

LIGO veteran gives talk about gravitational waves

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Caltech's Stan Whitcomb, who has been involved with nearly every aspect of the development and ultimate success of the Laser Interferometer Gravitational-wave Observatory (LIGO), will give a talk about the project's historic detection of gravitational waves on February 19 at the American Associate for the Advancement of Science (AAAS) meeting in Boston.

In September 2015, LIGO made the first direct observation of gravitational waves, ripples in space and time first predicted by Albert Einstein more than 100 years ago. The project's twin detectors—one in Hanford, Washington and the other in Livingston, Louisiana—registered the quivering waves from the titanic merger of two distant black holes.

Whitcomb will discuss the important of the discovery—how it confirmed Einstein's general theory of relativity and opened a new way of viewing the universe for astronomers. "This isn't inaccessible 'rocket science,'" says Whitcomb, who is currently retired but still serves as the chief scientist for LIGO. "With proper explanations, high school kids can understand most of the science behind LIGO."

He'll also talk about the technical challenges of the LIGO detectors, which, in order to detect gravitational waves, had to make measurements on imperceptibly tiny scales, down to subatomic levels where quantum fluctuations of matter influence measurements.

Though the notion of LIGO dates to the 1970s, the endeavor was still

taking shape when Whitcomb joined the project in 1980. At Caltech, he helped oversee the design and construction of LIGO's 40-meter prototype, where many of the ideas for the current instruments were tested. Whitcomb also served as the lead scientist for the construction of the initial LIGO detectors, and stayed active on the team until the project's momentous discovery in 2015.

Whitcomb retired on September 15, 2015, which coincidentally turned out to be one day after LIGO's big discovery. He recalls taking a walk with his wife on September 14 after reading the first reports of the detection and explaining to her that his retirement wasn't going to be as quiet as he thought. Part of Whitcomb's retirement work was to co-chair a committee to carefully evaluate the veracity of any signals in the unlikely event that any would be detected.

"I recognized the signal of gravitational waves right away," says Whitcomb. "But it was the committee's job to pick apart the signal and make sure it wasn't anything else but [gravitational waves](#). We spent months trying to throw cold water on the detection, until we were ultimately convinced it was the real thing."

Whitcomb's talk is part of a session entitled "Gravitational Waves: Communicating the Science and Wonder of LIGO," in which Lynn Cominsky from Sonoma State University and Joey Key from University of Washington will talk about LIGO's educational and outreach efforts.

More information: [aaas.confex.com/aaas/2017/webp ...
gram/Paper18865.html](http://aaas.confex.com/aaas/2017/webprogram/Paper18865.html)

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