

GRAVITATIONAL WAVES

Eureka moment for IIT-G'nagar

A team from the institute, led by Dr Anand Sengupta, has co-authored the landmark discovery paper along with 35 other scientists

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As the news of the revolutionary discovery of gravitational waves, or ripples in space-time, spread across the globe, IIT Gandhinagar, too, basked in the glory of the breakthrough.

Besides the several teams of researchers behind the discovery, a group from the institute led by Dr Anand Sengupta, assistant professor, also made a small contribution. In an official communication, IIT Gandhinagar states that its scientists co-authored the landmark discovery paper, along with 35 others.

The discovery was made by the Laser Interferometer Gravitational-wave Observatory (LIGO) Scientific Collaboration, a group of more than 1,000 scientists from universities around the US as well as in 14 other countries. IIT-Gn group is part of the LIGO Scientific Collaboration that works under the aegis of Indian Initiative in Gravitational-Wave Observations (IndIGO) — a consortium of scientists from nine Indian research institutes and universities who contributed to the discovery.

“Almost everything we know about the universe has been through the detection of light at different wavelengths. As gravitational waves carry different information about the nature of gravity and about their dramatic origin, this discovery has thrown open a fundamentally new way of observing the cosmos.

“These waves are quite faint and challenging to detect. Special data processing techniques are needed to detect them in the noisy detector data channels. Our research group has made important contribution in developing some of them and deploying them on supercomputers,” said Dr Sengupta, who had played an important role in the IndIGO’s interaction with the LIGO Scientific Collaboration. He was the principal investigator of IndIGO until 2014.

Dr Sengupta also played a key role in IndIGO’s efforts to set up a collaboration-wide computational facility at Inter University Centre for Astronomy and Astrophysics in Pune. Besides, he also contributed in building IndIGO community by organising various workshops and schools.

In the last four years, IIT Gandhinagar has become a partner in the global efforts for detection of gravitational waves by participating in the development of sensitive search algorithms using a network of terrestrial detectors and their deployment over automated data analysis workflows using high-throughput computing technology.



Dr Anand Sengupta is asst prof at IIT-Gn

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Gravitational waves are a measure of strain in space, an effect of the motion of large masses that stretches the fabric of space-time — a way of viewing space and time as a single, interwoven continuum. They travel at the speed of light and cannot be stopped or blocked by anything. The gravitational waves were detected on September 14, 2015 at 5.51 am Eastern Daylight Time by both of the twin Laser Interferometer Gravitational-wave Observatory (LIGO) detectors, located in Livingston, Louisiana, and Hanford, Washington, USA