomy and astrophysics topics and (5) annual presentations at regional meetings from participating students. The partnership also has the capacity to reach a large audience in South Texas. The participating students will be asked to assist with the regular Astronomy at the Park events, when the CTMO is open to the public. Astronomy at the Park is organized jointly with the South Texas Astronomical Society (STARS), a nonprofit amateur astronomer organization.

This project creates a clear pathway into research for Hispanic community college students, a group with very low representation in astronomy. The research projects in which students will be involved are in the area of time domain astronomy, and in particular, the optical follow-up of gravitational wave events. The rapid localization and accurate characterization of electromagnetic emission associated with the merger of two neutron stars (or a neutron star and a black hole) can make significant contributions to the understanding of the production of heavy elements in the universe

through nuclear rapid reaction (called nuclear r-) processes. The associated gravitational wave information has the potential to yield estimates of the expansion rate of the Universe (the Hubble constant), which complement, and are competitive with current techniques. The activities proposed will make these students relevant contributors to the development of multi-messenger astronomy. This award advances the goals of the National Science Foundation Windows on the Universe Big Idea.