

## Center for Gravitational Wave Astronomy

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### **2017 Nobel Prize in Physics Awarded for the Detection of Gravitational Waves**

The Nobel Prize in Physics 2017 was awarded to Rainer Weiss, a professor at the Massachusetts Institute of Technology, and Kip Thorne and Barry Barish, both of the California Institute of Technology. Profs. R Weiss and K. Thorne are the founders of the LIGO project.

On September 14, 2015 the twin LIGO (Laser Interferometer Gravitational Wave Observatory) detected for the first time gravitational waves originated in the merger of two Black Holes. These observed ripples in the fabric of spacetime confirmed a major longstanding prediction of Albert Einstein's 1915 general theory of relativity, and opened an unprecedented new window onto the cosmos.

In announcing the award, the Royal Swedish Academy called it "a discovery that shook the world."

LIGO is funded by NSF and operated by Caltech and MIT, which conceived and built the project. More than 1,200 scientists from around the world participate in the effort through the LIGO Scientific Collaboration.

The Center for Gravitational Wave Astronomy is a member of the LIGO Scientific Collaboration since 1998. The University of Texas Rio Grande Valley houses the Center for Gravitational Wave Astronomy, which was founded in 2003 with grants from the National Aeronautic Space Administration and the National Science Foundation. The CGWA has the largest group of gravitational-wave researchers in Texas and one of the largest in the USA involved in LIGO Scientific Collaboration global research effort. Its scientists and student researchers are key contributors to the first direct detection of gravitational waves.

Dr. Mario Díaz, CGWA director expressed: "The Nobel Prize in Physics to the founders and leaders of LIGO is a well deserved award. It is also a testimony to the joint effort of the more than thousand scientists who worked together to make the discovery gravitational waves a reality".

UTRGV scientists and students have been involved for almost twenty years now in the development of core technologies and instrumentation used by the LIGO detectors, installation and commissioning of hardware for the detectors at the Hanford and

Livingston sites, modeling of noise sources that can contaminate the data, the development of new algorithms that analyze the data in search of gravitational-wave signals and follow-up searches with optical telescopes that try to catch the optical counterpart of these events.

Members of the LIGO Scientific Collaboration are CGWA and UTRGV faculty members Profs. Teviet Creighton, Mario Diaz (CGWA director), Soma Mukherjee, Volker Quetschke, Malik Rakhmanov, Joseph Romano and graduate students Karla Ramirez, Robert Stone, Darkhan Tuyenbayev, Wenhui Wang and former graduate student Dr. Guillermo Valdes, now a Louisiana State University scientist working at the at the LIGO Laboratory in Livingston.

Media contact:

Dr. Mario Díaz

Director CGWA

mario.diaz@utrgv.edu